IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Map of the Project Area

IFAD

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 | 29-04-2021

Abbreviations and Acronyms

AFR	Access to Finance Rwanda
AGRA	Alliance for a Green Africa
AH	Animal Husbandry
AIDS	Acquired Immune Deficiency Syndrome
AIF	Africa Improved Foods
AMIR	Rwanda Microfinance Association
AWPB	Annual Work Plan and Budget
BDF	Business Development Fund
BDS	Business Development Services
BDSP	Business Development Service Provider
BNR	National Bank of Rwanda
BRD	Rwanda Development Bank
CAADP	Comprehensive Africa Agriculture Development Programme
CBFI	Community-Based Financing Institution
CESB	Rwanda Capacity Development and Employment Services Board
CEO	Chief Executive Officer
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CGIAR	Consultative Group on International Agricultural Research
CIP	Crop Intensification Programme
CPM	Country Programme Manager
CPP	Constant Purchase Power Parity
CSA	Climate Smart Agriculture
CoEB	Center of Excellence in Biodiversity and Natural Resource Management
CPO	Country Programme Officer
DDP	District Development Plan
DFID	Department for International Development
EB	Executive Board
EDPRS	Economic Development and Poverty Reduction Strategy
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
EICV	Integrated Household Living Conditions Survey
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
FMA	Financial Management Assessment
FMD	Financial Management Division
FPIC	Free, Prior and Informed Consent
FS	Feasibility Study
FtMA	Farm to Market Alliance
FO	Farmers' Organization
GALS	Gender Action Learning System
GAP	Good Agricultural Practices

GC	General Conditions
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GoR	Government of Rwanda
GoS	Government of Spain
KWAMP	Kirehe community-based Watershed Management Project
HBC	Hydrographic Basin Committees
HDI	Human Development Index
HH	Household
HIV	Human Immunodeficiency Virus
HoReCO	Horticulture in Reality Cooperative
ICP	IFAD Client Portal
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFMIS	the Integrated Financial Management Information Systems
IMF	International Monetary Fund
IMTA	Irrigation Management Transfer Agreement
INDC	Intended Nationally Determined Contributions
IPM	Integrated Pest Management
IPRM	Integrated Project Risk Matrix
ITCZ	Inter Tropical Convergence Zone
IWUO	Irrigation Water User Organization
KIIWP	Kayonza Irrigation and Integrated Watershed Management Project
KM	Knowledge Management
KWAMP	Kirehe Community-based Watershed Management Project
LTB	Letter to The Borrower
LTR	Land Tenure Regularization
LUCP	Land Use Consolidation Policy
LWH	Land husbandry, Water harvesting and Hillside irrigation project
M&E	Monitoring and Evaluation
MDD-W	Minimum Dietary Diversity for Women
MES	Monitoring and Evaluation System
MFI	Micro Finance Institution
MG	Matching Grant
MIDIMAR	Ministry of Disaster Management and Refugees Affairs
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Finance and Economic Planning
MINALOC	Ministry of Local Government
MINICOM	Ministry of Trade and Industry
MINIRENA	Ministry of Lands, Environment, Forestry, Water and Mines
MIS	Management Information System
MoU	Memorandum of Understanding
MPCI	Multi-Peril Crop Insurance
MPI	Multi-Dimensional Poverty Index
MT	Metric Ton

MTR	Mid Term Review
MUV	Manufactures Unit Value
NCCLCDS	National Climate Change and Low-Carbon Development Strategy
NAEB	National Agriculture Export development Board
NAIS	National Agriculture Insurance Scheme
NGO	Non-Governmental Organization
NISR	National Institute of Statistics of Rwanda
NO	No Objection
NPV	Net Present Value
NRM	Natural Resources Management
NST	National Strategy for Transformation
NsWP	Nutrition Sensitive Water Productivity
OAG	Office of the Auditor General
O&M	Operation and Maintenance
ORMS	Operational Results Management System
p.a.	Per Annum
PA	Priority Area
PASP	Climate-resilient Post-harvest and Agribusiness Support Programme
PBG	Performance-based Grant
PBGF	Performance-based Grant Facility
PDR	Project Design Report
PEFA	Public Expenditure and Financial Accountability
PFI	Participating Financial Institution
PICSA	Participatory Climate Services for Agriculture
PPP	Purchasing Power Parity
PRICE	Project for Rural Income through Exports
PRM	Procurement Risk Matrix
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
RAP	Resettlement Action Plan
RB-COSOP	Results-Based Country Strategic Opportunities Programme
RCA	Rwanda Cooperative Agency
RDDP	Rwanda Dairy Development Project
REMA	Rwanda Environment Management Authority
RGB	Rwanda Governance Board
RPHC	Rwanda Population and Housing Census
RNRA	Rwanda National Resources Authority
RPPA	Rwanda Public Procurement Authority
RSSP	Rural Sector Support Programme
RWF	Rwandan Franc
RWFA	Rwanda Water and Forestry Authority
RYAF	Rwanda Youth in Agribusiness Forum
SACCO	Savings and Credit Cooperative
SCC	Sub-Catchment Committee
SC	Steering Committee
SDC	Sector Development Committee

SDG	Sustainable Development Goal
SOE	Statement of Expenditure
SPIU	Single Project Implementation Unit
SSIT	Small-Scale Irrigation Technology
SSTC	South-south and Triangular Cooperation
STARLIT	Strengthening Agricultural Resilience through Learning and Innovation
STARS	Strengthening African Rural Smallholders
SWC	Soil and Water Conservation
TA	Technical Assistance
TAF	Technical Assistance Facility
TBD	To Be Determined
TLST	Time and Labour Saving Technology
ToC	Theory of Change
ToT	Training of Trainers
UNDAP	United Nations Development Assistance Plan for Rwanda
UNEP	United Nations Environment Programme
US$	United States Dollar
VC	Value Chain
WA	Withdrawal Application
WBG	World Bank Group
WEAI	Women's Empowerment in Agriculture Index
WFP	World Food Programme
WHO	World Health Organization
WoP	Without Project
WP	With Project
WRSI	Water Requirement Satisfaction Index
WLUO	Water for Livestock User Organization
WUO	Water User Organization

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

☐ Gender transformational ☑ Youth sensitive ☑ Nutrition sensitive ☑ Climate finance

IFAD Adaptation Finance	$4,718,000
IFAD Mitigation Finance	$0
Total IFAD Climate-focused Finance	$4,718,000

Executive Summary

I. Context

The Eastern province was hit by a severe drought in 2016, followed by two years of poor rains. GoR and IFAD started preparing in late 2018 the "Kayonza Irrigation and Integrated Watershed Management Project (KIIWP)" to restore the livelihoods among the local communities and boosting their economy. As the proposed KIIWP envisaged environmental Category A interventions, GoR and IFAD agreed to design and implement KIIWP in two phases. Phase one (KIIWP1) was approved by the Executive Board (EB) of IFAD on 2 May 2019 and became effective on 10 December 2019. It will be closed on 31 December 2022.

The Project Design Report (PDR) of KIIWP1 presented the overall rationale and objective of the whole project, even if approval was only requested for the first phase. In order to proceed from KIIWP1 to KIIWP2, specific triggers had been identified and included in the PDR of KIIWP1[1].

The design process of KIIWP2 allowed to closely review the results of the work done during the implementation of KIIWP1 and confirmed that all the triggers to move to KIIWP2 have been met successfully. KIIWP1 has been conducting the Feasibility Studies (FS) and Environmental and Social Impact Assessments (ESIA) for the large irrigation schemes to be implemented under Phase 2 (KIIWP2). The ESIA was published on IFAD website in November 2020 after a National Validation Workshop was held in Kigali.

The design of KIIWP2 therefore builds on the results of KIIWP1 and its content informed by findings of the ESIAs and the related FS, as well as additional analysis, field work and interactions with partners and co-financiers. Some activities initiated under KIIWP1 will be continued and further strengthened by KIIWP2.

II. Project description

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

The goal of KIIWP is to "Contribute to poverty reduction in the drought-prone Eastern Province of Rwanda". The Project Development Objective is to "Improve food security and incomes of at least 40,000 rural households on a sustainable basis and build their climate resilience".

The Project intervention area comprises nine drought-prone sectors of the twelve sectors in Kayonza District, namely Gahini, Kabare, Kabarondo, Murama, Murundi, Mwiri, Ndego, Ruramira and Rwinkwavu. The area has been selected on the basis of its high vulnerability to drought and high poverty and food insecurity levels. The National Strategic Food Reserve supported its population during past droughts. However, the area has a high untapped potential of water resources that, if fully mobilized, would significantly improve crop production, climate resilience, food security and nutrition. The Project will reach out to 40,000 rural households (180,000 members). Women will account for 50 percent of the beneficiaries, youth and young adults for 30 percent.

B. Components/outcomes

Component A: Strengthening Resilience to Droughts. The expected outcome would be "Farmers' drought resistance strengthened". KIIWP2 will build on and complete the achievements of KIIWP1. Under Sub-component A1, 1950 ha of catchment areas will be protected and developed, in addition to the reforestation of 2,000 ha with trees. In addition, the Environmental and Social Management Plans (ESMPs) identified in the ESIAs will be implemented. Under Sub-component A2, on the basis of the development costs and feasibility assessment of irrigation schemes conducted under KIIWP1, KIIWP2 aims to implement 2,285 ha of irrigation command area. The Infrastructure Management Institutions will be enhanced, including the Sector Steering Committees, Hydrographic Basin Committees, and Irrigation Water User Organizations. Under Sub-component A3, climate smart agriculture practices and technologies would be promoted in the irrigated and catchment areas, using the Farmer Field School (FFS) approach. The Project would also support the Farmer Promoters, and promote adapted farm mechanisation, and Climate- and Nutrition Smart Technologies.

Component B: Support to Farm Business Development. Expected outputs of Sub-component B1 include: (i) 8,000 smallholder farmers in FFS received FaaB training, (ii) 500 FFS members and 50 Agriculture Cooperatives received business development coaching and have bankable business plans. Based on these business plans, the Project will co-finance privately-owned and managed investments of individual smallholders, cooperatives and/or private sector companies through a Performance-based Matching Grant Scheme. Sub-component B2 would link farmers and cooperatives to markets using agribusiness linkages and public-private partnerships. Expected outputs will include: (i) 8,000 smallholders have improved access to markets, (ii) 10,000 smallholders have improved access to financial services with support from the Inter Church Organisation for Development Cooperation (ICCO) and other partners, and (iii) 2,500 smallholders use agricultural insurance products. In addition, the targeted groups would be given access to inclusive financial services, provided by local financial institutions. Finally, smallholders would be supported to access agriculture insurance products offered under the National Agricultural Insurance Scheme (NAIS).

Component C: Institutional Development and Project Coordination. Sub-component C1 will support the formulation of policies, laws and regulations related to intervention areas of the Project. In addition, based on a needs assessment, institutional support would be provided to implementing entities at national and district levels. Sub-component C2 will finance project coordination, monitoring and valuation (M&E), knowledge management (KM) and communication. Sub-component C3 would be a zero-budget,

designed to provide swift response in the event of an eligible emergency event such as the global COVID-19 pandemic.

C. Project costs and financing

The total cost of KIIWP2 has been estimated at US$ 61.0 million. IFAD will contribute US$ 21.7 million and the Government of Spain is expected to co-finance US$ 28 million. The Government of Rwanda will contribute US$ 8.0 million, mainly in the form of exemption of tax and duties. The contributions from beneficiaries to the irrigation schemes and catchment protection works (Component A) and matching grants (Component B), both in-kind and in-cash, are estimated at US$ 2.1 million. ICCO will contribute US$ 0.65 million, which will allow to scale-up Component B. ICCO's partners are organized to support SMEs and MFIs, respectively, through loans with a tentative value of US$ 372,000. Partnerships with private sector investors and other projects are expected to convey additional financial resources to the Project, including access of KIIWP2 beneficiaries to existing credit lines.

D. Project benefits

The beneficiaries are expected to experience increase in income as a direct result of the: (i) increased water availability for productive use; (ii) diversification of productive activities and sources of income thanks to greater access to technical assistance and inputs; (iii) increased food availability for rural poor, (iv) increased value-added of agricultural outputs; (v) enhanced productivity through improved infrastructure; (vi) improved quality of processed products, thus attracting higher prices at local market; (vii) increased employment opportunity either for hired or family labour, for both on-farm and off-farm activities.

The Project is a technical and economically viable investment to the economy as a whole. The Project economic NPV of the net benefit stream over the 20-year timeframe, discounted at 8 percent, is USD 12.5 million. This value yields an EIRR of 14 percent and BCR of 1.19 for the base case scenario and it results in a payback period of nine years. Profitability results were tested in the sensitivity analysis to measure variations due to unforeseen factors, hence identifying those variables affecting final results the most. The Project appears to be more sensitive to a decline in benefits rather than an increase in costs. The EFA includes economic benefits related to carbon sequestration directly linked to the adoption of Climate-Smart Agriculture practices

E. Exit strategy and sustainability

The Project Exit Strategy is embedded in the intervention approach through: (i) the strategic approach of working directly with administrative structures and community leaders at District, sector and irrigation scheme/catchment levels; (ii) the empowerment of Infrastructure Management Institutions that will assume full responsibility for planning and implementation of watershed interventions and operation and maintenance of post-harvest infrastructure; (iii) the strengthening of FFS, Farmer Promoters and Cooperatives, including their back and forward linkages and access to markets, financial services and agriculture insurance.

III. Risks

A. Environment and social category

The Project has been classified as Environmental and Social Category A, because of its focus on irrigation schemes with command areas of more than 100 ha each. During KIIWP1, an ESIA and Feasibility Study (FS) were prepared for Ndego and Kabare sectors. In November 2020, both reports were shared with IFAD and approved for disclosure, after revisions to incorporate third party reviews. In addition, the remaining FS and ESIAs for the Kanyeganyege and Gishanda schemes, hydro-geological surveys for boreholes drilling and valley ponds, water permit requests and ESIA procedures were initiated and will be finalized in July 2021. The additional ESIAs must be shared with IFAD for no-objection and disclosed 120 days prior to the construction of the irrigation infrastructures. The already developed FS and ESIAs have identified that no physical involuntary resettlements are expected. An abbreviated RAP was included in the ESIA prepared for the Ndego and Kabare schemes and associated costs were integrated in the cost-table. The abbreviated RAP will be implemented and all compensation measures provided prior to the construction works or partial land take.

B. Climate risk classification

Because of recent droughts events and the vulnerability of the Eastern Province to extreme events, the Climate Risk classification is high. Adequate adaptation and mitigation measures have been included such as climate-smart agriculture practices and other technologies, afforestation/reforestation measures.

IV. Implementation

Organizational framework

Project management and coordination. In line with the practice for other IFAD-funded projects in Rwanda, a National Project Steering Committee (SC) established for KIIWP1 shall continue for KIIWP2. The Lead Project Agency will be the Rwanda Agriculture and Animal Resources Development Board (RAB), an implementing agency of MINAGRI, which will have the overall responsibility for the coordination and execution of the Project. KIIWP2 will be integrated within the Single Project Implementation Unit (SPIU) of IFAD projects that are under RAB. KIIWP1 already existing personnel will be the same for KIIWP2, plus some additional staff that is needed at central and at district unit level.

Financial management arrangements have been designed on the basis of the KIIWP1. Financial management staff for the Project both at SPIU and Kayonza District is already in place which would contribute to guarantee quick start-up of project activities.

Procurement arrangements have been designed on the basis of KIIWP1. A procurement risk matrix was completed and identifies weaknesses in the current legal and regulatory framework and recommends mitigating actions to address those weaknesses. Pursuant to paragraph 42 of the IFAD Project Procurement Guidelines, procurement shall be carried out according to the Borrower's procurement regulations to the extent that they are consistent with the IFAD Project Procurement Guidelines.

Implementation plans

As KIIWP1 is already operational and preparing the KIIWP2 management structures, Feasibility Studies and ESIAs, no major start-up challenges have been anticipated.

1. Context

A. National context and rationale for IFAD involvement

a. National Context

Socio-economic context. Between 2000 and 2016, the Republic of Rwandan's (herewith referred to as Rwanda) economy grew by an impressive average of 7.9 percent per annum and Gross Domestic Product (GDP) per capita increased from US$242 to US$729.[2][3] COVID-19, combined with heavy rains in Q1 2020, as well as subsequent measures to contain the spread of the pandemic, deepened the country's economic slowdown such that real GDP growth was slightly negative at -0.2 percent in 2020. Although the outlook remains highly uncertain, the IMF projects a rebound in real GDP growth to 5.7 percent in 2021, albeit below potential.[4] The positive 2021 real GDP projection is supported by continued diversification of the export base, public investment to crowd in private sector investments and greater resilience in the agriculture sector.
Rwanda remains, however, a low-income country (LIC) with a highly-dense population of 12.7 million people[5], on an area of 26,338 km^2. Its population is expected to grow to 22 million by 2050. With an index of 0.543, the country ranked 160 out of 189 countries in the 2020 Human Development Index (HDI), placing it in the lower human development category[6]. About 83 percent of the population is living in rural areas[7], putting increasing pressure on limited availability of farm land. This notwithstanding, in 2020 Rwanda was ranked 16 out of 52 African countries towards achieving the Sustainable development goals (SDGs)[8], with progress in particular regarding SDG13 (combating climate change) and achieving gender equality (SDG5), while challenges remain in achieving SDG2 (Hunger and Agriculture) and SDG4 (Quality Education).

Impact of COVID-19 and Government response. As at 19 April 2021, Rwanda had 23,866 confirmed cases of COVID-19 with 322 deaths, reported to the World Health Organisation (WHO). Since the start of the vaccination campaign on 3 March 2021, and as at 19 April 2021, a total of 350,926 anti-COVID-19 vaccine doses have been administered[9]. Rwanda put in place decisive measures such as partial/total lockdown, closure of borders and schools, restriction of movements and ban on large gatherings to contain COVID-19, which positively impacted the health crisis, but the significant economic disruptions increased food insecurity and poverty[10], particularly for households living from daily labour and in small and medium-sized enterprises (SMEs). The restriction of in-country movement disrupted the market and business interactions along the value chains, resulting in increased food prices and smallholder farmers being unable to sell their produce at the right time. In addition, many farmers have had to rely on their own production for household consumption.

In response to the impact of COVID-19, the Economic Recovery Fund (ERF) was established by the Government of Rwanda (GoR), since June 2020, to support the recovery of businesses hardest hit by COVID-19 so that they can survive, resume operations and safeguard employment, thereby cushioning the economic effects of the pandemic.[11] In addition, GoR has been a recipient of IFAD's Rural Poor Stimulus Facility (RPSF), and the project focuses on two areas: (i) provision of agricultural inputs and basic assets needed to production; and (ii) facilitated access to markets. The latter is supporting the expansion of the National Strategic Food Reserve (NSFR), which has dual functions as a supplier of grains to food insecure families and a purchaser of produce from farmers and cooperatives. In order to continue essential activities, MINAGRI has put in place special guidelines allowing farmers to continue agricultural activities even during lockdowns, including access to agricultural inputs and facilitation of transporting the produce to local markets. Finally, all members of the Single Project Implementation Unit (SPIU) for IFAD-supported projects have been vaccinated against the COVID-19 so that they can continue their implementation tasks with limited risks.

Political and business environment. Rwanda continues to boast a notable political stability. Presidential elections took place in August 2017 and the incumbent President of Rwanda, Paul Kagame, was re-elected for a third seven-year term. The next legislative and presidential elections are due in 2023 and 2024 respectively. Rwanda also has an enabling policy and business environment. Financial inclusion increased from 48 percent in 2008 to 89 percent by 2016[12], while mobile phone ownership rose from 6 percent in 2006 to 71 percent by 2017[13].

Rural poverty. Rwanda made significant progress with national poverty[14] reduction that dropped from 60 percent of the population in 2000 to 38 percent by 2017; extreme poverty from 36 percent to 16 percent[15]. Rural poverty is 1 percent compared to 15.8 percent urban poverty; extreme poverty is 18.1 percent in rural areas while only 5.9 percent in urban areas. Rural poverty is even 76.6 percent among households with little or no land or seasonal labourers.
Agriculture sector. The Rwandan economy relies heavily on agriculture, which contributes 37.2 percent to GDP and 70 percent to export revenues, employs 70 percent of the active population, and supplies 91 percent of food. Eighty percent of rural households are smallholders, who cultivate on average of 0.33 ha of land in rainfed farming systems, which reflects the strong pressure on farm land. Increases in sustainable food production and productivity will be essential to reduce rural poverty and convert this still largely subsistence sector into a market-oriented one. Despite past Government efforts, local food supply lags behind domestic demand. The opportunities for the sector, which are reflected in KIIWP's architecture, are primarily situated in the intensification of land and water use; efficient mobilization and use of agriculture water; value addition and enhancing linkages to input and output markets.
National development strategies. The Rwanda Vision 2050 aims at transforming the country from a low-income agriculture-based economy into a knowledge-based, service-oriented middle-income The National Strategy for Transformation (NST 1) integrates Rwanda's commitments to the SDGs), the African Union's Agenda 2063, East African Community's Vision 2050, and Conference of the Parties to the United Nations Framework Convention on Climate Change.
Rwanda's fourth Strategic Plan for the Transformation of Agriculture 2018-2024 (PSTA 4) defines priority investments and policy agenda. The private sector, including farmers and cooperatives, are identified as drivers of change, and the Ministry of Agriculture and Animal Resources (MINAGRI) and public sector as enablers. PSTA 4 commits to the African Union's Comprehensive Africa Agriculture Development Programme (CAADP) and the 2014 Malabo Declaration[16] that sets targets for the contribution of the agriculture sector to economic growth, nutrition and food security, and resilience. According to the 2019 Second Biennial Review of

the African Union Commission of the Malabo Declaration, Rwanda was the best performing country in implementing the seven (7) commitments[17] of the Declaration on Accelerated Agricultural Growth and Transformation for Shared prosperity and Improved Livelihoods.[18]

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

Gender. Rwanda has closed 79.1 percent of its gender gap, being the best performer in Sub-Saharan Africa and ranking 9th out of 157 countries in 2020, according to the World Economic Forum's Global Gender Gap Report. The 2015 revised Constitution enshrines gender equality, women's rights and sets a 30 percent quota for women in all decision-making positions. More than 50 percent of Rwandan parliamentarians are women. Yet, gender disparities still persist, especially in rural areas. Ninety percent of rural women rely on agriculture as only source of income[19]. They are more constrained to subsistence farming and marketing small volumes of food crops, while men control larger transactions and cash crops. Rural women have lower levels of schooling and higher illiteracy rates (23 percent)[20], lower access to finance, assets, land, markets, and services. Approximately 27 percent of rural households is headed by women, and 1/3 of them are extremely poor. Seven percent of heads of household have a disability[21] and these households tend to be more food insecure. Rwanda has taken significant steps in addressing gender-based violence (GBV), including the passage of laws and policies. However, GBV remains a widespread problem, with women remaining the primary people affected.

Youth. Youth is defined in Rwanda as aged 16 to 30 years[22] and makes up 26.6 percent of the population. About 80 percent of the youth lives in rural areas and more than 60 percent work in agriculture, as independent farmer (45 percent) or as farm labourer (15 percent). More rural males (38.5 percent) than females (18.6 percent) have non-farm jobs[23]. Rural youth entrepreneurship is constrained by low earnings and precarious working conditions, low education and technical skills, limited access to land, information, financial and business development services. The lack of opportunities leads to a rural exodus of youth, with Eastern Province having a 21 percent youth migration[24].

Food Security and Nutrition. The Rwanda National Food and Nutrition Policy[25] reaffirms a strong commitment to achieving food security, eliminating malnutrition and preventing stunting in children under 5 years of age. Nineteen percent of Rwandan households is food insecure, of which 17 percent moderately and two (2) percent severely food insecure[26]. The easing of COVID-19 prevention measures and vaccine rollout is expected to gradually increase income-earning opportunities and maintain area-level Integrated Food Security Phase Classification (IPC) Phase 1 outcomes (minimal)[27].

Rural malnutrition is due to an inter-related set of underlying causes including food insecurity from subsistence farming on small plots of land; poor diet diversification leading to micronutrient deficiencies (especially Vitamin A and iron); poor access to safe and clean water health services and sanitation facilities (WASH), as well as seasonal and chronic obstacles and climate shocks limiting access to mostly market-sourced food items. Furthermore, post-harvest management, storage and small-scale processing technologies are not fully effective and hampering food's availability throughout the year. In Kayonza District, 33 percent of the population is food insecure and food insecurity has increased by 21 percent from 2015 to 2018[28], mainly as a consequence of successive droughts and decreased household resilience.

While chronic malnutrition has decreased significantly over the last decade, stunting is still above the WHO high severity threshold and remains a public health concern. Both a mother's level of education and wealth quintile have a clear inverse relationship with prevalence of stunting, being higher among children living in the poorest households (49 percent) than among children in the richest households (21 percent)[29]. In Kayonza District, prevalence of stunting of children under five age was 42.4 percent in 2018[30], compared to 35 percent nationally.

Climate change. The National Climate Change and Low-Carbon Development Strategy (NCCLCDS) underlines the need to deal with climate variability in pursuit of social, environmental and economic development. Rwanda's Nationally Determined Contribution[31] aims at achieving category 2 energy security. The country will support green industries and services, sustainable land and water management, urban development, biodiversity and ecosystem services. On the CAADP Africa Agricultural Transformation Scorecard, Rwanda is one of the top performers in terms of progress with respect to enhanced climate and livelihood resilience (Commitment 6.1).

Climate change has brought recurrent mid-season droughts[32] and shorter, but erratic rainy seasons of higher intensity. The droughts have caused agricultural production to decrease, especially in the Eastern Province[33]. Regarding Kayonza District, located in the Eastern Province, time series of rainfall, minimum temperature and maximum temperature at Lake Ihema meteorological station from 1980 to 2017 show an increment of extreme events with higher peaks of precipitation during the wet season and with long periods of drought. Given the flat topography with little or no wind breaks, the District is exposed to heavy windstorms.

Table 1. Mainstreaming theme eligibility criteria

	☒ **Gender transformational**	☒ **Nutrition sensitive**	☒ **Youth sensitive**	☒ **Climate finance**
Situation analysis	☒ National gender policies, strategies and actors ☒ Gender roles and exclusion/discrimination ☒ Key livelihood problems and opportunities, by gender	☒ National nutrition policies, strategies and actors ☒ Key nutrition problems and underlying causes, by group ☒ Nutritionally vulnerable beneficiaries, by group	☒ National youth policies, strategies and actors ☒ Main youth groups ☒ Challenges and opportunities by youth group	
Theory of change	☒ Gender policy objectives (empowerment, voice, workload) ☒ Gender transformative pathways	☒ Nutrition pathways ☒ Causal linkage between problems, outcomes and impacts	☒ Pathways to youth socioeconomic empowerment ☒ Youth employment included in project objectives/activities	
Logframe indicators	☒ Outreach disaggregated by sex ☒ Women are >40% of outreach beneficiaries • IFAD empowerment index (IE2.1)	☒ Outreach disaggregated by sex, youth, indigenous peoples (if appropriate) · Output level Cis o CI 1.1.8 Mandatory · Outcome level Cis (at least one of below) o CI 1.2.8 o CI 1.2.9	☒ Outreach disaggregated by sex and youth	
Human and financial resources	☒ Staff with gender TORs ☒ Funds for gender activities ☐ Funds for IFAD empowerment index in M&E budget	☒ Staff or partner with nutrition TORs ☒ Funds for nutrition activities	☒ Staff with youth TORs ☒ Funds for youth activities	IFAD Adaptation Finance $4,718,000 IFAD Mitigation Finance $0 Total IFAD Climate-focused Finance $ 4,718,00

1.

c. Rationale for IFAD involvement

Rwanda has abundant untapped water resources in the form of natural lakes, rivers, ground water, marshlands and runoff, but this potential has not been fully reached. The Rwanda Irrigation Master Plan (2010) has identified 589,000 ha of potential irrigable land[35]. With support from its development partners, the GoR has increased the area under irrigation from 48,508 ha in 2017 to a target of 102,284 ha in 2024 (NST1).

The Eastern Province[36] was hit by a severe drought in 2016, followed by two years of poor rains. This severely impacted local communities, mainly in Kayonza District, with more than 47,000 households becoming food insecure and the GoR, in partnership with WFP[37], providing food relief. Farmers in these drought-prone areas were also affected by pressure of farm land and loss of soil fertility due to unsustainable environmental management. This notwithstanding, Kayonza District has a high untapped potential of water resources that, if fully mobilized, would significantly improve crop production, climate resilience, food security and nutrition.

In light of the above, and along with its strategy to mitigate the drought-induced calamities through improved use of untapped water resources, the GoR 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 IFAD-supported KWAMP, the successful Community-based Watershed Management Project, implemented in the neighbouring Kirehe District, which completed in June 2016.[38] In order to make the best use of available land and water resources in Kayonza District, and to reduce the structural vulnerability and food insecurity of the population, GoR and IFAD prepared, in 2018, the “Kayonza Irrigation and Integrated Watershed Management Project (KIIWP)”. As the KIIWP design proposed Environmental Category A interventions, GoR and IFAD

agreed to design and implement KIIWP in two phases. KIIWP has a total duration of 8.5 years, with 2.5 years for Phase 1 (KIIWP1) and 6 years for Phase 2 (KIIWP2). KIIWP1 was approved by the IFAD Executive Board (EB) on 2 May 2019[39], became effective on 10 December 2019 and will be closed on 31 December 2022.

KIIWP1 and KIIWP2

The Project Design Report (PDR) of KIIWP1 presented the rationale and objective of the whole project, while approval from IFAD's Executive Board was only requested for the first phase. KIIWP1's objectives has been to: (i) conduct the Feasibility Studies (FS) and Environmental and Social Impact Assessments (ESIAs) for the irrigation schemes to be implemented under KIIWP2; (ii) implement the major part of catchment rehabilitation and protection, including 35 water points for humans and animals; (iii) undertake the initial training of the Infrastructure Management Institutions; and (iv) develop a pipeline of 5,000 ha of bankable irrigation schemes. Building on KIIWP1, the structure of the KIIWP2, will be as follows:

- *Component A: "Strengthening Resilience to Drought"*. KIIWP2 will complete the catchment protection works[40], and implement the Environmental and Social Management Plans (ESMPs) (Sub-component A1), finance the irrigation works for which FS and ESIAs are available, while further strengthening the Infrastructure Management Institutions[41] (Sub-component A2). In addition, KIIWP2 will promote climate-smart agriculture (CSA) practices and technologies (Sub-component A3).
- *Component B: "Support to Farm Business Development*" will be launched and implemented entirely by KIIWP2. Farmers in the irrigation schemes and catchment areas and their cooperatives will receive business development training and coaching; in addition, investment support will be provided, using a performance-based matching grant system. Innovative linkages with markets, finances services and agricultural insurance will be promoted to ensure post-project sustainability and the commercial orientation of the investments.
- *Component C: "Institutional Development and Project Coordination"* will be financed by KIIWP1 and KIIWP2. Sub-component C1 will support institutional capacity building and policy dialogue. The zero-budget Sub-component C3 that would allow GoR and IFAD to reallocate funding in case of emergencies.

Key milestones achieved for moving to KIIWP2

In order to proceed with KIIWP2, verifiable triggers had been defined under KWIIP1, as presented in Table 2. The KIIWP2 design process carefully reviewed the results of the work done during the ongoing implementation of KIIWP1 and confirmed that the triggers to proceed with KIIWP2 have been successfully met. *The KIIWP2 design process carefully reviewed the results of the work done during the ongoing implementation of KIIWP1 and confirmed that the triggers to proceed with KIIWP2 have been successfully met.*

Table 2: Summary of status of triggers to move to KIIWP2

Trigger	**Status**
i. FS identify irrigation schemes that are financially, economically, environmentally and socially viable and sustainable.	FS were prepared for the large scale irrigation schemes in the Ndego and Kabare sectors. Findings confirmed that 2,010 ha are suitable for irrigation schemes that are financially, economically, environmentally and socially viable and sustainable.
ii. Third party satisfactory review of FS, ESIAs and Resettlement Action Plans (RAPs)	FS and ESIAs, for the Ndego and Kabare sectors, were approved after revisions to incorporate third party reviews. No physical resettlement is expected therefore an abbreviated RAP (ARAP) was included in the ESIA. The FS applied avoidance principles and irrigation schemes are proposed in a way that avoids any physical resettlement. During the inception phase, the ARAP will be further refined with the detailed design of the irrigation scheme.
iii. ESIAs and RAPs are disclosed at local community level, national and IFAD website for a minimum 120 days	The ESIA for the Ndego and Kabare sectors, including the ARAP, was published on the IFAD website in November 2020 after a National Validation Workshop was held in Kigali, with participation of representatives of various line ministries, institutions and districts.
iv. Provision of a budget and commitment by Government of Rwanda to implement the RAP and other ESMP activities	GoR accepted to cover all costs related to the execution of the RAPs. Collaboration with Rwanda Centre of Excellence in Biodiversity and Natural Resource Management was agreed, which will provide technical backstopping to monitor the implementation of ESP activities.
v. Revision of the PDR and PIM to incorporate the findings of KIIWP1.	The KIIWP2 PDR and PIM have been amended. The design builds on the results of KIIWP1 as it is informed by findings of ESIA, FS and additional analysis.

During the implementation of KIIWP1, Feasibility Studies (FS) for large irrigation schemes covering an area of 2,500 ha were conducted in the Ndego and Kabare sectors to ensure that the Project is implemented in an environmentally and socially sustainable manner and in full compliance with national environmental regulations as well as best international polices and practices. Findings

confirmed that 2,010 ha are suitable for irrigation schemes that are financially, economically, environmentally and socially viable and sustainable.
Given the nature and location of the Ndego and Kabare irrigation schemes and considering the identified potential impacts, proposed management and monitoring plans, the ESIA report also concluded that the Project is feasible. There are no major negative environmental and social impacts that may result from its implementation, which cannot be mitigated. Furthermore, an Environmental and Social Management Plan (ESMP) was elaborated for monitoring Project interventions and their potential impact on the ecosystem. The ESMP presents all mitigations measures and estimated costs, mandatory procedures and responsible institutions. The findings were integrated throughout KIIWP2 components and cost and financing.
Recommended mitigations measures for the Ndego and Kabare irrigation schemes were integrated throughout the Project components through: i) the catchment rehabilitation and protection; ii) promotion of climate smart agriculture practices and technologies; and iii) capacity building of local community to ensure increased resilience to climatic shocks, better management or their natural resource and enhancement of their livelihoods.
The ESIA also identifies positive social and environmental including biodiversity impacts expected from the proposed activities. These include: a) increased productivity and income with possibility of having more cropping seasons; b) temporary and permanent employment opportunity; c) 2,000 ha afforested and reforested as part of upstream catchment rehabilitation using endemic and fruit tree species and promotion of agro-biodiversity within the buffer zones; d) adaptation to climate change through provision of water in drought seasons and climate smart agricultural practices; e) crop diversification and increased value of production in hillside areas; f) enhanced food security; g) increased value of agricultural production; h) reduced post-harvest losses; i) increased sales in output markets; and j) improved access to water for livestock and humans.
The FS and surveys for the additional two smaller schemes, Gishanda (125 ha) and Kanyeganyege (150 ha), *with lower ecological sensitivity*, were also initiated within the KIIWP1 AWPB 2020-2021 (re. Annex 11). The project will consider investment in these or any other additional schemes if the findings of the studies are positive and after compliance with the SECAP disclosure procedures (120 days) and national regulations (RDB_EIA certificate).

B. Lessons learned

KIIWP2 will benefit from various lessons from the IFAD Country Programme and from the ongoing KIIWP1, which were integrated in the design, in particular the following:
*Geographical targeting.*The focus on a single district in KWAMP[42] enabled strong local ownership of local government at Cell, Sector, District levels and sustainability of interventions. KIIWP (1 and 2) also focuses on a single district, namely Kayonza.
Irrigation Water User Organizations (IWUOs). Early formation, capacity building and empowerment of IWUOs in KWAMP allowed them to take responsibility for operation and maintenance of irrigation schemes, which was formalized in an innovative Infrastructure Management Transfer Agreement (IMTA) between farmers and authorities. This innovative approach was integrated in the KIIWP design.
Capacity building of cooperatives. Whilst several cooperatives were either formed or rehabilitated, and supported under KWAMP, they continued to face organizational and governance issues, and further comprehensive and tailored capacity building was required. KIIWP2 would establish a partnership with ICCO to mobilize this specialized support.
*Technical design of hillside irrigation schemes*by competent service providers is essential. KWAMP experienced high cost variations for hillside irrigation infrastructure and inadequate water availability as result of poor estimates at the design stage. The technical design and cost of the irrigation schemes were carefully reviewed, together with SPIU, and adjusted where needed.
Community competition (Inteko y'Imihigo) was successfully used under KWAMP to reach out to vulnerable groups in the catchment areas and involve them in the sustainable development and management of watersheds. Potential micro-projects would be climate-smart and nutrition-sensitive, e.g. beekeeping, energy-saving stoves, rainwater harvesting, sustainable production of charcoal, eco-tourism, and biodiversity conservation through plantation of endemic trees species. KIIWP will scale up this tool as part of the participatory watershed management plans.
Agricultural extension services. The district and sector agronomists are on the payroll of district authorities, who are in turn are under the aegis of the Ministry of Local Government (MINALOC). Yet all IFAD projects in Rwanda fall under MINAGRI. The resources allocated by projects to MINALOC for district and sector agronomists remain very scarce, mostly motorcycles and operating costs. The KIIWP2 design has recognized the important role of MINALOC in ensuring close coordination and delivery of agricultural extension services.
*Fruit tree survival.*The survey at the end of PRICE shows alarming mortality rates, between 33 and 53 percent, of mango, avocado and citrus trees planted throughout the country. The drought-prone Eastern Province and Kayonza District in particular have been among the most affected[43]. Two lessons emerge: (i) when fruit trees are distributed for free, ownership is very low; it is advisable to charge a minimal fee to increase ownership; (ii) seedling distribution needs to be accompanied by proper follow-up. Given that KIIWP1 has engaged in planting 900ha of fruit trees, KIIWP2 should optimize tree survival rates.
*Access to markets.*PASP[44] and RDDP[45] demonstrated that when commercial linkages between farmers and buyers are formalized and trust is built, off-takers can become co-investors with farmers and help them to access financial services and markets. KIIWP2 will build on the joint-venture models developed under PASP and RDDP.
Financial services would benefit from PASP, PRICE and RDDP experience. In order to ensure an efficient use of public resources, KIIWP2 would have a sustained focus on supporting linkages of the beneficiaries to the financial sector. This would be done to mitigate risks for the financial institutions by providing capacity building support both on demand and supply sides and structuring of the value chains. The use of matching grants would be restricted to facilitate access to finance for high-risk borrowers, either because of lack of business track record or lack of collateral, and to incentivize development of public good-related investment by private sector.
Performance-based grants facilities (PBGFs) should be designed with appropriate ceilings and mechanisms to lifting barriers for smallholders. The 2nd PRICE-supported[46] PBGF has reduced ceiling for primary production (US$10,000 compared to US$50,000 in PRICE's first PBGF). As a result, SACCOs have responded tremendously well: 306 or 98 percent of the FIs participated in the second PBGF, against 35 in the first PBGF. Many SACCOs financed smallholders for the first time, in particular horticulture smallholders, who became clients for repeat loans without any grant. KIIWP2 will build on the matching grant models and procedures developed under PASP and PRICE.
PASP has shown that matching grants facilities to support business development should include support along three stages: (i) pre-

financing support aimed at filling potential business gaps, including governance; (ii) finance and business launch facilitation to assist applicants in developing realistic business plans; and (iii) post-finance support consisting in business coaching for successful applicants. KIIWP2 will thus make extensive use of Business Development Service Providers (BDSPs) to support across its various interventions smallholders grouped under Farmer Field Schools (FFS) and cooperatives.
The design of grant facilities should make provision for grant management fees to follow up beyond the mere grant disbursement. In addition, experience in PASP and PRICE has shown the need to terminate grants at least 12 months before project completion, as to allow proper follow up of grant beneficiaries. KIIWP2 design of grant facilities made provision for grant management fee that will include appropriate monitoring and follow up beyond the mere grant disbursement.
Agricultural insurance. GoR launched the National Agricultural Insurance Scheme (NAIS) for crops and livestock in 2019 to de-risk these sectors. NAIS has also recognized the importance of insurance awareness at all levels, which has informed KIIWP2 design.KWIIP2 also builds on insurance lessons from RDDP, which has experience with crowding-in insurance stakeholders, providing insurance education, and connecting insurance offerings with farmers' groups and distribution channels offering other services.
Single Project Implementation Unit (SPIU)'s capacity strengthening. During the second half of implementation. PRICE encountered challenges related to weak M&E, gender and KM. This can be correlated with the increased workload at SPIU level, whereby the same persons became tasked with the implementation of three projects (PRICE, PASP and RDDP). These weaknesses can affect the overall performance of IFAD-Country Programme, even when field activities are going on well. The SPIU is recommended to assess its needs and assign dedicated staff for M&E, gender and KM for each project.
Procurement. IFAD is currently financing four projects in Rwanda (KIIWP1, PASP, PRISM and RDDP). Applicable lessons learned include: (i) It is of paramount importance for IFAD and the SPIU to closely monitor procurement activities delegated to third parties on the basis of a Memorandum of Understanding (MoU). This includes requiring that each MoU contains mandatory references to the IFAD policies[47] and reviewing procurement carried out by third parties on the basis of a MoU, so as to ensure that value for money is achieved and avoid the incurrence of ineligible expenditures; (ii) Procurement delays can be mitigated by increasing the procurement thresholds applied to the use of the shopping method for procurements of goods, works and related non-consulting services; (iii) IFAD can enhance the effectiveness and efficiency of procurement processes by providing procurement support (both in-country and remotely) and trainings tailored to the specific needs of the projects and by encouraging both communication between the SPIU staff, IFAD Country Director, ESA Senior Procurement Officer and IFAD Procurement Consultants.

2. Project Description

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

The goal of KIIWP (1 and 2) is to "*contribute to poverty reduction in the drought-prone Eastern Province of Rwanda*". Its Project Development Objective is to "improve food security and incomes of at least 40,000 rural households on a sustainable basis and build their climate resilience".
Geographic area of intervention and value chains

The KIIWP (1 and 2) intervention area comprises nine drought-prone sectors of the twelve sectors in Kayonza District[48], namely Gahini, Kabare, Kabarondo, Murama, Murundi, Mwiri, Ndego, Ruramira and Rwinkwavu. The area has been selected on the basis of its high vulnerability to drought and high poverty and food insecurity levels. It is to be recalled that the National Strategic Food Reserve supported its population during past droughts.

The nine targeted sectors account for 63,177 households or 283,370 individuals, of which 51.5 percent women[49] and 31 percent female-headed households. About 63 percent[50] of the population is under 25 years old, while youth, between 16 and 30 years old, represent 30 percent. Only 58 percent of the population received primary education and 10 percent attained secondary education[51].

Agriculture is the livelihood of 80 percent of the active population in Kayonza, based on rainfed systems with maize, beans, cassava and banana; 58 percent of households also raise livestock. Fishing is practiced in lakes and rivers, especially in the Ndego and Kabare sectors. Forty percent of farms have less than 0.2 ha of land, 62 percent less than 0.5 ha, and almost all farms less than 1 ha[52].

Kayonza District hosts a considerable part of the biodiversity of Eastern Province, including Akagera National Park, vast swamps, many small lakes and Lake Muhazi. Because of the strong pressure on land, deforestation in Kayonza District has by far surpassed afforestation and grazing areas are shrinking. The District is characterized by high frequency of rainfall deficit, late rainfall onsets, early rainfall cessations, and is prone to drought. Droughts have indeed been the cause of famine and food shortages, a reduction in plant species and displacement of people in search of food and pasture.

Priority Value Chains of KIIWP (1 and 2) include rice, maize, horticulture, soybeans, Irish potato and beans. Other value chains in the rainfed catchment areas also include cassava and sorghum.

Project beneficiaries and targeting strategy

Target groups and outreach. KIIWP2 is expected to reach 40,000 rural households (180,000 members) in Kayonza District, of which 7,100 households will participate in irrigation schemes and 11,800 households in protection of catchment areas. In addition, many rural households will benefit from a broad range of interventions, including Climate Smart Agriculture (CSA) technologies, job opportunities in irrigation schemes and catchment areas, afforestation and reforestation, water points for livestock and humans, solar energy, cooperative services to access inputs and markets, Farmer Field Schools (FFS), Farming-as-a-Business (FaaB) training, matching grants for equipment and investments, financial services and agricultural insurance, participation in public-private-

partnerships along value chains.

Socio-economic profile of the target group. KIIWP will focus on poor and food-insecure rural households with economic potential. In line with the *Ubudehe*[53] wealth-ranking system, the Project will target three categories of beneficiaries[54] in the area:

Near landless and extremely vulnerable households(*Ubudehe Category 1)* represent 13 percent of households. They have very limited productive assets, those in agriculture have less than 0.25 ha and are less likely to have vegetable gardens. About 20 percent have at least one member with a mental or physical disability.

Subsistence and vulnerable poor(Ubudehe Category 2), represent 35 percent of households. They have limited access to resources and less than 0.5 ha of land, and depend on crop production, seasonal labour or external support. In the proposed irrigation schemes, 28 percent has less than 0.25 ha; 38 percent less than 0.5 ha.

Market-oriented producers(UbudeheCategory 3), account for 52 percent of households. They are less vulnerable and go beyond subsistence farming. These farmers have on average 0.5 ha or more, are engaged in a more entrepreneurial logic. In the proposed irrigation schemes, more than 50 percent owns more than 0.5 ha with at least a quarter owning more than 1.0 ha.

Priority target groups of KIIWP2 include women, youth and vulnerable households:

Rural women in agriculture are more exposed to vulnerability than men. Cultural practices leave low-value subsistence crops to women where they provide the bulk of labour. Women have less control over agriculture resources and less access to financial services, knowledge and assets to transform subsistence to market-oriented farming. Adolescent girls are more vulnerable due to early pregnancy (teenage pregnancy in Kayonza reaches 10 percent, over the national average)[55].

Rural youth (50 percent women), aged 16-30, are found in all Ubudehe categories, while the higher percentage is in the very poor and poor categories. This target group includes: (i) young men and women who are engaged in subsistence agriculture with an interest to expand their activities; (ii) young men and women employed under casual or seasonal work at minimum wage, who can be engaged in works and irrigated agriculture; and (iii) young graduated, interested to apply as service providers.

Vulnerable households. Women-headed households are disproportionally faced with poverty and small-sized land. In Kayonza district, 4.2 percent of the targeted households are headed by disabled people[56].

Targeting and social inclusion KIIWP2 will combine self-targeting and direct targeting mechanisms. While Project activities are of interest to all target groups (self-targeting), KIIWP2 will directly target the priority groups with tailored support. KIIWP2 will deploy this inclusive strategy to tackle the multiple barriers that traditionally prevent women, youth and vulnerable households from improving livelihoods and enable them to gradually increase their production, capacities and income to engage in other project-supported interventions. Women will represent at least 50 percent and young people 30 percent of the beneficiaries. At least 40 percent of targeted households will be vulnerable (10 per cent from the poorest category). Quotas will be established throughout project's activities to ensure that women, youth and the most vulnerable households are reached out[57]. A dedicated officer in the SPIU will be responsible for implementation of the Project's gender, youth and social inclusion mainstreaming strategy.

In the selection of beneficiaries, KIIWP will adopt eligibility criteria[58], already in use by other IFAD-funded projects in Rwanda, that take into account both the social and economic profile of the target groups, giving priority to the most vulnerable ones, women and youth, as well as farmer's motivation, commitment and interest in Project's activities. In order to avoid elite capture and foster inclusive participation, KIIWP will involve *Umudugudu* committees at village level, ensuring transparency and locally accepted households' selection. Participatory methods (such as community mobilization, public consultations) will be employed to ensure inclusiveness of all prioritized target groups in decision-making processes; for example, in the development of sub-catchment management plans, KIIWP will employ a Community-based participatory planning and community competitions (*Inteko y'Imihigo*), already successfully tasted under KWAMP, ensuring that the needs of all community representatives are taken into account, including the most vulnerable. The beneficiary's contribution to the operation and maintenance of the irrigation schemes will be tailored to the productive, economic and financial capacities of the target groups.

Gender mainstreaming strategy. KIIWP2 will address gender disparities and constraints that limit women's participation by: (i) ensuring equal access to assets, services and capacity building, including financial literacy and business skills training; (ii) promoting productive opportunities and labour-saving technologies; (iii) enhancing women's access to financial services; (iv) promoting women's leadership in Infrastructure Management Institutions, FFS and Cooperatives; (v) using Matching Grant modalities with a special window for women and youth (with a reduced beneficiary contribution); (iv) using the Gender Action Learning System (GALS) as framework to address power inequalities between women and men; (v) trainings to familiarise GoR and SPIU staff with gender and youth approaches; (vi) provisions to ensure that gender equity concerns are integrated in all Project components; and (vii) use gender and youth-disaggregated M&E indicators to support gender and youth assessments and analysis.

Youth mainstreaming strategy. KIIWP2 will strongly promote youth inclusion by equipping young men and women with capacities and professional skills, vocational training, access to seed capital through matching grants, supporting their engagement in businesses and creation of on- and off-farm jobs. KIIWP2 will leverage on the partnerships with (a) the Rwanda Youth Agribusiness Forum (RYAF); (b) the Agribusiness Hubs established in the frame of the on-going R-YES[59] IFAD grant, managed by the Kilimo Trust.

Nutrition mainstreaming strategy[60] will focus on the production pathway by: (i) promoting climate-smart and nutrient-rich varieties for home-consumption and markets[61], (ii) promoting kitchen gardens for women; (iii) implementing climate and nutrition smart technologies to reduce post-harvest losses and improve year-round availability of nutritious food crops; (iv) enhancing access to water for human consumption (boreholes and valley tanks); (v) providing nutrition education modules in FFSs; (vi) linking with the Home-Grown School Feeding Programme to promote local markets for nutritious crops.

Climate change mainstreaming strategy. This will be mainstreamed throughout Project design, including: (a) catchment development to improve infiltration of water and better soil coverage; (b) promotion of irrigation technologies that contribute to efficient use of water; (c) other climate technologies (e.g. energy efficient stoves, solar pumps, climate resilient drying grounds and warehouses, rainwater harvesting); (d) implementing ESMPs to mitigate all adverse impacts on water, soil and biodiversity resources.

D. Components/outcomes and activities

Component A: Strengthening Resilience to Droughts

The expected outcome of Component A would be: "Farmers' drought resistance strengthened".

Sub-component A1: Catchment rehabilitation and protection. The expected outputs would be investments integrated land and water resources management (ILWRM) interventions (in addition to those financed under KIIWP1) in order to enable stakeholders of upstream (rainfed areas) and downstream areas (irrigation schemes) to work together for the better utilization and management of their land and water resources. Catchment rehabilitation and protection measures including afforestation, reforestation, agro-forestry and grasses will be favourable to biodiversity and increases habitat to living organisms as well as tree cover in the area. In addition, the creation of balancing storages may also provide opportunity to aquatic biodiversity.

The KIIWP (1 and 2) catchment rehabilitation and protection approach includes the following steps: i) community-based participatory sub-catchment management planning; ii) investments in land husbandry in rainfed areas[62][63]; iii) reforestation / afforestation with fruit trees; and iv) Community competition (Inteko y'Imihigo) will be used to reach out to vulnerable groups in catchment areas and identify climate-smart and nutrition-sensitive micro-projects. KIIWP2 will further implement the community-based participatory catchment management plans developed by KIIWP1[61]. The objective is to develop 1,950 ha of catchment areas and 2,000 ha of afforestation/reforestation.

Environmental and Social Management Plans[65] (ESMPs), identified in the ESIAs, will be implemented. The ESMP recommends to: i) conduct rapid site biodiversity surveys prior to construction of irrigation infrastructure to ensure that the Project will not have any negative impact on ecosystems (flora and fauna); and ii) elaborate an Integrated Pest Management Plan for the entire Project as part of the detailed design of each irrigation scheme. Specific ESMPs were developed for each command areas to tackle the following key adverse impacts associated with design and management of irrigation system :

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 (i.e. environmental flow);

Soil erosion caused by scheme excavation works (including access 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 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 (e.g. intakes in wetlands or lakes), poaching as a result of the schemes' proximity to Akagera National Park, and from pesticides poisoning of non-target species, particularly bees and beneficial insects.

The already developed FS and ESIAs for Ihema, Kibare and Nasho command areas have identified that no physical resettlements are expected, but around 200 households will lose part of their land and another more than 1,200 households will lose income during land husbandry work, as they may miss one or more agriculture seasons. Therefore, an abbreviated *Resettlement Action Plan (RAP)* was prepared and included in the ESIA and associated costs were integrated in the cost-table. The RAP will be implemented and all compensation measures provided prior to the construction works or land take.

The Project shall implement the *Free, Prior and Informed Consent (FPIC) Plan* developed in 2018, as Annex 5 of the PDR, within the Environmental and Social Management Framework (ESMF) to guide the various and required consultations processes (RAPs) and ensure proactive approach to identify development pathways with local communities and build ownership on project initiatives.

Sub-component A2: Irrigation Development and Management. Sub-component A2 will equip smallholder farmers with 2,285 ha of irrigation schemes.

Irrigation development. On the basis of the FS and ESIAs, prepared under KIIWP1, selected irrigation command area for development under KIIWP2 are the following:

Table 3. Identified irrigation schemes for development under KIIWP2

Scheme	Sector	Command Area	Sub-Schemes (block)	Type	Water Source
Kibare Irrigation Scheme	Ndego	570 ha	Kibare 1 – 219 ha	Pumped irrigation	Lake Kibare on Akagera River
			Kibare 2 – 112 ha		

			Kibare 3 – 239 ha		
Ihema Irrigation Scheme	Ndego	700 ha	Ihema 1 – 85 ha	Pumped irrigation	Lake Kibare on Akagera River
			Ihema 2 – 188 ha		
			Ihema 3 – 161 ha		
			Ihema 4 – 266 ha		
Nasho Irrigation Scheme	Kabare	740 ha	Nasho 1 – 309 ha	Pumped irrigation	Lake Nasho on Akagera River
			Nasho 2 – 218 ha		
			Nasho 3 – 114 ha		
			Nasho 4 – 99 ha		
Kanyeganyenge Dam and Irrigation Scheme	Kabarondo, Ruramira	150 ha		Dam irrigation	Kanyeganyenge River
Gishanda Dam and Irrigation Scheme	Rwinkwavu	125 ha		Dam irrigation	Rwinkwavu River

Note: *Feasibility studies will determine the size of the reservoirs, but they are expected to be above one million m^3 each.*
The three pumped irrigation schemes (Kibare, Ihema, Nasho) are divided into 11 sub-schemes, which will be implemented as standalone schemes, where possible, that can be individually managed. The infield irrigation technology to be used will be selected by the farmers' cooperatives in a participatory manner that may include a full pressurized irrigation system with center pivot technology and dragline sprinklers. The detailed design of the schemes will be optimised and recommend a suitable rationing based on further analysis, close consultation with concerned farmers and cooperatives, and prevailing conditions towards optimising profitability, making sure that the investments are suitable to the capacity of the target group. Regarding the Gishanda and Kanyeganyege schemes, KIIWP2[66] will construct the two dams, as well as required distribution system including canals, hydraulic structures, pipes, small pumping, access road, etc.
The management models for the irrigation systems may include private sector participation. The Project will facilitate management agreements between the farmers, government and private sector partners for the management of irrigation infrastructure and water provision to farmers. The cooperative could assume dual responsibilities as a Cooperative and an IWUO, which may hire a qualified and competent technical team to operate and maintain the scheme as it is a best practice at the existing Nasho Irrigation Scheme (that has been supported by Buffet Foundation).
In terms of financing, KIIWP2 will finance 100 percent all infrastructure to the farm edge and 90 percent of the in-field installations. In-kind contribution from farmers will be 10 percent of the in-field installations as well as the operation and maintenance cost. The contribution of farmers will enhance ownership of the equipment.
The SPIU will hire qualified consultancy companies for supervision of works. Supervision will be a participatory process involving the consultants for the day-to-day technical supervision with the SPIU, District and Infrastructure Management Institutions.
Infrastructure Management Institutions. Expected outputs will be: the required operational Infrastructure Management Committees, including Scheme Steering Committees (SSCs), Hydrographic Basin Committees (HBCs)[67] and Irrigation Water Users Organizations (IWUOs). The Infrastructure Management Institutions will: (i) ensure long-term sustainability of the irrigation schemes and play an active role in the planning, construction, operation and maintenance of infrastructures; (ii) develop drought contingency plans for the catchment areas; (iii) ensure inclusive and equitable access to water for all members. After irrigation scheme completion and fulfilling all conditions, the IWUOs[68] would sign an Infrastructure Management Transfer Agreement (IMTA) with RAB and co-signed by Kayonza District Authorities.
KIIWP1 is establishing the required Infrastructure Management Institutions and initiate capacity building, which will be continued under KIIWP2. Capacity building will cover three areas: (i) governance; (ii) water management and maintenance; and (iii) monitoring and exchange of experiences.

Three types of Infrastructure Management Institutions would be required:

1. *Scheme Steering Committees*[69] (SSCs) that support and oversee the functioning of WUOs and ensure optimal use of land at

irrigation scheme level.

2. *Hydrographic Basin Committees (HBCs)* will be set up in each watershed and be effective for managing and improving sub-catchment areas, and to perform a central role in the planning and implementation of the sub-catchment plans. They will also be responsible for safeguarding communal areas with soil and water conservation measures, monitor implementation of reforestation and safeguard newly reforested areas.
3. *Irrigation Water Users Organisations (IWUO)* for the big schemes will be further strengthened under KIIWP2. The IWUOs will adopt guidelines for O&M and ensure payments for water, if required. They will ensure women's participation in irrigation scheme activities and in decision-making processes. For smaller schemes (more or less 200 ha) cooperatives are assumed to have capacity to handle all required operations. Professional Technical Teams could be hired by the Cooperatives for operations, maintenance and management of irrigation infrastructures in order to avoid conflict of interests and overlapping structures. In that case, all the technical capacity and trainings go to the cooperative members and technical teams responsible for technical management of the schemes.

Sub-component A3: Enhancing Climate Smart Agriculture Practices and Technologies. The expected output would be "climate-smart agriculture (CSA) practices and technologies[70] are promoted in the targeted areas".
A baseline study on existing CSA practices and technologies in Rwanda and the region will be undertaken by KIIWP1. A short-term expert in consultation with national experts from RAB and the MINAGRI, private sector as well as international specialized entities such as FAO, will compile and propose best practices and technologies, prioritizing those existing in Rwanda. This will set the base trials and mainstreaming adoption and adaptation of innovations on CSA with the active participation of farmers and FFS.
Farmer Field Schools (FFS) will be enhanced under irrigation (323 FFS) as well as rainfed agriculture (227 FFS), a total of 550 FFS, through: (i) adaptation to local language and production systems of training manuals and field materials already existing in Rwanda as well as other East African countries; (ii) training of farmers Facilitators at grassroots level and refresh training on existing facilitators; (iv) capacity building for implementing partners and district staff to supervise day-to-day implementation of FFS. The FFS topics will contribute to address gender, nutrition, and CSA topics and sustainable practices[71], with strong focus on women and sustainable mechanization, System of Rice Intensification (SRI) and agroforestry, water use efficiency, soil and water conservation and drought-tolerant crop varieties. Prioritized crops in irrigated areas would include rice, maize, beans, soybean, and horticulture crops. In addition, a training module on basic nutrition education, one on business development and one on Participatory Climate Services for Agriculture (PICSA) training and Climate information services for Rain-fed agriculture, will be incorporated into the FFS training. Gender issues will be addressed through the GALS methodology.
For rainfed agriculture, the Project will prioritize crop diversification and intercropping, including staples (e.g. cassava and sorghum); forage crops (e.g. Elephant grass or Brachiaria grass) and nutritious crops[72]. The introduction of CSA practices and technologies will be of particular importance to most vulnerable households and groups as they provide increase in yields and diversified food with low-cost innovations such as rainwater harvesting facilities, manual weeders, SRI, direct seeders with animal or manual draught and any other tools that promote minimum tillage (Conservation Agriculture) and reduce the workload, especially for women).

KIIWP2 will support the decentralized research stations of RAB for trials of promoted technologies. To reach out to more farmers and enhance the existing system of Farmer Promoters[73], the FFS will be combined with demonstration plots with Farmer Promoters to disseminate innovations. Around 315 Farmer Promoters will receive refreshment training.
Farm Mechanisation. KIIWP2 will promote workload-reducing small-scale mechanisation (e.g., power tillers, manual drafted tools), adapted to the needs of smallholders, while promoting soil conservation practices and CSA. While assessment and dissemination will be undertaken under Component A, access to these technologies will be provided together with Component B through: (i) groups of young service providers; (ii) support to local handicrafts to be trained by manufacturers' trainers[74] and exchanges with other countries; (iii) individual farmers and cooperatives investing in mechanization.
Climate and Nutrition Smart Technologies. KIIWP2 will support the promotion of Climate and Nutrition Smart Technologies such as storage facilities, dryers, climate resilient drying grounds and warehouses, rainwater harvesting (water storage tanks/ponds at household level, drip irrigation and treadle pumps), which will be promoted and co-financed under SC A1 and SC B1. These technologies will extend shelf life of nutritious foods and increase their year-round availability for enhanced food security.
Component B: Support to Farm Business Development

The expected outcome of Component B will be: "Farm business development with increased sales and linkages of farmers and cooperatives to services and markets". The cooperatives and FFS in the irrigation schemes and catchment areas under Component A will be entry points to provide Component B services.

Component B will benefit from a partnership with ICCO in Kayonza District. ICCO will leverage on its STARS project to spur an entrepreneurial farming mindset among KIIWP beneficiaries.

Sub-component B1: Developing Farming-as-a-Business. Expected outputs of are: (i) 8,000 FFS members received FaaB training, (ii) 500 FFS members and 50 cooperatives received business development coaching and have bankable business plans.

Capacity building of farmers and cooperatives. KIIWP2 will assist farmers to acquire a better understanding of market demand and gross margin calculations to assess crop profitability and plan production accordingly. A FaaB training module will be developed by ICCO and incorporated in the FFS curriculum. The SPIU District team and ICCO will organize introduction workshops for Project beneficiaries to raise awareness on FaaB. The RAB and District frontline staff, as well as FFS Facilitators, will be systematically involved in the FaaB training to ensure spill-over effects and sustainability beyond the Project's life.

Farmers will be encouraged to join existing cooperatives or establish new cooperatives that will be registered with the RCA. The

organizational and technical capacity of the cooperatives will be built for efficient governance, management, membership policies, maintenance of records, and internal control processes. Based on existing materials, KIIWP2 in partnership with ICCO will develop manuals and templates for Cooperative Business Planning, in consultation with local micro-finance institutions (MFIs). The experience of WFP and IFC in strengthening cooperatives will also be leveraged.

Promotion of Farm Mechanization, Post-harvest and Climate-smart Technologies. Expected outputs will include: (i) 480 individual smallholders (at least 50 percent women and 30 percent youth) access farm equipment; (ii) 25 cooperatives access appropriate post-harvest facilities; (iii) three (3) joint ventures are created between cooperatives and private sector companies to invest in larger storage and processing facilities. All beneficiaries will be offered solutions for risk management including agricultural insurance.

The Project would work with about 500 FFS members and 50 cooperatives to develop their business plans. The business plans with most potential will be proposed to receive Matching Grants (MGs). After the MG disbursements, the Business Development Service Providers (BDSPs) will provide additional coaching services, including: (i) technical support for MG implementation, and (ii) monitoring of the disbursements and utilization of the MG.

Based on the business plans, the Project will co-finance privately-owned and managed investments, using three grant categories:

1. *Category 1a/1b Performance-based grants (PBG)* to enhance the adoption of climate-smart agriculture technologies for FFS members, tied to a loan from a financial institution (PRICE model) for Small-Scale Irrigation Technology (SSIT) kits using solar energy, power tillers, sprayers, agricultural insurance premiums, etc. Category 1b Grants will target women and youth with a higher subsidy rate.
2. *Category 2 Cooperative-led grants* (PASP model) to enhance post-harvest management capacities of cooperatives further to production increases triggered by irrigation and catchment development, for drying grounds, storage facilities, cold rooms, maize cribs, fruit aggregation centers, agricultural insurance premiums.
3. *Category 3 Joint-venture grants* (PASP model) to support contractual arrangements between cooperatives and off-takers to handle and process crop surpluses generated by irrigation development, for warehouses, handling and processing facilities. Optional: agricultural insurance premium.

Under Categories 1a/1b, Matching Grants (MGs) will be implemented to leverage and stimulate commercial rural finance in the target areas, co-finance strategic investments with local FIs. As successfully implemented in PRICE, the individual household-targeting grants will be made through Partner Financial Institutions, against good performance of smallholders in repayment of loans. Under Categories 2 and 3, which are targeting cooperative post-harvest/processing investments, the KIIWP will adopt the PASP models that have been used along similar business plans (cooperative-led and joint venture models). These two grant models will not be tied to a loan, but the Project will strive to facilitate the investors' access to financial services whenever needed. The implementation manual that has already been developed by PRICE and BDF will be adapted for KIIWP2. More details on the grants are provided in the Project Implementation Manual (PIM).

Sub-component B2: Supporting Backward and Forward Market Linkages. Expected outputs will include: (i) 8,000 cooperative members and smallholders have improved access to markets, (ii) 10,000 smallholders have improved access to financial services, and (iii) 2,500 smallholders use agricultural insurance products.

*Market access***.** Pre-season meetings for cooperatives will be organized to exchange with prospective buyers, help farmers assess market opportunities, and plan their production accordingly. KIIWP2 will support establishing cooperative linkages and partnerships with private off-takers and financial institutions. Where needed, formal agreements or MoUs will be prepared and signed. On-going WFP efforts to strengthen cooperatives in the framework of the Farm to Market Alliance (FtMA) will be leveraged. The BDSPs will facilitate these marketing arrangements. Market exposure of cooperatives will be enhanced by participation in trade fairs or agricultural shows.

Horticulture exporters operating in the intervention area will be linked to the Horticulture Export Guarantee Facility (currently set at US$500,000), piloted under PRICE, in collaboration with Rwanda Development Bank (BRD). Opportunities to complement the guarantee fund with additional financing from other development partners will be explored during the course of the Project, should demand exceed current capacities.

exporters operating in the intervention area will be linked to the Horticulture Export Guarantee Facility (currently set at US$ 500,000) that has been piloted under PRICE in collaboration with Rwanda Development Bank (BRD). Opportunities to complement the guarantee fund with additional financing from other development partners will be looked at during the course of the Project, if demand exceeds current capacities.

In the case of pumped irrigation, intended to develop commercial smallholder production systems, 4P-like arrangements with the private sector will be developed whenever feasible, in particular for vegetables, maize and soybeans. 4Ps between cooperatives and private sector companies will be fostered through joint-venture grants.

Financial services. To facilitate the targeted communities' access to inclusive financial services, KIIWP2 will: (i) support the quality and outreach of local financial services, and (ii) build the capacity of the target groups in use of financial services. These interventions will ensure bankability of the business plans and to facilitate the in-cash beneficiary contributions of MG investments.

Local financial institutions (FI), including SACCOs and MFIs, will benefit from two KIIWP2 interventions: (i) institutional capacity building to strengthen their agri-finance capacities overall and in Kayonza District specifically. This includes training FI's staff in Kayonza, strengthening of local use of client assessment and monitoring systems, development of client-oriented agri-finance products for MSMEs and smallholders, such as equipment leasing and value chain finance, and improvement of the FI's existing financial products; capacity building will be organized in partnership with ICCO and Access to Finance Rwanda (AIF); and (ii) facilitate the MFIs, SACCOs and other financial service providers to access existing credit lines and guarantee instruments by IFAD's partners, including the International Finance Corporation (IFC), World Bank Group (WBG), Agribusiness Capital (ABC) Fund and Rabobank, to

meet their growing financial needs.

To strengthen the target groups' financial literacy skills, KIIWP2, together with ICCO, AMIR (Rwanda Microfinance Association) and the local FIs will provide trainings to smallholders. This activity will include support in the opening of bank accounts and training on basic banking skills and concepts such as "Saving for a Purpose", borrowing, interest rates, collateral, bank transactions, payments, and use of mobile and digital banking. Focus will be given to women (minimum 50 percent), youth (minimum 30 percent). To enable increases in savings among target groups, KIIWP2 would benefit from the WFP Solidarity Group (SG) development programme.

KIIWP2 in partnership with key players, including ICCO, AGRA, and AFR will also promote the digitalization of financial services for smallholders and cooperatives in order to reduce transaction costs, increase efficiency and sustainable access to financial services.

Agricultural insurance. KIIWP2 will support understanding of and access to agricultural insurance products offered under NAIS. The purpose is to improve resilience of Project beneficiaries by protecting their livelihoods, and by taking away one of their barriers in accessing finance to invest. The primary targets for agricultural insurance will be farmers targeted by the Project in the value chains covered by NAIS insurance products.[75]

KIIWP2 will support education and awareness raising for smallholders to improve their understanding of agricultural insurance. NAIS will carry out Training of Trainers (ToTs) and refresher courses for relevant stakeholders. This includes the delivery of ToTs and the adjustment of existing training materials, and farmer-level training sessions and materials. The primary ToT targets for farmer education will be threefold: cooperative leaders; extension officers; and distribution channels (financial and non-financial). To support the use of agricultural insurance, Matching Grant recipients will be eligible for a contribution to the insurance premium for one season.KIIWP2 will support capacity building of NAIS stakeholders (NAIS project management unit, insurers, distribution channels) on climate information; and bundling distribution models for agricultural insurance. Building on a partnership of KIIWP1 with MeteoRwanda, KIIWP2 will train these NAIS stakeholders on climate variability, climate information tools, and interpretation.

Component C: Institutional Development and Project Coordination

Sub-component C.1: Policy and Institutional Development. The project will (i) provide support to national policy on contract farming; (ii) support formulation of law on financial lease for agricultural equipment; (iii) provide opportunities among relevant stakeholders to discuss the value added tax in rice processing that makes Rwandan rice less competitive in the region; and (iv) highlight current issues of seed availability and its quality, including multiplication. In addition, knowledge generation and communication activities will be done in accordance with the knowledge management plan.

Strengthen institutional capacities at national and district levels: Based on a needs assessment, the Project will provide support to RAB and the District staff in order to improve their skills on technical aspects related to the Project. International technical assistance will be envisaged. The Project would also provide support to Rwanda Environmental Management Authority, Ministry of Environment, and Rwanda Water Boards on monitoring the irrigation schemes and rehabilitation and maintenance of wetland areas.

Sub-component C.2: Project Coordination. The institutional arrangements for KIIWP2 will remain aligned to the current implementation framework of IFAD-funded projects in Rwanda. Details are presented under Section V of this PDR.

Sub-component C.3: Emergency recovery and resilience. This sub-component is designed to provide swift response in the event of unforeseen crisis or emergency events such as the global COVID-19 pandemic, and climate extreme events. Through this sub-component, KIIWP2 may provide support for immediate response to an eligible crisis or emergency, as needed, in coordination with MINAGRI and IFAD. It will allow the GoR to request a reallocation of project funds to partially cover emergency response and recovery costs. This sub-component will be triggered if IFAD and the Government have jointly determined that an eligible crisis or emergency has occurred and the GoR has made a request to IFAD for emergency response.

E. Theory of Change

The Theory of Change (ToC) of KIIWP[76] (1 and 2) is based on the situation as faced by farmers living in the drought-prone sectors of Kayonza District. Given the problems of climate change related droughts, crop failures and poor farm-to-market linkages, these factors inevitably lead to catchment degradation, low production and productivity, food and nutrition insecurity and poverty. The ToC is based on the premise that investments in irrigation infrastructure and integrated management of water and land resources, combined with a market-driven approach to climate-smart farm business development will assist smallholders to sustainably improve their food security and income.
The ToC is based on the hypothesis that vulnerable rural households, women and youth, who are empowered with social and technical capacities and participate in climate smart value chains, will increase their sustainable management of natural resources, productivity, nutrition practices and access to market, and will increase their representation and participation in decision making processes.
The pathway for youth and women's empowerment is threefold: the project will: (i) help beneficiaries improve skills in financial literacy, managing and savings through training opportunities while supporting loan provision through informal groups (village saving and loan associations); (ii) reduce labour burden (especially on women), by supporting the development of small-scale mechanization and promote climate-smart and efficient tools; (iii) increase youth and women's access to and control over assets and resources, by dedicating a special financing window for women and young people in the matching grant scheme. In addition, the Gender Action Learning System (GALS) will be key to address power inequalities between women and men and foster women's decision-making power. Furthermore, the youth strategy is already developed under KIIWP1, setting clear targets on youth involvement.
The project area presents high level of food insecurity and malnutrition. After three consecutive years of drought, Kayonza District experienced among the highest food insecurity in the country. KIIWP2 will tackle food insecurity and nutrition issues through the production pathway, identifying key climate smart and nutrient rich crop varieties that would be promoted for both household's consumption and for sale. KIIWP's nutrition strategy will aim to increase and diversify the production and consumption of nutritious foods to complement the production of agricultural commercial commodities, with particular focus on the most food insecure

households and women.
Combined with the pathway for youth and women's empowerment, the focus on nutrition through production will improve their incomes, food and nutrition security and the performance of the value chains. The new income generating opportunities for women and youth emerging from the sustainable management of the catchment area will also boost their economic empowerment. Women's bulk of work will be reduced by addressing gender inequalities and promoting TLST. The Project will ultimately reduce poverty and enhance poor rural people resilience.

F. Alignment, ownership and partnerships

Alignment and ownership
KIIWP2 will contribute to Rwanda's attainment of several Sustainable Development Goals (SDGs), 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).
KIIWP2 is aligned with the second United Nations Development Assistance Plan for Rwanda (UNDAP II: 2018-2023). For the UNDAP II's first pillar of economic transformation, the project will contribute to both outcomes, namely: (i) people in Rwanda benefit from more inclusive competitive and sustainable economic growth that generates decent work and promotes quality livelihoods for all; and (ii) Rwandan institutions and communities are more equitably producing and sustainably managing natural resources and addressing climate change and natural disasters.

KIIWP2 is fully aligned with Rwanda's PSTA 4, mainly through the priority area 2 (productivity and resilience) while some KIIWP2 interventions are also aligned with priority area 1 (innovation and extension) and priority area 3 (inclusive markets and value addition). KIIWP2 focuses on priority area 2.2.1: water resource development through development and promotion of climate smart practices. KIIWP2 is also aligned with the National Policy on Promotion of Cooperatives, Irrigation Master Plan, National Post-Harvest Staple Crop Strategy and National Information & Communication Technology for Rwanda Agriculture Strategy. Other relevant sector strategies include the National Horticulture Policy and Strategic Implementation Plan.

KIIWP2 is well-aligned with the IFAD policies, in particular with respect to youth, gender, climate/environment, private sector, rural finance and nutrition. The Project is also aligned with the RB-COSOB 2019-2024, with its overall objective being to reduce poverty by empowering poor rural men, women and youth to participate in the transformation of the agriculture sector and to enhance their resilience. KIIWP2 contributes to SO1: To sustainably increase agricultural productivity in priority food and export value chains; and SO2: To improve post-harvest processes and strengthen market linkages.
The participatory design process, which was launched in 2017 with the design of KIIWP1 ensures that KIIWP2 responds directly to cooperatives, private sector priorities and national development policies and strategies. In addition, the participatory preparation of Sub-catchment development plans ensures that the view of rural households, including the most vulnerable, is taken into account.
Harmonization and Partnerships
Potential partnerships are presented in the Table below.

Table 4. Potential partners of KIIWP2

Potential partner	Potential Areas of Collaboration by Sub-component
ICCO/CORDAID – co-financier & service provider, knowledge management	B1. Farming-as-a-Business training, capacity building of cooperatives (FaaB manual development, training of trainers, monitoring of trainings); business development services and coaching; B2. Monitoring of implementation of Matching Grants B3. Financial services through institutional capacity building, innovative products, financial literacy training, and digitalization; support on VSLA. It is to be recalled that ICCO is a recipient of the South-South Triangular Cooperation (SSTC) China Facility grant and will be implementing the "Strengthening Agricultural Resilience through Learning and Innovation (STARLIT)" project in Rwanda. IFAD and ICCO worked closely together during KIIWP2 design to ensure complementarity between KIIWP2 and STARLIT.
Africa Improved Foods – agribusiness partner	A4 Agriculture inputs and knowhow for FFS training-of-trainers B3: Agribusiness agreements with cooperatives to purchase maize
WFP (SMART and FtMA projects) – Overall complementarities of interventions at District level, scaling-up of interventions	A1. Community-driven development approaches A3. Exchanges on nutrition-sensitive and climate-smart practices, promotion of nutritious foods and market linkages through HGSFP, community mobilization and engagement and linking to finance support. B3. Market analysis and selection of nutrient rich crops with potential for local market and public procurement Access to quality seeds and improved seeds, coupled with insurance (potential facilitation by WFP in coordination with RAB B1, B3. (a) capacity building of cooperatives, post-harvest capacity, 4Ps; (b) synergies to link financial products of MFIs and SACCOs with VSLAs within the targeted cooperatives, (c) linkages between SMEs crowded into the FtMA;
FAO – sharing of knowledge, specialized facilitators	A4. Potential technical assistance on FFS ToT, mechanization, nutrition education, CSA practices. Experienced FFS facilitators, methodologies and training materials produced by on-going FAO projects (NsWP, GAFSP-SAIP)
WBG – sharing of knowledge, CDAT	A1&A2. Sharing knowledge and lesson in hillside irrigation B3. Support on national agricultural insurance scheme (NAIS)
IFC, WBG, ABC Fund, Rabobank- access to credit lines	B3. Facilitate access for MFIs and SACCOs to existing credit lines to meet their growing financial needs.
Kilimo Trust, R-YES IFAD grant	Targeting youths, for the provision of vocational trainings and capacity building.

One Acre Fund – sharing of knowledge	A1&2. Sharing knowledge and lesson learned in irrigation development; potential scaling-up through coordination with KIIWP2. B1&3. Sharing of knowledge regarding credit, building market linkages.
AGRA– sharing of knowledge	A4. Adoption of CSA technologies (seeds and fertilizer). B2. Farmers' linkages to markets and private sector; capacity building of government staff and institutions; access to/digitalization of financial services; C1. Policy and Institutional Development.

G. Costs, benefits and financing

a. Project costs

[77] Total Project cost, including physical and price contingencies, is estimated at about US$61 million. The investment costs amount to US$52.8 million and represent 86.5 percent of the total Project cost and the recurrent costs amount to US$5.3 million or 8.7 percent. The remaining balance of US$3.0 million (4.9 percent of total Project cost) is currently unallocated and will be allocated at mid-term review. Funds allocated to the Project Coordination Unit are US$5.0 million, equal to 8.2 percent of the total cost.

b. Project financing/co-financing strategy and plan

The Table below presents the financiers of the Project by Sub-component.

Table 5. Financiers by Component (US$)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)
Components by Financiers

	(US$'000)															
	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Component A: Strengthening resilience to droughts																
1. Sub-component A.1: Catchment Rehabilitation and Protection	1,121	23.0	1,515	31.1	2,176	44.6	-	-	-	-	-	-	65	1.3	4,877	8.0
2. Sub-component A.2: Infrastructure Development and Management	6,122	17.6	13,000	37.4	15,161	43.7	-	-	-	-	-	-	432	1.2	34,715	56.9
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Techn	422	15.3	1,041	37.7	1,301	47.1	-	-	-	-	-	-	-	-	2,765	4.5
Subtotal	7,668	18.1	15,557	36.7	18,638	44.0	-	-	-	-	-	-	497	1.2	42,357	69.4
B. Component B: Support to farm business development																
1. Sub-component B.1: Developing farming as a business	28	0.5	942	17.0	2,302	41.4	372	6.7	268	4.8	1,648	29.6	-	-	5,554	9.1
2. Sub-component B.2: Supporting backward and forward market linkages	258	6.5	1,169	29.7	2,126	54.0	-	-	384	9.7	-	-	-	-	3,935	6.4
Subtotal	282	3.0	2,111	22.2	4,428	46.7	372	3.9	650	6.9	1,648	17.3	-	-	9,489	15.5
C. Component C: Institutional development and project coordination																
1. Sub-component C.1: Policy and institutional development	138	10.5	451	34.6	717	55.0	-	-	-	-	-	-	-	-	1,304	2.1
2. Sub component C.2: Project coordination	-	-	2,255	45.9	2,659	54.1	-	-	-	-	-	-	-	-	4,914	8.1
3. Sub component C.3: Emergency fund	-	-	0	50.0	0	50.0	-	-	-	-	-	-	-	-	0	-
4. Sub component C.4: Unallocated	-	-	1,403	47.4	1,558	52.6	-	-	-	-	-	-	-	-	2,960	4.9
Subtotal	138	1.5	4,108	44.8	4,934	53.8	-	-	-	-	-	-	-	-	9,178	15.0
Total PROJECT COSTS	8,084	13.2	21,776	35.7	28,000	45.9	372	0.6	650	1.1	1,648	2.7	497	0.8	61,024	100.0

IFAD is expected to contribute resources amounting to US$ 21.8 million (35.7 percent of the total cost) to finance all project components. Provisions amounting to US$ 1.9 million (3 percent of total cost) for emergency and unforeseen expenses are included in the "Unallocated" category and partly sourced from IFAD funds. Funds for emergency have not currently been allocated but can be drawn from the unallocated amount as needed. The emergency related sub-component is set up under component C. Project components A. Strengthening Resilience to Droughts and B. Support to Farm Business Development are partially counted as climate finance. As per the multilateral development banks' methodologies for tracking climate change adaptation and mitigation finance, the total amount of IFAD climate finance for this project is preliminarily calculated as US$4,718,000.
The Government of Spain (GoS) is expected to co-finance KIIWP2 through a loan of US$ 28 million (46 percent of total cost). The funds will be allocated on all project components as follows: a) US$ 18.6 million (30 percent of total cost) for component A; b) US$ 4.4 million for component B (7 percent of total cost; and about c) US$ 4.9 million for component C (8 percent of total cost), of which US$ 1.9 million is currently unallocated (3 percent of total cost).
The GoR is expected to contribute a total amount of US$ 8 million mainly through the financing of taxes and duties across the different components and sub-components. The contribution calculation is based on the prevailing rates at design.
Contributions from private sector and ICCO amount to US$ 372,000 (0.6 percent of total cost) and US$ 650,000 (1.1 percent of total cost) respectively, to co-finance activities under component B. Contribution from beneficiaries, both in-kind and in-cash, are equal to US$ 497,000 and US$ 1.6 million respectively, for a total contribution of US$ 2.1 million (3.5 percent of total cost) and will be drawn from the co-financing of irrigation infrastructure in component A and the farm business development of component B.

c. Disbursement

2. *Project eligible expenditures*. KIIWP2 expenditure categories have been assigned in accordance with the standard FLEXCUBE

expenditure categories. Eligible expenditures categories include the following: (i) Civil Works, (ii) Equipment and materials, (iii) Goods, Services and Inputs, (iv) Technical Assistance and Consultancies, (v) Grants and Subsidies, (vi) Training, Workshops and Meetings, (vii) Salaries, Allowances, and Operational Costs. In terms of materiality, the most significant proportion of KIIWP2 resources will be disbursed for civil works, followed by technical assistance and training. The ratio of recurrent to investment costs is 12% at design. A further 5.8% of total project costs set aside for allocation at mid-term.

3. *Disbursement arrangements***.** The IFAD and Spanish financing secured under KIIWP2 will be disbursed on a parallel basis. Two separate designated accounts denominated in US$, one to receive loan proceeds from IFAD and another to receive Spanish financing will be opened at the National Bank of Rwanda. There will be three Project accounts; an operations account, a counterpart account and a district account. The funds from the different co-financiers will flow through the SPIU under the uniform terms and conditions, criteria and funds flows mechanisms finalized for KIIWP2. 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.

d. Summary of benefits and economic analysis

[78] The economic and financial analysis (EFA) of KIIWP2 accounts for benefits and costs linked to the Project. The target group is expected to experience increase in income as a direct result of the: (i) increased water availability for productive use; (ii) diversification of productive activities and sources of income thanks to greater access to technical assistance and inputs; (iii) increased food availability for rural poor, (iv) increased value-added of agricultural outputs; (v) enhanced productivity through improved infrastructure; (vi) improved quality of processed products, thus attracting higher prices; (vii) increased employment opportunity either for hired or family labour, for both on-farm and off-farm activities; and (viii) tax revenues as a result of increased volume of taxable production.

Production models are used as building blocks for the elaboration of six household/farm models where differentiation is made both in terms of cultivation patterns, land holding, source of income, production systems and poverty level. The analysis employs the Ubudehe categorization system adopted by GoR to differentiate households according to their income levels – where Ubudehe 1 denotes the poorest category and Ubudehe 4 the wealthiest. The economic evaluation of the entire Project is based on the aggregated net incremental benefits of the target population. In order to include both on- and off-farm benefits in the EFA, other economic models were considered.
The EFA includes economic benefits related to carbon sequestration directly linked to the adoption CSA practices. The calculation of the net emission/sequestration effect for different crops and CSA practices is carried out on the Ex-Act software. In addition, expected future impacts on yield related to climate change are factored into the analysis. Technical parameters for declining yields were included in the Without-Project scenario and established on the findings of climate projections and technical studies in the region.
A summary of the key profitability indicators resulting from the financial models is provided below. For the poorest beneficiaries in the target population (Ubudehe 1), the proposed activity will become viable only thanks to Project financing. Differently, due to the lack of savings and own financial resources, they would not be able to undertake the proposed activities and make a profit.

Table 6.Summary of financial models' results for target populations

MODELS	Before financing			After financing		
	NPV ('000 Rwf) @ 11%	IRRf	B/C ratio	NPV ('000 Rwf) @ 11%	IRRf	B/C ratio
CAT1 A - UB1	(250)	7%	0.86	311	44%	1.14
CAT1 B - UB1	(200)	8%	0.90	488	n/a[79]	1.22
CAT1 A - UB2	624	16%	1.14	1,748	n/a	1.35
CAT1 B - UB2	624	16%	1.14	2,000	n/a	1.42
CAT1 A - UB3	1,335	18%	1.20	3,028	n/a	1.39
CAT1 B – UB3	1,335	18%	1.20	3,404	n/a	1.46
Cooperative post/harvest storage facility	6,161	14%	1.17	22,863	n/a	1.50
Joint venture cooperative and private sector	4,565,967	n/a	1.76	4,708,095	n/a	1.78

The Project is a technically and economically viable investment to the economy as a whole. The Project economic NPV of the net benefit stream over the 20-year timeframe, discounted at 8 percent, is RWF 12,047 million (USD 12.5 million). This value yields an EIRR of 14 percent and BCR of 1.19 for the base case scenario and it results in a payback period of nine years. Profitability results were tested in the sensitivity analysis to measure variations due to unforeseen factors, hence identifying those variables affecting final results the most. The Project appears to be more sensitive to a decline in benefits rather than an increase in costs.

e. Exit Strategy and Sustainability

Institutional sustainability.KIIWP2's exit strategy is embedded in the institutional intervention mechanism through: (i) the strategic approach of working directly with administrative structures and community leaders at District, sector and irrigation scheme levels; (ii) the empowerment of Infrastructure Management Institutions to assume full responsibility for planning and implementation of watershed interventions and operation and maintenance of post-harvest infrastructure; (iii) the strengthening of FFS, Farmer Promoters and Cooperatives, including their back and forward linkages and access to markets, inputs, financial services and agriculture insurance. This institutional framework, within which the Project will be implemented and the capacity developed, will continue to exist after its completion to benefit the population and country (further details provided in Annex 10).
*Environmental sustainability***.** The sub-catchment management approach, including participatory preparation of catchment management plans, will lead to longer term environmental rejuvenation and returns on improved soil fertility and sustainable access to water, CSA technologies, enhanced resilience and reduced carbon The ESMPs will also be implemented in a participatory manner through strengthening the capacity of Hydrographic Basin Committees and Irrigation Water User Organizations. Regarding *Economic sustainability*, the Project will support enhanced storage and commercial sale of excess production to sustain investments and access to finance, value addition facilities and markets through FFS, Farmer Promoters, cooperatives and 4Ps. This will ensure that farmers enhance their incomes. The severe *food and nutrition security* challenges in Eastern Province are due to frequent droughts and high dependence on rain-fed agriculture. Using irrigation and catchment protection as entry point is a recognition of the critical importance of water to sustainable rural livelihoods and food and nutrition security. High nutrition-sensitive and CSA cropping systems will contribute to the results generated during the Project lifetime. *Women's empowerment* is key to addressing household food and nutrition insecurity. This will ensure targeted support to women and mapping of their long-term inclusion pathway. The support will be delivered together with nutrition education and participatory approaches to enhance their inclusion and economic empowerment.

3. Risks

H. Project risks and mitigation measures

Detailed risk assessment is presented in the IPRM (Annex 9). The inherent risks rated as "high" or "substantial" are summarized in the Table below.

Table 7. Selected risk categories and subcategories from Integrated Risk Matrix

Risk Categories and Subcategories	Inherent	Residual
Project Scope		
Technical soundness	High	Moderate
Risk(s): Kayonza, and building on the experience of KWAMP, the successful IFAD-supported Community-based Watershed Management Project, implemented in the neighboring Kirehe District, which completed in June 2016. There is risk of high cost of hillside irrigation in case the proposed technologies are not carefully adjusted to the constraints of the target areas and the capacity of the beneficiaries. Mitigations: Additional analyses was undertaken to mitigate the risk (high cost of hillside irrigation) of the initial design of the irrigation schemes and capacity to operate and maintain the same. This allowed to (a) reduce the unit cost of irrigation; (b) reduce the risk of the management of these schemes. The detailed design of the irrigation schemes will be optimised and recommend a suitable rationing based on further analysis, close consultation with concerned farmers and cooperatives, and prevailing conditions towards optimising profitability, making sure that the investments are suitable to the capacity of the target group. The Project will also establish and support Water Users Organizations and other relevant Infrastructure Management Institutions.		
Financial Management		
Budgeting	Substantial	Moderate
Risk(s): (1) Failure to meet budget deadline for submission of AWPBs and receipt of IFAD NO, which could cause ineligible expenditure; (2) Poor budget monitoring at activity and category level arising out of failure to customize IFMIS to facilitate posting of budgets by this requirement. Mitigations: KIIWP2 will use IFMIS for accounting and budget input. Should IFMIS not have been customized, the budget may be required to be monitored within a parallel software in parallel. Budgeting should involve the project financing team, technical staff, procurement officer and M&E officer to ensure the expenditures categories are well aligned and the logframe is considered at budgeting time.		
Environment, Social and Climate Impact		
Biodiversity conservation	Substantial	Moderate
Risk(s): KIIWP2 will be implemented in the vicinity of the Akagera National Park which hosts considerable biodiversity of both fauna and flora. The area is characterized by a network of lakes hydrologically connected with the Akagera River, either directly through surface flows or through swampy areas. Mitigations:The Project will conduct rapid site biodiversity survey for each irrigation scheme coupled with satellite imagery for establishing a baseline on biodiversity and ecosystem status. The baseline will be annually monitored, for evaluating and documenting progress in improving ecosystem services through soil, water and biodiversity conservation measures and sustainable use of terrestrial and freshwater ecosystems.		
Vulnerability of target populations and ecosystems to climate variability and hazards	Substantial	Moderate
Risk(s): Population has suffered from extreme events (droughts) in 2016 and 2017. The risk of extreme weather event will continue to remain. Mitigations: KIIWP2 will apply the watershed and catchment management approach, including participatory preparation of catchment management plans, which will lead to sustainable use of natural resources. The Project will adopt the PICSA methodology which will be applied to disseminate weather and climate services information to farmers, through better understanding, access, use and uptake of the climate information package. The Project will also introduce agricultural insurance under SC B2 while SC A3 will promote CSA practices and ESMPs will be carefully implemented (Annex 5, Appendix 1).		
Stakeholders		

Stakeholder engagement/coordination	Substantial	Moderate
Risk(s): (i) Unequal representation of stakeholders in developing the project activities (i.e. elite capture); (ii) Limited technical capacity, governance and institutional capacity of beneficiaries (e.g. farmers' organizations) in managing irrigation schemes, growing high value crops and linking themselves to markets. Mitigations: Stakeholder participation by: (i) participatory community-driven preparation of sub-catchment plans; (ii) strengthened FFS, cooperatives, Infrastructure Management Institutions; (iii) community competition grants; (iv) engagement in the selection of irrigation systems and technology. The project will ensure capacity development of farmers and farmers' organizations in areas including irrigation management (SC.A2), climate-smart agriculture and technologies (SC.A5), and business and marketing skills (SC.B1).		

4. **Financial Management Risk Assessment.** The inherent FM risk of the project has been assessed as moderate. Residual risk remains moderate at design pending the customisation of IFMIS, without which the project would face financial reporting challenges, as well as budget monitoring and cash forecasting issues which would impact the flow of funds. The customisation will be foreseen as a covenant of the KIIWP2 financing agreement. The FM risk assessment will be updated throughout implementation as part of annual supervision processes.

I. Environment and Social category

The **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 >100ha) and marshland development. Despite the proximity to the Akagera national park, the area targeted by the Project is already transformed to agriculture land.
KIIWP1 prepared an ESIA and Feasibility Study (FS) for Ndego and Kabare sectors. In November 2020, the GoR organised a national validation workshop with all relevant stakeholders, to formally review both documents. The final FS and ESIA were then shared with IFAD and approved for disclosure.
The already developed FS and ESIAs have identified that no physical involuntary resettlements are expected. An abbreviated RAP was included in the ESIA prepared for the Ndego and Kabare schemes and associated costs were integrated in the cost-table. The abbreviated RAP will be refined with the detailed design and implemented during the inception phase. All compensation measures will be provided prior to the construction works or partial land take. For the FS and ESIAs for the Kanyeganyege and Gishanda irrigation schemes: hydro-geological surveys for boreholes drilling and valley ponds; water permit requests; and ESIA procedures are initiated and are expected to be finalized in July 2021. The additional ESIAs will be shared with IFAD for no-objection and disclosed 120 days prior to the construction of the irrigation infrastructures (*Annex 11 on expected timeline for finalising the required studies/surveys*).

J. Climate Risk classification

Because of recent droughts and the vulnerability of Eastern Province to extreme events, the climate risk classification is **High**. Among the climate science community[80], there is consensus that Rwanda's future climate will be substantially warmer, increasing between 1.3°C and 1.9°C by mid-century according to CMIP5 projections. Projections of precipitation in Rwanda are more variable, with estimates of the change in annual average rainfall ranging from a 10 percent decrease to a 22 percent increase by mid-century. Through financing support from ASAP II, the University of Cape Town conducted, in 2020, a detailed climate risk analysis to assess climate change effects and future crop suitability in Rwanda. The assessment examined the impact of climate change on the main subsistence crops which are beans, cassava, maize, groundnuts and sweet potatoes. The findings for beans and maize are as follows. For maize, the projected decrease in production is expected to be 7 kg per household in Eastern Province, amounting to a loss of US$2.5 per household. For beans, all provinces will experience decreased production. Eastern Province is likely to be the most affected with an annual decrease in production up to 8 percent, representing an annual loss of 38 kg and US$20 per household. The report recommends: (i) the promotion of fast-growing varieties, (ii) increase technical support for climate resilience and management of climate risks; and (iii) adoption of alternative and climate resilient crops such as sorghum, millet or groundnuts. Hence, the Project emphasis on risk management is likely to increase resilience and adaptive capacity of households, communities and ecosystems.
The Project will promote adaptation and mitigation measures in terms of: (i) enhancement of agricultural productivity using climate-smart agriculture practices through FFS; (ii) restoration and management of pasture land; (iii) afforestation, reforestation and forest conservation through synergies and coordination with Rwanda Forest Authority; and (iv) promotion of appropriate and tested (e.g. under PASP project) innovative and climate smart technologies (e.g. zero energy cooling chambers, metal silos or hermetic bags for storage of cereals, drying grounds and improved warehouses).

4. Implementation

K. Organizational Framework

a. Project management and coordination

The Lead Project Agency will be the Rwanda Agriculture and Animal Resources Development Board (RAB), an implementing agency

of MINAGRI, which will have the overall responsibility for the coordination and execution of the Project.
KIIWP2 will be integrated within the SPIU of IFAD projects (KIIWP1, PASP and RDDP) that are under RAB. The SPIU Coordinator will oversee and coordinate KIIWP implementation at both the central and district level. KIIWP1 already existing personnel will be the same for KIIWP2, plus required additional extra staff at central and at district unit level. The SPIU will determine modalities of allocation of staff at central or District unit levels. International technical assistance will be mobilized to support the SPIU in areas such as irrigation, agribusiness, CSA and GAP. The Chief Finance Officer of RAB will become the Chief Budget Holder for the Project as for other IFAD-funded projects under the SPIU.
The Project Steering Committee (SC) at District level established for KIIWP1 shall continue for KIIWP2. The SC will be made up of representatives of MINAGRI and other relevant ministries, and representatives of the District Council, the Farmers' Organizations (FOs), local institutions and private sector participating in the Project. The SC will be responsible for the technical oversight of the review and implementation of the AWPB and the Project's integration into the District.
Implementation at District level will be monitored by the Director in charge of agriculture in collaboration with existing staff. The Project will also work with FOs, Cooperatives, IWUOs and national and international NGOs. Raising awareness and capacity building are key elements, especially of FOs and District, Sector level staff. Practically, the Project will avail a budget for twice yearly planning and M&E meetings.
Implementation of Components. *Sub-component A1*. The SPIU will engage a service provider(s) to implement the sub-catchment management plans. The SPIU will have a field officer responsible for supervising the implementation jointly with the SCCs and with the active participation of IWUOs. A partnership with WFP will be formalized with an MoU for this sub-component and others where relevant. The Rwanda Center of Excellence in Biodiversity and Natural Resource Management (CoEB)[81] would be a partner for monitoring the ecosystems and landscape restoration and rehabilitation measures. As per its mandate, the CoEB would support implementation of the sub-catchment management plans and all mitigations measures listed under the ESMPs to ensure conservation, restoration and sustainable use of terrestrial and freshwater ecosystems.
Sub-component A2. Once the detailed design for irrigation schemes completed, the SPIU will tender for the works to contractors with demonstrated experience. The procurement of works will be divided into two lots. Lot one will be made of all civil works and installations required to supply bulk water till the farm edge. This will include but not limited to the pumping stations, supply pipelines, balancing reservoirs, access roads and preliminary land preparation. Lot two will include the infield installations comprising pivots and sprinklers as well as distribution sub-mains. To ensure the quality and cost effectiveness of infield installations, the Project will select specialised international companies with experience in the region, which provide guarantees for the lifespan of equipment and after-sale services by local representative dealers. District, Sector and Cell-level staff, with the support of the WUO Specialist in the SPIU and RAB, will support the formation and strengthening of the Infrastructure Management Institutions. The District could simultaneously replicate the approach in the remaining three Kayonza sectors.
Sub-component A3. RAB with the support of the SPIU and with specialized TA if needed, will organize the FFS facilitator training and manuals adaptation. They will include sustainable mechanization in the curricula and roll out the trainings for youth mechanization manufacturers and service providers. District, Sector and Cell-level staff, with the support of the Agronomist at the decentralized SPIU, will ensure the implementation and coordination of the FFS and support to Farmer Promoters.
*Sub-component B1.*A FaaB training module will be developed by ICCO and incorporated in the FFS curriculum The FaaB training will then be imparted along FFS by specialized service providers[82] recruited by the Project on a competitive basis. RCA is in charge of activities connected with the creation and supervision of cooperatives including: registering, regulating and supervision; assisting with capacity building through trainings and seminars. An MoU could be signed between RAB/SPIU and BDF to manage the grant windows, given its thorough experience, outreach capacity through district offices and recently digitalized application process. BDF has been managing all grants financed by the recent IFAD-funded projects PASP, PRICE and RDDP. Grant management fees will be availed to BDF to support its overall engagement.
Sub-component B2. An agreement will be signed with NAIS to implement the activities of Sub-component B2.

b. Financial Management, Procurement and Governance

5. Financial management (FM) arrangements of KIIWP2 have been designed on the basis of KIIWP1 taking into account the IFAD-financed project coordination structure of SPIU. The financial management arrangements implemented for KIIWP1 will be retained for KIIWP2. These have been found satisfactory to date, with the Auditor General expressing an unqualified opinion on the project's first set of financial statements (FY 2020) and on legal compliance, with no significant internal control weaknesses reported in the Management Letter and satisfactory quality of financial reporting. KIIWP2 will have dedicated finance staff, either competitively recruited or transferred from completing projects in the IFAD portfolio under supervision of RAB. FM staff for the Project both at SPIU and Kayonza District are already in place for KIIWP1. There are therefore no start–up challenges anticipated in financial management, except for delays in establishing appropriate and efficient financial reporting mechanisms due to the pending customisation of Integrated Financial Management Information Systems (IFMIS).

6. In line with GoR requirement to have all entities including projects rolled onto IFMIS, KIIWP1 was designed with a view of its accounting based on IFMIS and no plans to use parallel systems. The KIIWP1 financing agreement provided for customisation of IFMIS to facilitate reporting by component, financier and categories in a single or slightly modified report as required by IFAD.While KIIWP1 has been rolled-out on IFMIS, the customisation of IFMIS to meet these requirements is yet to be done. This would affect financial reporting of both KIIWP1 and KIIWP2, with the risk that data will have to be generated in MS Excel, which is cumbersome, prone to errors and will not facilitate real time reporting. MINECOFIN has committed to resolving this matter in a phased manner, namely within two phases completing in April 2021 and June 2021 respectively. The KIIWP2 legal covenants will include the IFMIS customisation and required adjustments to the PIM will be made accordingly.

7. As Kayonza District is an independent entity, accounting separately within IFMIS, the SPIU will not be able to consolidate data for withdrawal application (WA) purposes as the posted data by the district will not be accessible by the SPIU on IFMIS. Accordingly, this will also have to be addressed by the IFMIS team at customization. Should there be further delay in implementing the customisation, this will imply that certified monthly extracts of expenditure by Project component, sub-component, and expenditure category to activity level will be required to be done by the District and submitted to the SPIU for purposes of

generating WAs.

8. There will be a designated account denominated in US$ held at the National Bank of Rwanda to receive loan proceeds from IFAD, and a second designated account to receive the Spanish co-financing, if confirmed. There will be three project accounts; an operations account, a counterpart account and a district account. These three project accounts will be linked to IFMIS. The IFAD Client Portal (ICP) will be implemented for KIIWP2.

Procurement

The IFAD Virtual Design Mission of KIIWP2 conducted a remote procurement risk assessment[83] by completing an IFAD procurement risk matrix (PRM), which included a risk assessment of both the country level and the project institutional dimensions of public procurement[84]. The PRM returned a low inherent risk rating of 2.91 and, assuming that the recommended risk mitigating actions are undertaken by the Borrower/IFAD and that their expected benefits are fully realized, the overall net risk rating is also low (2.96).

The main challenge identified in the PRM[85] involves procurement delays caused by the SPIU using open tendering for low-value procurements of goods, works and related non-consulting services, when the use of shopping (i.e. requesting a minimum of three quotations from suppliers, contractors or service providers) would be more efficient. In fact, the SPIU applies national procurement thresholds, which are far below[86] those stated in IFAD's Letter to the Borrower (LtB) for each IFAD-funded project implemented by the SPIU.
After consultations with both the SPIU and the Rwanda Public Procurement Authority, in November 2020, IFAD formally requested the Rwandan Ministry of Finance (MoF) to consider an increase in procurement thresholds to be applied to all IFAD-funded projects implemented by the SPIU, including KWIIP2. The MoF is yet to provide its feedback on the proposed increase and the Mission Team is continuing to follow up with the SPIU in this regard. Once a response from the MoF is received, the final procurement and prior-review thresholds will be laid out in the LtB. Other challenges concern the application of domestic preferences to national competitive bidding processes and the lack of mandatory references to IFAD polices in the bidding documents used for low-value procurements of goods.

Procurement framework and institutional arrangements. The procurement risk assessment ascertained the soundness of both the Rwandan public procurement framework and the implementing agency. Consequently, the following institutional arrangements will be in place:

1. Pursuant to paragraph 42 of the IFAD Project Procurement Guidelines, procurement of goods, works and services for KIIWP2 shall be carried out according to the Borrower's procurement regulations to the extent that they are consistent with the IFAD Project Procurement Guidelines. Rwandan procurement regulations include Law no. 62/2018 of 25/08/2018 governing public procurement and the Ministerial Order no. 002/20/10/TC of 19/05/2020 establishing regulations on public procurement.
2. Coordination and central procurement capacities will be focused in the Procurement Unit of the existing SPIU, which counts an experienced Head of Procurement in charge of the procurement function for all IFAD-funded projects implemented by the SPIU and a dedicated Procurement Specialist recruited under the first phase of KIIWP1, who will reprise his role as Procurement Specialist under KIIWP2. Capacity at SPIU level will be strengthened with the addition of a Procurement Assistant to support activities under KIIWP2 and the other IFAD-funded projects implemented by the SPIU. The Procurement Assistant will be competitively recruited from the market, based on the ToRs included in the PIM and subject to IFAD's No-Objection.
3. Kayonza District will be actively involved in procurement activities wherever possible. Specifically, selected procurements of goods with an estimated value of US$ 40,000.00 to be delivered at district-level will be delegated to the District's Corporate Division, which includes two procurement officers, under the supervision of the SPIU. Procurement at district-level shall be carried out according to the Borrower's procurement regulations to the extent that they are consistent with the IFAD Project Procurement Guidelines. The District Tender Committee will be responsible for the advertisement of tenders and the approval of recommendations to award.

Governance, prohibited practices and anti-corruption measures

Transparency International's Country Corruption Perception Index score puts Rwanda at medium risk in terms of corruption (54 points in 2020). The Office of the Ombudsman is an independent public institution of Rwanda, which investigates cases of injustice in public administration and private institutions. As the Office of the Ombudsman is also tasked with preventing and combating corruption and other related offences, it serves both as the national anti-corruption authority and as an Ombudsman.

Anti-corruption measures will include requiring all procurement entities, as well as bidders, suppliers, contractors, consultants and service providers to observe the highest standard of ethics during the procurement and execution of contracts financed under KIIWP2, in accordance with the IFAD Project Procurement Guidelines. The Revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations, as well as the IFAD Policy to Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse and the IFAD Anti-Money Laundering and Countering the Financing of Terrorism Policy, shall apply to all IFAD-financed and/or IFAD-managed operations and activities, as well as to vendors and third parties, and references to said policies will be included in the standard bidding documents that will be employed by KIIWP2.

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

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

Monitoring and evaluation (M&E) is being put in place under KIIWP1, in accordance with the requirements of IFAD and GoR. It is

coordinated by the SPIU and supported by additional professional staff already hired as part of KIIWP1, who will work closely with subject-matter specialists to strengthen learning and knowledge management. The M&E System (MES) is being put in place in accordance with MINAGRI's new management information system and IFAD's new Operational Results Management System (ORMS). The MES will be under the supervision of the Project Coordinator and will be managed by the M&E Specialist. To supplement the Project ORMS Logical Framework, a detailed operational results framework and an M&E plan will be developed to guide M&E processes, define roles and responsibilities as well as set a plan for realisation of set targets through the Project life. An M&E Manual will be developed by the SPIU describing how the MES/MIS system works, the tools and processes for its smooth operation.
*Monitoring sustainability***.** The Project will partner with the CoEB, which will provide technical backstopping to implement the community–based sub-catchment management plans and all mitigations measures listed under the ESMPs in order to ensure conservation, restoration and sustainable use of terrestrial and freshwater ecosystems and their services. The Project will use several tools for evaluating and documenting progress in improving ecosystem services including a rapid biodiversity survey for each irrigation scheme and satellite imagery for assessing impacts of soil, water and biodiversity conservation measures.
Knowledge Management (KM) and Communication will be an integral part of KIIIWP to ensure that Project implementation is a continuous learning process and based on the Knowledge Management and Communication Strategy. The Project M&E system will form the foundation of KM and learning system and will thus be a primary instrument of information capture and storage, based on the indicators detailed in the results framework. In addition, a stakeholder Communication Strategy will be developed to detail how community expectations will be managed and the roles and responsibilities of the District Authority and SPIU teams in communication.

b. Innovation and scaling up

Sustainability and scaling-up of agricultural insurance is at the heart of the related activities proposed in KIIWP2. There is a direct link to NAIS priorities and plans, with KIIWP2 both benefitting from the presence of NAIS, its services, products, and partial subsidy, and also contributing to its scale-up through support to farmer education, capacity building of NAIS stakeholders and KIIWP2 distribution channels, and policy dialogue. The agricultural insurance activities represent innovative approaches to delivery of education and the products themselves. In particular the approach to train extension workers in insurance would be an innovation within Rwanda and it would be a good international practice. The effort to increase bundling of insurance with the credit and potentially grants under KIIWP2 would also represent an innovation within Rwanda.
The partnership with ICCO, AGRA, and AFR will also allow to promote the digitalization of financial services for smallholders and cooperatives in order to reduce transaction costs, increase efficiency and sustainable access to financial services.

M. Project Target Group Engagement and Feedback, and Grievance Redress

a. Project Target Group Engagement and Feedback.

9. KIIWP will promote regular target group engagement and feedback throughout its lifecycle. Under KIIWP1, these will include: (a) community-based Sub-catchment management plan preparation; (b) establishment of IWUOs. Under KIIWP2, these will include; (c) establishment and/or strengthening of Cooperatives and FFS; (d) community-competition; (e) participatory M&E workshops; (f) further strengthening of IWUOs.

b. Grievance redress.

10. [87] An adequate grievance redress mechanism (GRM) will be established to ensure beneficiaries voice their concerns related to KIIWP's interventions with the relevant staff at Project District level. A focal point will be appointed to follow up the GRM process. The mechanism will be publicized at the local level and in Kinyarwanda. The Project Coordinator will have the overall responsibility to address concerns brought to the attention of the focal point regarding any environmental and/or social impacts due to intervention by the target population. Complaints received shall be recorded, documented and included in progress reports including the number and type of complaints and the results of their resolution.

11. Establishment of irrigation schemes may raise complaints among local communities mainly due to conflict among water users, resettlement, conflict between workers and local community, etc. Grievance procedures are required to ensure that Project Affected Persons (PAPs) are able to lodge complaints or concerns, without cost and with the assurance of a timely and satisfactory resolution of the issue. The procedures also ensure that the entitlements are effectively transferred to the intended beneficiaries. Stakeholders will be informed of the intention to implement the grievance mechanism, and the procedure will be communicated when the RAPs are finalized. Grievances may arise from members of communities who are dissatisfied with eligibility criteria use, community planning and actual implementation or compensation. In case an agreement is not reached through the project-level GRM, the PAPs may contact IFAD following the procedures on the IFAD website[88]. The GRM procedures are detailed in the PIM

N. Implementation plans

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

Implementation readiness of KIIWP2 will be ensured by KIIWP1, which: (a) created SPIUs at national and district levels, including coordination, financial management and M&E units; (b) will establish and build capacity of the Infrastructure Management Institutions; (c) will prepare the required FS, ESIAs, and Sub-catchment management plans. This PDR defines the required support to further

enhance implementation capacity.
It is recommended that a baseline study on CSA existing practices and technologies in Rwanda and in region would be undertaken by KIIWP1. The study will include an analysis on sustainable mechanization, including TLST, available and of potential interest. Technologies and improved tools must be adapted to farmers' needs and production systems, affordable, will have to help reduce burden and help increase productivity.

Supervision, Mid-term Review and Completion plans.

Supervision and implementation support will be organised jointly by IFAD and GoR. Supervision will be a continuous process including joint missions, as well as continuous desk review to ensure that implementation is on track. The composition of supervision and implementation support missions will largely be determined by the prevailing circumstances. Implementation support will be provided through the in-country IFAD office, the Regional Hub in Nairobi, and TA to be mobilized especially on irrigation, M&E and Procurement. *Mid-Term Review (MTR)* will be undertaken midway through Project implementation and evaluate whether the Project is on course to achieve its goal. The MTR will be a key reflection moment to assess implementation performance and recommend adjustments, as may be required. The recommendations will take into consideration the likelihood of achieving the Project's targets during the remaining implementation period and may modify these targets and budget allocation, if considered necessary. At the end of implementation, GoR will undertake the *Project Completion Review (PCR)*, in coordination with IFAD, in order to report on the results achieved. As part of completion, a Beneficiary Impact Assessment will be undertaken and findings inform the PCR. The purposes of the PCR process are to promote accountability, reflect on performance and elicit lessons learned to inform future programme/project design and to define an appropriate post-project strategy.

Footnotes

[1] Trigger for proceeding from KIIWP1 to KIIWP2, are: (i) FSs identify irrigation schemes that are financially, economically, environmentally and socially viable and sustainable; (ii) Third party satisfactory review of FSs, ESIAs and Resettlement Action Plans (RAPs); (iii) ESIAs and RAPs are disclosed at local community level, national and IFAD website for a minimum 120 days; (iv) Provision of a budget and commitment by the Government of Rwanda to implement the RAP and other ESMP activities identified by the ESIAs; (v) Revision of the PDR and PIM to incorporate the findings of KIIWP1.

[2] National Institute of Statistics of Rwanda (NISR), *National Accounts*, 2016.

[3] IMF Policy Support Instrument.

[4]https://www.imf.org/en/Publications/CR/Issues/2021/01/04/Rwanda-Third-Review-Under-the-Policy-Coordination-Instrument-Press-Release-Staff-Report-and-49984

[5] NISR, 2020.

[6]http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/RWA.pdf

[7] World Bank

[8] Africa Sustainable Development Goals (SDG) Index and Dashboards Report 2020

[9]https://covid19.who.int/region/afro/country/rw

[10] UNDP. The socio-economic impact of COVID-19 in Rwanda. 2020

[11]https://www.bnr.rw/browse-in/economic-recovery-fund/#:~:text=The%20Economic%20Recovery%20Fund%20(ERF,economic%20effects%20of%20the%20pandemic.

[12] NISR. FinScope. 2016.

[13] NISR. EICV5. 2018

[14] NISR sets the poverty line at RWF 159,375 per year (US$162) and extreme poverty line at RWF 105,064 (US$107).

[15] NISR. Integrated Household Living Conditions Survey 2016/2017 (EICV5), Poverty Profile Report. 2018

[16]https://au.int/en/documents/31247/malabo-declaration-201411-26.

[17] The seven commitments are as follows: (i) Re-committing to the principles and values of the CAADP process; (ii) Enhancing investment finance in agriculture; (iii) ending Hunger in Africa by 2025; (iv) Reducing poverty by half, by 2025, through inclusive agricultural growth and transformation; (v) Boosting intra-African trade in agricultural commodities and services; (vi) Enhancing resilience of livelihoods and production systems to climate variability and other related risks; and (vii) Strengthening mutual accountability to actions and results.

[18] https://au.int/sites/default/files/documents/38119-doc-2019_biennial_review-en.pdf

[19] Rwanda Agricultural Households Survey 2017.

[20] IFPRI. Women's Empowerment Agriculture Index (WEAI) Survey, 2015.

[21] WFP. Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda. 2018

[22] Ministry of Health. National Youth Policy. 2015 (revised 2006).

[23] NISR. EICV5. Education Thematic Report. 2016/2017.

[24] Ibid.

[25] MINAGRI. Rwanda National Food and Nutrition Policy. January 2014

[26] WFP. Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda. 2018

[27] Famine Early Warning System Network (FEWS Net). March 2021

[28] WFP. CFSVA. 2018

[29] Ibid

[30] Kayonza District. Second District Health Strategic Plan, 2018/19-2023/24.

[31] Rwanda. Updated Nationally Determined Contribution. May 2020.

[1] Gender Equality and Women's Empowerment

[32] In 2012, the rains failed to come, causing a drop in agricultural growth and a 4 percent decline in GDP in 2013.

[33] Famine Early Warning Systems Network (FEWSNET). Water Requirement Satisfaction Index (WRSI).

[34] Gender Equality and Women's Empowerment

[35] MINAGRI. Rwanda Irrigation Master Plan. January 2010

[36] The seven districts constituting the Eastern Province include: Bugesera, Gatsibo, Kayonza, Kirehe, Ngoma, Nyagatare, and Rwamagana.

[37]https://documents.wfp.org/stellent/groups/internal/documents/projects/wfp285525.pdf

[38] The 2016 Impact Assessment reported that the number of poor people in the district reduced from 54.4 percent in 2008 to 37.1 percent in 2016. Furthermore, land ownership and security were improved resulting in 94.2 per cent of farmers owning land and 92.2 percent of households having their land registered.

[39] President's Report for KIIWP1. EB 2019/126/R/22/Rev/1".

[40] Catchment protection planning and works are initiated and ongoing (KIIWP1. Progress Report, 14 April 2021)

[41] Initiated and ongoing (KIIWP1. Progress Report, 14th April 2021)

[42] Kirehe Community-based Watershed Management Project (KWAMP)

[43] CAP Ltd. on behalf of NAEB/PRICE project. Horticulture Fruit Mapping. December 2020

[44] Climate Resilient Post-Harvest Agribusiness Support Project (PASP)

[45] Rwanda Dairy Development Project (RDDP)

[46] Project for Rural Income through Exports (PRICE)

[47] The Revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations, the IFAD Policy to Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse and the IFAD Anti-Money Laundering and Countering the Financing of Terrorism Policy.

[48] Kayonza is one of the seven districts constituting the Eastern Province of Rwanda.

[49] Data provided by Kayonza District, based on the latest survey of the Ubudehe programme system (2016).

[50] Rwanda Population and Housing Census 2012 (2012 RPHC)

[51] NISR. Kayonza District Profile. 2012

[52] NISR. EICV4. 2014

[53]Since 2015, the *Ubudehe* categorization classifies Rwandans under four socio-economic wealth categories. In 2020, MINALOC revised this categorization unveiling five categories (A, B, C, D & E). The new system was not yet disclosed by MINALOC at the time of KIIWP2 design.

[54] KIIWP ESIA study in Ndego sector. 2020

[55] Kayonza District. Second District Health Strategic Plan, 2018/19- 2023/24.

[56] NISR. Kayonza District Profile. 2012

[57] Direct targeting mechanisms are described in the PIM, Part I, section I.2. Targeting Strategies.

[58] Eligibility criteria for beneficiaries' selection are included in the PIM, Part I, section I.2. Targeting Strategies.

[59] Rural Youth Employment Opportunities: Supported to Integrated Agribusiness Hubs in Rwanda (R-YES) Project.

[60] Nutrition-sensitive activities will be directed to the poorest households (category 1 and 2 Ubudehe).

[61] KIIWP2 will rely upon the assessment conducted by the on-going IFAD-funded Nutrition Sensitive Water Productivity (NsWP) project, implemented by FAO in the same district, aimed at identifying nutrient-rich varieties able to tackle micronutrient deficiencies of the targeted population and that also offer market opportunities.

[62] Farmland protection and rehabilitation techniques to reduce runoff of rainwater and stimulate infiltration will be combined with land husbandry practices geared towards increasing vegetative cover and soil fertility. The technologies include drainage, land levelling (terracing), contour buffer strips, contour ditches, contour bunds, contour ploughing, silt traps and application of lime, mulching and compost. Where needed, slowing down runoff by construction of check dams, gabions, and side drains will be implemented. These will be complimented with agro-forestry, including planting of trees, shrubs and grasses as well as pastures.

[63] Water points for animals and humans in the catchment areas were financed under KIIWP1 i.e. 20 solar-powered boreholes and 15 valley tanks in Ndego, Mwiri, Gahini and Murundi sectors.

[64] KIIWP1 will establish the exact boundaries of the catchments and sub-catchments in Kayonza District through Geographic Information System (GIS) mapping. KIIWP1 will also support the preparation of participatory sub-catchment management plans, involving Hydrographic Basin Committees (HBCs) to ensure water resources protection and conservation in an integrated approach.

[65] ESIAs and feasibility studies will be prepared by KIIWP1.

[66] KIIWP1 will finance the feasibility and detailed design studies as well as the ESIAs for the two dam projects. The Project will recruit a qualified consultancy firm to carry out feasibility and design activities for both dam projects. The consultancy firm will design projects to optimize the available water resources and available command area with no limit to the proposed command area in the ToRs.

[67] Former Sub-catchment Committees (SCCs), as per Ministerial Instructions (2017 draft)

[68] Water for Livestock Users Organizations (WLUOs) were established under KIIWP1 to manage and maintain the 35 boreholes and valley tanks.

[69] Draft Ministerial Instructions on Land Development, Conservation and Exploitation of Developed Land. 2017

[70] A baseline study on existing CSA practices and technologies in Rwanda and the region will be undertaken by KIIWP1.

[71] FFS topics will include: Integrated Pest Management (IPM); Conservation Agriculture, composting and use of organic fertilizers; Good Agriculture Practices (GAP), time and labour saving technologies (TLST)

[72] For example: iron beans, orang-flesh sweet potato, leafy green vegetables, moringa, and fruit trees.

[73] Farmer Promoters are volunteer community leaders who receive technical training by RAB and Local Government to serve as farmer-to-farmer extension agents in their own villages. There is one Farmer Promoter in every village in Rwanda, with over 14,000 Farmer Promoters nationwide.

[74] ToT for manufacturer is planned in Rwanda, with exchanges in Zimbabwe

[75] Crop insurance products offered by NAIS are: maize, rice, chili, French beans, and Irish potato. NAIS is planning to add banana, cassava, beans and soybeans. Livestock insurance is available for dairy cows, pigs, and poultry. Other commodities may be added depending on demand. All crops are subsidized by NAIS at 40 percent.

[76] Graph presented in Annex 2.

[77] Graph presented in Annex 3.

[78] Detailed EFA analysis presented in Annex 4.

[79] There are instances in which the IRR values could not be mathematically computed. Those instances relate to a mathematical condition which requires cash flows to change sign – from negative to positive values or vice versa – at least once during the calculation timeframe. In the after financing scenario, deficits in cash flows are fully offset thanks to the accounting of grant and credit inflows, hence the mathematical condition above is not met.

[80]https://climateknowledgeportal.worldbank.org/country/rwanda/climate-data-projections

[81] CoEB is a consortium of governmental and non-governmental research and higher learning institutions in Rwanda called nodes, with a coordination hub at University of Rwanda in the College of Science and Technology.

[82] Examples of such service providers are HoReCo and RYAF, whose mandate is to encourage the involvement of young professionals in implementing programs/projects that support agricultural transformation.

[83] The findings of the PRM will be finalized during an in-country procurement mission to be carried out by IFAD as soon as practically possible.

[84] While the country level dimension drew principally on Public Expenditure and Financial Accountability (PEFA) country assessment reports on Rwanda, the project institutional dimension focused on the capability of the procurement staff at SPIU and District-level and on the quality of its procurement processes, drawing on in-country data sources and consultations.

[85] For a summary of procurement risks and proposed mitigating actions, kindly refer to Annex 9. Integrated Project Risk Matrix (IPRM). For the full list of risks and mitigations related to both the country level and project institutional dimensions of public procurement, kindly refer to the KIIWP2 Procurement Risk Matrix, which was used to inform the procurement section of the IPRM.

[86] The national procurement thresholds restrict the application of the shopping method to those procurements whose value does not exceed RWF 3,000,000, equal to, approximately, US$3,000.

[87] See Framework for Operational Feedback from Stakeholders https://webapps.ifad.org/members/eb/128/docs/EB-2019-128-R-13.pdf?attach=1 for further details.

[88]IFAD accountability and complaints procedures

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 1: Logframe

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Logical Framework

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outreach	1.b Estimated corresponding total number of households members					Annual	SPIU	
	Household members	0	90000	180000				
	1.a Corresponding number of households reached					Annual	SPIU	
	Women-headed households							
	Non-women-headed households							
	Households	0	20000	40000				
	1 Persons receiving services promoted or supported by the project					Annual	SPIU	
	Males	0	10000	20000				
	Females	0	10000	20000				
	Young	0	6000	12000				
	Not Young							
	Total number of persons receiving services	0	20000	40000				
Project Goal Contribute to poverty reduction in the drought-prone Eastern province of Rwanda	Reduction in poverty levels in eastern province of Rwanda				National statistics, poverty & gender studies	Baseline, Completion	NISR	Increased income will be used on household improvements and that stable political, macro-economic environment is maintained in the country. Food security and incomes increase through a combined effect of increased crop production and improved market access
	Reduction in poverty levels in eastern province of Rwanda	0		5				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Development Objective Improve food security and incomes of 40,000 households on a sustainable basis	Households with improved food security				National statistics, poverty & gender studies	Baseline, Completion	SPIU, NISR	National statistics, poverty & gender studies, CFSVA
	Households with improved food security			75				
	Households with improved incomes				National statistics, poverty & gender studies	Baseline, Completion	SPIU, NISR	
	Households with improved incomes			60				
Outcome Outcome 1: Farmers increase resilience to drought and productivity	1.2.4 Households reporting an increase in production				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	Food security and incomes increase through a combined effect of increased crop production and improved market access
	Total number of household members							
	Households		40	75				
	Households							
	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	
	Total number of household members		72000	135000				
	Households		40	75				
	Households		16000	30000				
	1.2.8 Women reporting minimum dietary diversity (MDDW)				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	
	Women (%)	0	20	70				
	Women (number)	0	1210	4235				
	Households (%)	0	5	30				
	Households (number)	0	2000	12100				
	Household members	0	9000	54450				
Output Output 1.1 Catchment rehabilitation and protection systems	3.1.4 Land brought under climate-resilient practices				Project reports	Annually	SPIU/RAB	Climate-resilient management will be complemented by RWFA reforestation (A)
	Hectares of land	0	2000	5350				
Output Output 1.2: Infrastructure development	1.1.2 Farmland under water-related infrastructure constructed/rehabilitated				Project reports	Annually	SPIU/RAB	
	Hectares of land	0	1230	2285				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Output Output 1.3 : Infrastructure management institutions	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks				Project reports	Annually	SPIU/RAB	
	Total size of groups	0	200	496				
	Groups supported	0	20	55				
	Males	0	100	248				
	Females	0	100	248				
	Young	0	60	150				
Output Output 1.4: Enhanced CSA and AH practices and technologies	1.1.4 Persons trained in production practices and/or technologies				Project reports	Annually	SPIU/RAB	Increased production combined with targeted capacity building will lead to improved diets and nutrition
	Men trained in crop	0	4444	6050				
	Women trained in crop	0	4356	6050				
	Young people trained in crop	0	2613	3630				
	Total persons trained in crop	0	8800	12100				
	1.1.8 Households provided with targeted support to improve their nutrition				Project reports	Annually	SPIU/RAB	
	Total persons participating	0	8800	12100				
	Males	0	4444	6050				
	Females	0	4356	6050				
	Households	0	8800	12100				
	Household members benefitted	0	39600	54450				
	Young	0	2613	3630				
Outcome Outcome 2: Increased sales and linkage of producers to services and markets	2.2.5 Rural producers' organizations reporting an increase in sales				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	Favourable economic environment (A) Public or private entities are willing to engage with project (A).
	Number of Rural POs	0	30	64				
	2.2.3 Rural producers' organizations engaged in formal partnerships/agreements or contracts with public or private entities				COI Surveys	Baseline, Midterm and Completion	SPIU/RAB	
	Number of POs	0	20	40				
	1.2.5 Households reporting using rural financial services				COI Surveys	Baseline, Midterm and Completion	SPIU/RAB	

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Total number of household members			12500				
	Households			31				
	Households			56250				
Output Output 2.1: Development of Farming as a Business Skills	2.1.2 Persons trained in income-generating activities or business management				Project reports	Annually	SPIU/RAB	Farmers interested in business skills(A)
	Males	0	0	4000				
	Females	0	0	4000				
	Young	0	0	2400				
	Persons trained in IGAs or BM (total)	0	0	8000				
Output Output 2.2: Promotion of Farm Mechanization and Post-harvest Facilities	2.1.6 Market, processing or storage facilities constructed or rehabilitated				Project reports	Annually	SPIU/RAB	
	Total number of facilities							
	Processing facilities constructed/rehabilitated							
	Storage facilities constructed/rehabilitated	0						
	Number of persons supported to access equipment to improve production and productivity				Project reports	Annually	SPIU/RAB	
	Males	0	450	900				
	Females	0	450	900				
	Young	0	270	540				
	Total people	0	900	1800				
Output Output 2.3: Supporting backward and forward market linkages	1.1.7 Persons in rural areas trained in financial literacy and/or use of financial products and services				Project reports	Annually	SPIU/RAB	Beneficiaries are able to access the services by FSPs
	Males	0	3000	6250				
	Females	0	3000	6250				
	Young	0	1800	3750				
	Persons in rural areas trained in FL and/or use of FProd and Services (total)	0	6000	12500				
	1.1.5 Persons in rural areas accessing financial services				Project reports	Annually	SPIU/ICCO	

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Total number of accesses to financial services							
	Women in rural areas accessing financial services - savings	0	3000	6250				
	Young people in rural areas accessing financial services - savings	0	1800	3750				
	Men in rural areas accessing financial services - savings	0	3000	6250				
	Men in rural areas accessing financial services - credit	0	3000	6250				
	Women in rural areas accessing financial services - credit	0	3000	6250				
	Young people in rural areas accessing financial services - credit	0	1800	3750				
	Total persons accessing financial services - savings	0	6000	12500				
	Total persons accessing financial services - credit	0	6000	12500				
	Total persons accessing financial services - insurance	0	6000	12500				
	Total persons accessing financial services - remittances	0	6000	12500				
	Men in rural areas accessing financial services - insurance	0	3000	6250				
	Women in rural areas accessing financial services - insurance	0	3000	6250				
	Young people in rural areas accessing financial services - insurance	0	1800	3750				
	Men in rural areas accessing financial services- remittances	0	3000	6250				
	Women in rural areas accessing financial services - remittances	0	3000	6250				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Young people in rural areas accessing financial services-remittances	0	1800	3750				
Outcome Outcome 3: Enabling institutional environment	Policy 3 Existing/new laws, regulations, policies or strategies proposed to policy makers for approval, ratification or amendment				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	Project interventions satisfactorily implemented
	Number	0	0	6				
	SF.2.1 Households satisfied with project-supported services				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	
	Household members	0	0	135000				
	Households (%)	0	0	75				
	Households (number)	0	0	30000				
	SF.2.2 Households reporting they can influence decision-making of local authorities and project-supported service providers				COI Surveys	Baseline, Midterm, Completion	SPIU/RAB	
	Household members	0	0	135000				
	Households (%)	0	0	75				
	Households (number)	0	0	30000				

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

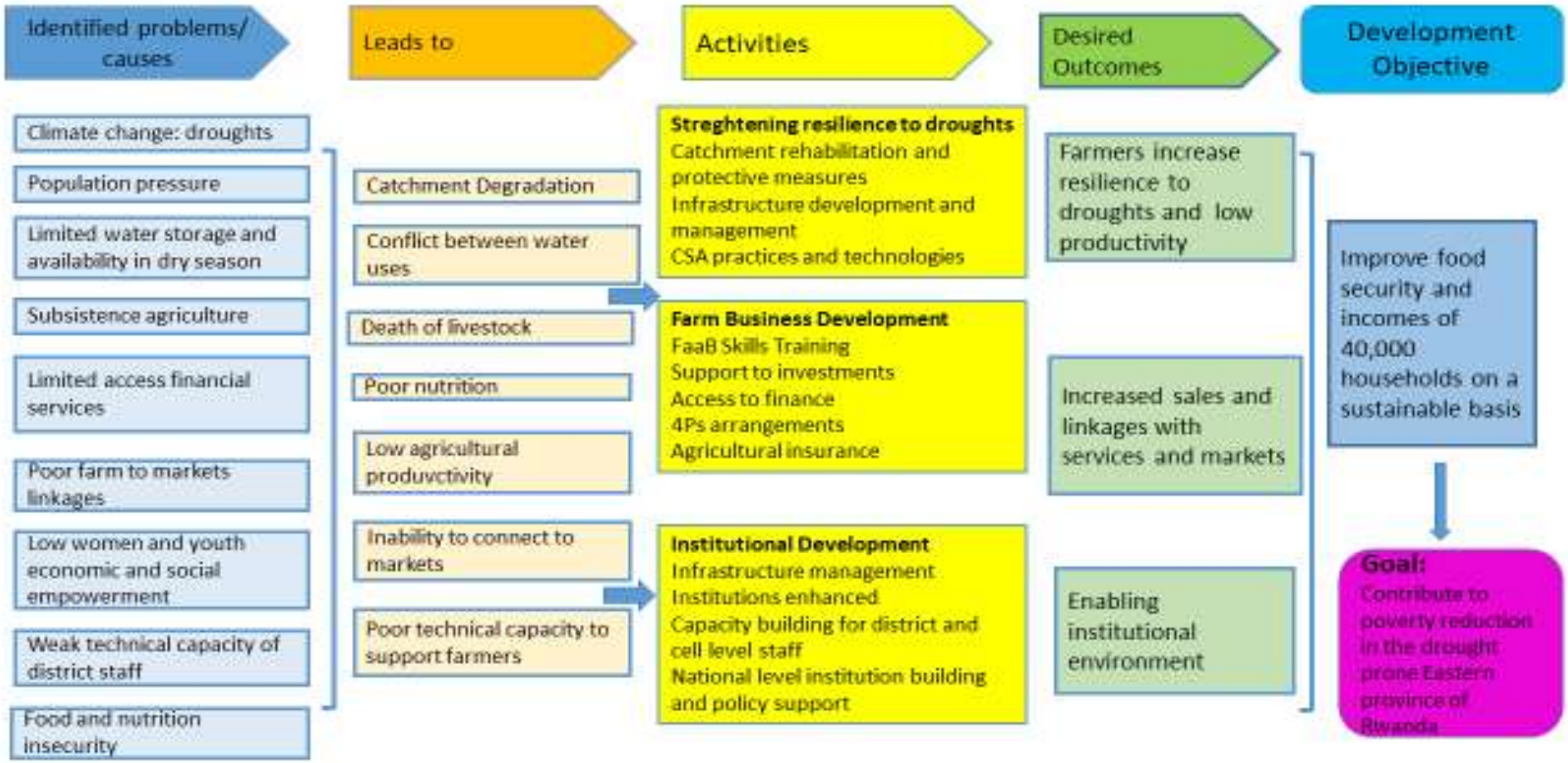
Project Design Report

Annex 2: Theory of change

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Annex 2: Theory of Change



IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 3: Project cost and financing: Detailed costs tables

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Annex 3: Project Costing and Financing

A. Project Costs

Main assumptions

1. **Introduction.** This annex describes the assumptions underlying the derivation of costs, estimated costs and financing plan for the project. Total project costs are based on March 2021 prices.

2. **Project Period.** The project will be financed over a six-year period.

3. **Inflation.** The base rate of domestic inflation has been set at an annual rate of 5 per cent throughout the project duration while international inflation is estimated at 1 per cent per year, over the implementation period.

4. **Exchange Rate.** The exchange rate was fixed at 1USD = 965 RWF as per average average market forex rate during 2020-2021. Project costs are presented in both RWF and USD currency.

5. **Physical and price contingencies**. Both types of contingencies have been taken into account and included in the costing of the project. In particular, most categories include a physical contingency of 2 per cent with an exception on the "Civil Work" category where a 5 per cent physical contingency is considered.

6. **Taxes and Duties**. Taxes and duties have been considered for each cost item. The value added tax (VAT) in Rwanda is equal to 18 per cent and is levied on all imported and locally procured goods and services.

7. **Expenditure Accounts.** Project 's expenditure accounts will be the following:

i. Technical Assistance and Consultancies
ii. Grants and Subsidies
iii. Goods, Services and inputs
iv. Trainings, Workshops and Meetings
v. Civil Works
vi. Salaries and Allowances
vii. Operating costs
viii. Unallocated

8. **Total cost and Financing.** Total project cost (investment cost and incremental recurrent cost, including physical and price contingencies) is estimated at about USD 61 million. IFAD will contribute resources amounting to USD 21.7 million (36% of the total cost) to finance all project components as follows: USD 15.5 million (25% of total cost) to finance Component A, USD 2.1 million (3% of total cost) for Component B and USD 4.1 million for the Project coordination and M&E functions (7% of total cost). Provisions amounting to USD 1.4 million (2% of total cost) for emergency and unforeseen expenses are included in the "Unallocated" category and directly sourced from IFAD funds. Funds for emergency have not currently be allocated but can be drawn from the unallocated amount as needed. The emergency related sub-component is set up under component C.

9. The Government of Spain will co-finance KIIWP2 through a loan of USD 28 million (46% of total cost). The funds will be allocated on all project components as follows: a) USD 18.6 million (44% of total cost) for component A; b) USD 4.4 million for component B (7% of total cost), and c) USD 4.9 million for component C (8% of total cost), including USD 1.5 million currently unallocated and suitable to be diverted to the emergency fund (3% of total cost).

10. Contributions to KIIWP2 are also expected to come from private sector and ICCO. Their contributions amount to USD 372,000 (0.6% of total cost) and USD 650,000 (1.1 % of total cost) respectively. The funding from such sources will co-finance activities under component B.

11. The government of Rwanda is expected to contribute a total amount of USD 8 million (13% of total cost) mainly through the financing of taxes and duties across the different components and subcomponents. The contribution calculation is based on the prevailing tax rates at design.

12. Contribution from beneficiaries, both in-kind and in-cash, are equal to USD 497,000 and USD 1.6 million respectively, for a total contribution of USD 2.1 million (3.5% of total cost) and will be drawn from the co-financing of the irrigation infrastructure in component A and the farm business development of component B

13. The foreign exchange component is estimated at about USD 24.4 million. Funds allocated to the Project Coordination Unit are estimated as USD 4.9 million, equal to 8% of the total cost.

Table 1: Project cost by components (RWF '000 / USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

Components Project Cost Summary	(RWF '000)			(US$ '000)			% Foreign	% Total Base
	Local	Foreign	Total	Local	Foreign	Total	Exchange	Costs
A. Component A: Strengthening resilience to droughts								
1. Sub-component A.1: Catchment Rehabilitation and Protection	2,268,011	2,159,931	4,427,941	2,350	2,238	4,589	49	8
2. Sub-component A.2: Infrastructure Development and Management	15,962,837	15,042,227	31,005,064	16,542	15,588	32,130	49	56
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Techr	1,878,767	691,943	2,570,710	1,947	717	2,664	27	5
Subtotal	20,109,615	17,894,100	38,003,715	20,839	18,543	39,382	47	68
B. Component B: Support to farm business development								
1. Sub-component B.1: Developing farming as a business	2,815,291	2,519,519	5,334,810	2,917	2,611	5,528	47	10
2. Sub-component B.2: Supporting backward and forward market linkages	2,206,477	1,482,631	3,689,108	2,287	1,536	3,823	40	7
Subtotal	5,021,768	4,002,149	9,023,918	5,204	4,147	9,351	44	16
C. Component C: Institutional development and project coordination								
1. Sub-component C.1: Policy and institutional development	957,859	256,208	1,214,067	993	266	1,258	21	2
2. Sub component C.2: Project coordination	4,605,071	-	4,605,071	4,772	-	4,772	-	8
3. Sub component C.3: Emergency fund	0	-	0	0	-	0	-	-
4. Sub component C.4: Unallocated	2,856,682	-	2,856,682	2,960	-	2,960	-	5
Subtotal	8,419,611	256,208	8,675,819	8,725	266	8,990	3	16
Total BASELINE COSTS	33,550,995	22,152,457	55,703,452	34,768	22,956	57,724	40	100
Physical Contingencies	917,635	843,338	1,760,974	951	874	1,825	48	3
Price Contingencies	4,327,585	3,161,000	7,488,585	853	623	1,476	42	3
Total PROJECT COSTS	38,796,215	26,156,795	64,953,010	36,571	24,453	61,024	40	106

Table 2: Project expenditure accounts by components (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Manageme
Expenditure Accounts by Components - Totals In
(US$ '000)

	Component A: Strengthening resilience to droughts			Component B: Support to farm business development		Component C: Institutional development and project coordination				
	Sub-component A.1: Catchment Rehabilitation and Protection	Sub-component A.2: Infrastructure Development and Management	Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Technologies	Sub-component B.1: Developing farming as a business	Sub-component B.2: Supporting backward and forward market linkages	Sub-component C.1: Policy and institutional development	Sub component C.2: Project coordination	Sub component C.3: Emergency fund	Sub component C.4: Unallocated	Total
I. Investment Costs										
A. Technical Assistance & Consultancies	250	7	418	911	2,512	547	-	-	-	4,646
B. Grants and Subsidies	-	-	-	4,330	-	-	-	0	-	4,330
C. Goods Services & Inputs	715	-	1,069	-	641	-	-	-	-	2,425
D. Training Workshops & Meetings	38	-	1,150	143	781	758	-	-	-	2,870
E. Civil Work	3,798	34,708	-	-	-	-	-	-	-	38,505
F. Unallocated	-	-	-	-	-	-	-	-	2,960	2,960
Total Investment Costs	4,801	34,715	2,637	5,384	3,935	1,304	-	0	2,960	55,736
II. Recurrent Costs										
A. Salaries and Allowances	61	-	-	-	-	-	4,914	-	-	4,974
B. Operating Costs /a	15	-	129	170	-	-	-	-	-	314
Total Recurrent Costs	76	-	129	170	-	-	4,914	-	-	5,288
Total PROJECT COSTS	4,877	34,715	2,765	5,554	3,935	1,304	4,914	0	2,960	61,024
Taxes	822	6,122	422	26	256	136	-	-	-	7,785
Foreign Exchange	2,381	16,858	744	2,621	1,577	273	-	-	-	24,453

Table 3: Financing Plan by Components (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)
Components by Financiers

	(US$ '000)															
	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Component A: Strengthening resilience to droughts																
1. Sub-component A.1: Catchment Rehabilitation and Protection	1,121	23.0	1,515	31.1	2,176	44.6	-	-	-	-	-	-	65	1.3	4,877	8.0
2. Sub-component A.2: Infrastructure Development and Management	6,122	17.6	13,000	37.4	15,161	43.7	-	-	-	-	-	-	432	1.2	34,715	56.9
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Techr	422	15.3	1,041	37.7	1,301	47.1	-	-	-	-	-	-	-	-	2,765	4.5
Subtotal	7,666	18.1	15,557	36.7	18,638	44.0	-	-	-	-	-	-	497	1.2	42,357	69.4
B. Component B: Support to farm business development																
1. Sub-component B.1: Developing farming as a business	26	0.5	942	17.0	2,302	41.4	372	6.7	266	4.8	1,646	29.6	-	-	5,554	9.1
2. Sub-component B.2: Supporting backward and forward market linkages	256	6.5	1,169	29.7	2,126	54.0	-	-	384	9.7	-	-	-	-	3,935	6.4
Subtotal	282	3.0	2,111	22.2	4,428	46.7	372	3.9	650	6.9	1,646	17.3	-	-	9,489	15.5
C. Component C: Institutional development and project coordination																
1. Sub-component C.1: Policy and institutional development	136	10.5	451	34.6	717	55.0	-	-	-	-	-	-	-	-	1,304	2.1
2. Sub component C.2: Project coordination	-	-	2,255	45.9	2,659	54.1	-	-	-	-	-	-	-	-	4,914	8.1
3. Sub component C.3: Emergency fund	-	-	0	50.0	0	50.0	-	-	-	-	-	-	-	-	0	-
4. Sub component C.4: Unallocated	-	-	1,403	47.4	1,558	52.6	-	-	-	-	-	-	-	-	2,960	4.9
Subtotal	136	1.5	4,108	44.8	4,934	53.8	-	-	-	-	-	-	-	-	9,178	15.0
Total PROJECT COSTS	8,084	13.2	21,776	35.7	28,000	45.9	372	0.6	650	1.1	1,646	2.7	497	0.8	61,024	100.0

Table 4: Financing Plan by Expenditure Accounts (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Manageme
Expenditure Accounts by Financiers

	(US$ '000)															
	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Investment Costs																
A. Technical Assistance & Consultancies	0	-	1,620	34.9	2,459	52.9	-	-	566	12.2	-	-	-	-	4,646	7.6
B. Grants and Subsidies	-0	-	737	17.0	1,575	36.4	372	8.6	-	-	1,646	38.0	-	-	4,330	7.1
C. Goods Services & Inputs	736	30.3	191	7.9	1,434	59.1	-	-	-	-	-	-	65	2.7	2,425	4.0
D. Training Workshops & Meetings	517	18.0	1,137	39.6	1,132	39.5	-	-	84	2.9	-	-	-	-	2,870	4.7
E. Civil Work	6,806	17.7	14,263	37.0	17,005	44.2	-	-	-	-	-	-	432	1.1	38,505	63.1
F. Unallocated	-	-	1,403	47.4	1,558	52.6	-	-	-	-	-	-	-	-	2,960	4.9
Total Investment Costs	8,058	14.5	19,351	34.7	25,162	45.1	372	0.7	650	1.2	1,646	3.0	497	0.9	55,736	91.3
II. Recurrent Costs																
A. Salaries and Allowances	-	-	2,255	45.3	2,720	54.7	-	-	-	-	-	-	-	-	4,974	8.2
B. Operating Costs /a	26	8.3	170	54.2	118	37.6	-	-	-	-	-	-	-	-	314	0.5
Total Recurrent Costs	26	0.5	2,425	45.9	2,838	53.7	-	-	-	-	-	-	-	-	5,288	8.7
Total PROJECT COSTS	8,084	13.2	21,776	35.7	28,000	45.9	372	0.6	650	1.1	1,646	2.7	497	0.8	61,024	100.0

Appendix A: Summary Cost Tables

Table of Contents

Table 1A: Components Project Cost Summary (RWF '000 / USD '000)

Table 2A: Expenditure Accounts by Components – Total Including Contingencies (USD '000)

Table 2AA: Expenditure Accounts by Components – Total Including Contingencies (RWF '000)

Table 3A: Project Components by Year – Totals Including Contingencies (RWF '000)

Table 3AA: Project Components by Year – Totals Including Contingencies (USD '000)

Table 4A: Expenditure Accounts by Year – Totals Including Contingencies (RWF '000)

Table 4AA: Expenditure Accounts by Year – Totals Including Contingencies (USD '000)

Table 5A: Project Components by Financiers (USD '000)

Table 5AA: Project Components by Financiers (RWF '000)

Table 6A: Disbursement Accounts by Financiers (RWF '000)

Table 6AA: Disbursement Accounts by Financiers (USD '000)

Table 1A: Components Project Cost Summary (RWF '000 / USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

Components Project Cost Summary	(RWF '000)			(US$ '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. Component A: Strengthening resilience to droughts								
1. Sub-component A.1: Catchment Rehabilitation and Protection	2,268,011	2,159,931	4,427,941	2,350	2,238	4,589	49	8
2. Sub-component A.2: Infrastructure Development and Management	15,962,837	15,042,227	31,005,064	16,542	15,588	32,130	49	56
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Techr	1,878,767	691,943	2,570,710	1,947	717	2,664	27	5
Subtotal	20,109,615	17,894,100	38,003,715	20,839	18,543	39,382	47	68
B. Component B: Support to farm business development								
1. Sub-component B.1: Developing farming as a business	2,815,291	2,519,519	5,334,810	2,917	2,611	5,528	47	10
2. Sub-component B.2: Supporting backward and forward market linkages	2,206,477	1,482,631	3,689,108	2,287	1,536	3,823	40	7
Subtotal	5,021,768	4,002,149	9,023,918	5,204	4,147	9,351	44	16
C. Component C: Institutional development and project coordination								
1. Sub-component C.1: Policy and institutional development	957,859	256,208	1,214,067	993	266	1,258	21	2
2. Sub component C.2: Project coordination	4,605,071	-	4,605,071	4,772	-	4,772	-	8
3. Sub component C.3: Emergency fund	0	-	0	0	-	0	-	-
4. Sub component C.4: Unallocated	2,856,682	-	2,856,682	2,960	-	2,960	-	5
Subtotal	8,419,611	256,208	8,675,819	8,725	266	8,990	3	16
Total BASELINE COSTS	33,550,995	22,152,457	55,703,452	34,768	22,956	57,724	40	100
Physical Contingencies	917,635	843,338	1,760,974	951	874	1,825	48	3
Price Contingencies	4,327,585	3,161,000	7,488,585	853	623	1,476	42	3
Total PROJECT COSTS	38,796,215	26,156,795	64,953,010	36,571	24,453	61,024	40	106

Table 2A: Expenditure Accounts by Components – Total Including Contingencies (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Manageme
Expenditure Accounts by Components - Totals In
(US$ '000)

	Component A: Strengthening resilience to droughts			Component B: Support to farm business development		Component C: Institutional development and project coordination				
	Sub-component A.1: Catchment Rehabilitation and Protection	Sub-component A.2: Infrastructure Development and Management	Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Technologies	Sub-component B.1: Developing farming as a business	Sub-component B.2: Supporting backward and forward market linkages	Sub-component C.1: Policy and institutional development	Sub component C.2: Project coordination	Sub component C.3: Emergency fund	Sub component C.4: Unallocated	Total
I. Investment Costs										
A. Technical Assistance & Consultancies	250	7	418	911	2,512	547	-	-	-	4,646
B. Grants and Subsidies	-	-	-	4,330	-	-	-	0	-	4,330
C. Goods Services & Inputs	715	-	1,069	-	641	-	-	-	-	2,425
D. Training Workshops & Meetings	38	-	1,150	143	781	758	-	-	-	2,870
E. Civil Work	3,798	34,708	-	-	-	-	-	-	-	38,505
F. Unallocated	-	-	-	-	-	-	-	-	2,960	2,960
Total Investment Costs	4,801	34,715	2,637	5,384	3,935	1,304	-	0	2,960	55,736
II. Recurrent Costs										
A. Salaries and Allowances	61	-	-	-	-	-	4,914	-	-	4,974
B. Operating Costs /a	15	-	129	170	-	-	-	-	-	314
Total Recurrent Costs	76	-	129	170	-	-	4,914	-	-	5,288
Total PROJECT COSTS	4,877	34,715	2,765	5,554	3,935	1,304	4,914	0	2,960	61,024
Taxes	822	6,122	422	26	256	136	-	-	-	7,785
Foreign Exchange	2,381	16,858	744	2,621	1,577	273	-	-	-	24,453

Table 2AA: Expenditure Accounts by Components – Total Including Contingencies (RWF '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Manageme
Expenditure Accounts by Components - Totals In
(RWF '000)

	Component A: Strengthening resilience to droughts			Component B: Support to farm business development		Component C: Institutional development and project coordination				
	Sub-component A.1: Catchment Rehabilitation and Protection	Sub-component A.2: Infrastructure Development and Management	Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Technologies	Sub-component B.1: Developing farming as a business	Sub-component B.2: Supporting backward and forward market linkages	Sub-component C.1: Policy and institutional development	Sub component C.2: Project coordination	Sub component C.3: Emergency fund	Sub component C.4: Unallocated	Total
I. Investment Costs										
A. Technical Assistance & Consultancies	256,458	7,634	437,597	958,643	2,655,793	592,976	-	-	-	4,909,100
B. Grants and Subsidies	-	-	-	4,178,450	-	-	-	0	-	4,178,450
C. Goods Services & Inputs	740,241	-	1,128,987	-	662,282	-	-	-	-	2,531,510
D. Training Workshops & Meetings	40,021	-	1,192,056	150,885	820,236	796,277	-	-	-	2,999,475
E. Civil Work	3,983,253	37,785,963	-	-	-	-	-	-	-	41,769,216
F. Unallocated	-	-	-	-	-	-	-	-	2,856,682	2,856,682
Total Investment Costs	5,019,973	37,793,597	2,758,640	5,287,978	4,138,311	1,389,253	-	0	2,856,682	59,244,434
II. Recurrent Costs										
A. Salaries and Allowances	61,128	-	-	-	-	-	5,331,700	-	-	5,392,828
B. Operating Costs /a	15,134	-	136,565	164,050	-	-	-	-	-	315,748
Total Recurrent Costs	76,262	-	136,565	164,050	-	-	5,331,700	-	-	5,708,577
Total PROJECT COSTS	5,096,234	37,793,597	2,895,205	5,452,028	4,138,311	1,389,253	5,331,700	0	2,856,682	64,953,010
Taxes	860,157	6,666,317	442,369	27,159	266,853	143,330	-	-	-	8,406,186
Foreign Exchange	2,489,976	18,359,455	783,292	2,568,546	1,659,038	296,488	-	-	-	26,156,795

Table 3A: Project Components by Year – Totals Including Contingencies (RWF '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

Project Components by Year -- Totals Including Contingencies	Totals Including Contingencies (RWF '000)						
	2021	2022	2023	2024	2025	2026	Total
A. Component A: Strengthening resilience to droughts							
1. Sub-component A.1: Catchment Rehabilitation and Protection	965,356	1,593,662	1,410,030	992,437	89,246	45,503	5,096,234
2. Sub-component A.2: Infrastructure Development and Management	128,843	8,308,162	9,922,728	8,566,929	8,936,520	1,930,415	37,793,597
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Technologies	470,716	887,617	935,530	516,235	59,355	25,753	2,895,205
Subtotal	1,564,916	10,789,440	12,268,288	10,075,601	9,085,120	2,001,671	45,785,036
B. Component B: Support to farm business development							
1. Sub-component B.1: Developing farming as a business	39,862	697,521	1,765,880	2,003,065	945,700	-	5,452,028
2. Sub-component B.2: Supporting backward and forward market linkages	640,810	1,280,299	1,161,718	644,556	402,560	8,370	4,138,311
Subtotal	680,671	1,977,819	2,927,598	2,647,620	1,348,260	8,370	9,590,339
C. Component C: Institutional development and project coordination							
1. Sub-component C.1: Policy and institutional development	241,457	301,845	360,765	267,265	26,248	191,673	1,389,253
2. Sub component C.2: Project coordination	896,949	802,578	842,707	884,842	929,085	975,539	5,331,700
3. Sub component C.3: Emergency fund	0	-	-	-	-	-	0
4. Sub component C.4: Unallocated	2,856,682	-	-	-	-	-	2,856,682
Subtotal	3,995,088	1,104,423	1,203,472	1,152,108	955,333	1,167,212	9,577,635
Total PROJECT COSTS	6,240,675	13,871,683	16,399,358	13,875,329	11,388,713	3,177,252	64,953,010

Table 3AA: Project Components by Year – Totals Including Contingencies (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

Project Components by Year -- Totals Including Contingencies	Totals Including Contingencies (US$ '000)						
	2021	2022	2023	2024	2025	2026	Total
A. Component A: Strengthening resilience to droughts							
1. Sub-component A.1: Catchment Rehabilitation and Protection	981	1,558	1,326	897	78	38	4,877
2. Sub-component A.2: Infrastructure Development and Management	131	8,120	9,328	7,747	7,773	1,615	34,715
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Technologies	478	868	880	467	52	22	2,765
Subtotal	1,590	10,545	11,534	9,111	7,903	1,675	42,357
B. Component B: Support to farm business development							
1. Sub-component B.1: Developing farming as a business	41	696	1,797	2,041	980	-	5,554
2. Sub-component B.2: Supporting backward and forward market linkages	651	1,251	1,092	583	350	7	3,935
Subtotal	692	1,947	2,889	2,624	1,330	7	9,489
C. Component C: Institutional development and project coordination							
1. Sub-component C.1: Policy and institutional development	245	295	339	242	23	160	1,304
2. Sub component C.2: Project coordination	913	784	792	800	808	816	4,914
3. Sub component C.3: Emergency fund	0	-	-	-	-	-	0
4. Sub component C.4: Unallocated	2,960	-	-	-	-	-	2,960
Subtotal	4,118	1,079	1,131	1,042	831	977	9,178
Total PROJECT COSTS	6,400	13,571	15,554	12,777	10,064	2,658	61,024

Table 4A: Expenditure Accounts by Year – Totals Including Contingencies (RWF '000)

Rw anda
Kayonza Irrigation and Integrated Watershed Manageme

Expenditure Accounts by Years -- Totals Including	Totals Including Contingencies (RWF '000)						
	2021	2022	2023	2024	2025	2026	Total
I. Investment Costs							
A. Technical Assistance & Consultancies	767,873	1,389,655	1,241,400	950,941	371,134	188,098	4,909,100
B. Grants and Subsidies	0	193,000	1,379,950	1,659,800	945,700	-	4,178,450
C. Goods Services & Inputs	430,299	952,258	728,470	243,818	117,434	59,232	2,531,510
D. Training Workshops & Meetings	590,680	883,808	876,514	538,220	86,947	23,306	2,999,475
E. Civil Work	653,327	9,536,622	11,239,328	9,470,448	8,938,413	1,931,077	41,769,216
F. Unallocated	2,856,682	-	-	-	-	-	2,856,682
Total Investment Costs	5,298,860	12,955,342	15,465,662	12,863,228	10,459,628	2,201,714	59,244,434
II. Recurrent Costs							
A. Salaries and Allow ances	920,688	839,967	842,707	884,842	929,085	975,539	5,392,828
B. Operating Costs /a	21,127	76,374	90,989	127,259	-	-	315,748
Total Recurrent Costs	941,815	916,341	933,696	1,012,102	929,085	975,539	5,708,577
Total PROJECT COSTS	6,240,675	13,871,683	16,399,358	13,875,329	11,388,713	3,177,252	64,953,010

Table 4AA: Expenditure Accounts by Year – Totals Including Contingencies (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Manageme

Expenditure Accounts by Years -- Totals Including	Totals Including Contingencies (US$ '000)						
	2021	2022	2023	2024	2025	2026	Total
I. Investment Costs							
A. Technical Assistance & Consultancies	780	1,358	1,167	860	323	157	4,646
B. Grants and Subsidies	0	200	1,430	1,720	980	-	4,330
C. Goods Services & Inputs	437	931	685	220	102	50	2,425
D. Training Workshops & Meetings	600	864	824	487	76	20	2,870
E. Civil Work	664	9,321	10,566	8,564	7,775	1,616	38,505
F. Unallocated	2,960	-	-	-	-	-	2,960
Total Investment Costs	5,442	12,673	14,672	11,851	9,256	1,842	55,736
II. Recurrent Costs							
A. Salaries and Allowances	937	821	792	800	808	816	4,974
B. Operating Costs /a	21	77	89	126	-	-	314
Total Recurrent Costs	958	898	882	926	808	816	5,288
Total PROJECT COSTS	6,400	13,571	15,554	12,777	10,064	2,658	61,024

Table 5A: Project Components by Financiers (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

Components by Financiers	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Component A: Strengthening resilience to droughts																
1. Sub-component A.1: Catchment Rehabilitation and Protection	1,121	23.0	1,515	31.1	2,176	44.6	-	-	-	-	-	-	65	1.3	4,877	8.0
2. Sub-component A.2: Infrastructure Development and Management	6,122	17.6	13,000	37.4	15,161	43.7	-	-	-	-	-	-	432	1.2	34,715	56.9
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Techr	422	15.3	1,041	37.7	1,301	47.1	-	-	-	-	-	-	-	-	2,765	4.5
Subtotal	7,666	18.1	15,557	36.7	18,638	44.0	-	-	-	-	-	-	497	1.2	42,357	69.4
B. Component B: Support to farm business development																
1. Sub-component B.1: Developing farming as a business	26	0.5	942	17.0	2,302	41.4	372	6.7	266	4.8	1,646	29.6	-	-	5,554	9.1
2. Sub-component B.2: Supporting backward and forward market linkages	256	6.5	1,169	29.7	2,126	54.0	-	-	384	9.7	-	-	-	-	3,935	6.4
Subtotal	282	3.0	2,111	22.2	4,428	46.7	372	3.9	650	6.9	1,646	17.3	-	-	9,489	15.5
C. Component C: Institutional development and project coordination																
1. Sub-component C.1: Policy and institutional development	136	10.5	451	34.6	717	55.0	-	-	-	-	-	-	-	-	1,304	2.1
2. Sub component C.2: Project coordination	-	-	2,255	45.9	2,659	54.1	-	-	-	-	-	-	-	-	4,914	8.1
3. Sub component C.3: Emergency fund	-	-	0	50.0	0	50.0	-	-	-	-	-	-	-	-	0	-
4. Sub component C.4: Unallocated	-	-	1,403	47.4	1,558	52.6	-	-	-	-	-	-	-	-	2,960	4.9
Subtotal	136	1.5	4,108	44.8	4,934	53.8	-	-	-	-	-	-	-	-	9,178	15.0
Total PROJECT COSTS	8,084	13.2	21,776	35.7	28,000	45.9	372	0.6	650	1.1	1,646	2.7	497	0.8	61,024	100.0

Table 5AA: Project Components by Financiers (RWF '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

(RWF '000)

Components by Financiers	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Component A: Strengthening resilience to droughts																
1. Sub-component A.1: Catchment Rehabilitation and Protection	1,160,883	22.8	1,606,135	31.5	2,258,931	44.3	-	-	-	-	-	-	70,285	1.4	5,096,234	7.8
2. Sub-component A.2: Infrastructure Development and Management	6,666,317	17.6	13,976,921	37.0	16,662,183	44.1	-	-	-	-	-	-	488,175	1.3	37,793,597	58.2
3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Techr	442,369	15.3	1,082,864	37.4	1,369,971	47.3	-	-	-	-	-	-	-	-	2,895,205	4.5
Subtotal	8,269,570	18.1	16,665,920	36.4	20,291,086	44.3	-	-	-	-	-	-	558,460	1.2	45,785,036	70.5
B. Component B: Support to farm business development																
1. Sub-component B.1: Developing farming as a business	27,159	0.5	911,845	16.7	2,289,616	42.0	358,980	6.6	276,037	5.1	1,588,390	29.1	-	-	5,452,028	8.4
2. Sub-component B.2: Supporting backw ard and forw ard market linkages	266,853	6.4	1,214,705	29.4	2,260,246	54.6	-	-	396,507	9.6	-	-	-	-	4,138,311	6.4
Subtotal	294,013	3.1	2,126,549	22.2	4,549,862	47.4	358,980	3.7	672,545	7.0	1,588,390	16.6	-	-	9,590,339	14.8
C. Component C: Institutional development and project coordination																
1. Sub-component C.1: Policy and institutional development	143,330	10.3	475,172	34.2	770,752	55.5	-	-	-	-	-	-	-	-	1,389,253	2.1
2. Sub component C.2: Project coordination	-	-	2,443,835	45.8	2,887,865	54.2	-	-	-	-	-	-	-	-	5,331,700	8.2
3. Sub component C.3: Emergency fund	-	-	0	50.0	0	50.0	-	-	-	-	-	-	-	-	0	-
4. Sub component C.4: Unallocated	-	-	1,353,496	47.4	1,503,186	52.6	-	-	-	-	-	-	-	-	2,856,682	4.4
Subtotal	143,330	1.5	4,272,503	44.6	5,161,803	53.9	-	-	-	-	-	-	-	-	9,577,635	14.7
Total PROJECT COSTS	8,706,913	13.4	23,064,972	35.5	30,002,751	46.2	358,980	0.6	672,545	1.0	1,588,390	2.4	558,460	0.9	64,953,010	100.0

Table 6A: Disbursement Accounts by Financiers (RWF '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Manage

(RWF '000)

Disbursement Accounts by Financiers	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Technical assistance & Consultancies	0	-	1,692,701	34.5	2,630,990	53.7	-	-	578,979	11.8	-	-	-	-	4,902,671	7.5
Grants and Subsidies	-0	-	711,205	17.0	1,519,875	36.4	358,980	8.6	-	-	1,588,390	38.0	-	-	4,178,450	6.4
Goods Services & Inputs	756,399	29.9	204,019	8.1	1,500,808	59.3	-	-	-	-	-	-	70,285	2.8	2,531,510	3.9
Training Workshops and Meetings	539,906	18.0	1,183,200	39.4	1,189,234	39.6	-	-	93,565	3.1	-	-	-	-	3,005,905	4.6
Civil Work	7,383,303	17.7	15,312,466	36.7	18,585,272	44.5	-	-	-	-	-	-	488,175	1.2	41,769,216	64.3
Salaries and Allowances	-	-	2,443,835	45.3	2,948,993	54.7	-	-	-	-	-	-	-	-	5,392,828	8.3
Operating Costs	27,306	8.6	164,050	52.0	124,393	39.4	-	-	-	-	-	-	-	-	315,748	0.5
Unallocated	-	-	1,353,496	47.4	1,503,186	52.6	-	-	-	-	-	-	-	-	2,856,682	4.4
Total PROJECT COSTS	8,706,913	13.4	23,064,972	35.5	30,002,751	46.2	358,980	0.6	672,545	1.0	1,588,390	2.4	558,460	0.9	64,953,010	100.0

Table 6AA: Disbursement Accounts by Financiers (USD '000)

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2) (US$ '000)

Disbursement Accounts by Financiers	The Government		IFAD		GoS		Private Sector		ICCO		Beneficiaries (in-cash)		Beneficiaries (in-kind)		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Technical assistance & Consultancies	0	-	1,618	34.9	2,459	53.0	-	-	562	12.1	-	-	-	-	4,639	7.6
Grants and Subsidies	-0	-	737	17.0	1,575	36.4	372	8.6	-	-	1,646	38.0	-	-	4,330	7.1
Goods Services & Inputs	736	30.3	191	7.9	1,434	59.1	-	-	-	-	-	-	65	2.7	2,425	4.0
Training Workshops and Meetings	517	18.0	1,139	39.6	1,132	39.4	-	-	88	3.1	-	-	-	-	2,876	4.7
Civil Work	6,806	17.7	14,263	37.0	17,005	44.2	-	-	-	-	-	-	432	1.1	38,505	63.1
Salaries and Allowances	-	-	2,255	45.3	2,720	54.7	-	-	-	-	-	-	-	-	4,974	8.2
Operating Costs	26	8.3	170	54.2	118	37.6	-	-	-	-	-	-	-	-	314	0.5
Unallocated	-	-	1,403	47.4	1,558	52.6	-	-	-	-	-	-	-	-	2,960	4.9
Total PROJECT COSTS	8,084	13.2	21,776	35.7	28,000	45.9	372	0.6	650	1.1	1,646	2.7	497	0.8	61,024	100.0

Appendix B: Detailed Cost Tables

Table of Contents

Table 1B: Catchment rehabilitation and protection (USD '000)

Table 2B: Infrastructure development and management (USD '000)

Table 3B: Enhancing climate smart agriculture practices and technologies (USD '000)

Table 4B: Developing farming as a business (USD '000)

Table 5B: Supporting backward and forward market linkages (USD '000)

Table 6B: Policy and institutional development (USD '000)

Table 7B: Project coordination (USD '000)

Table 8B: Emergency fund (USD '000)

Table 9B: Unallocated (USD '000)

Table 1B: Catchment rehabilitation and protection (USD '000) (1/2)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)
Table 1. Sub-component A.1: Catchment Rehabilitation and Protection

Detailed Costs	Unit	Quantities 2021	2022	2023	2024	2025	2026	Total	Unit Cost (US$)	Totals Including Contingencies (US$) 2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Rainfed water management zones																
Land husbandry activities in Kanyegenyege and Gishanda catchements /a	Hectares	-	150	250	150	-	-	550	1,500	-	239,806	403,673	244,626	-	-	888,104
Land husbandary in 1400 ha command area catchement in Kibare, ihema and Nasho	Hectares	250	500	400	250	-	-	1,400	1,500	395,719	799,352	645,876	407,709	-	-	2,248,656
Upstream protection for Gishanda and Kanyegenyege dam (reforestation)	Hectares	400	500	600	500	-	-	2,000	300	126,630	159,870	193,763	163,084	-	-	643,347
Subtotal										522,349	1,199,028	1,243,312	815,419	-	-	3,780,107
B. Additional activities																
Community competition for Natural Resources Management	Grant	5	10	10	10	10	5	50	5,000	25,628	51,768	52,285	52,808	53,336	26,935	262,759
C. Overall Environmental and Social Management Plan																
Integrated Pest Management for all blocks	Lumpsum	1	-	-	-	-	-	1	10,000	10,050	-	-	-	-	-	10,050
Compensation for affected assets (e.g. properties due to irrigation, LH, PHI and access	Lumpsum	-	1	-	-	-	-	1	1,000	-	1,035	-	-	-	-	1,035
Implementation of Grievance Redress Mechanisms	Lumpsum	-	1	1	1	1	-	4	500	-	518	523	528	533	-	2,102
Training of workers on occupational and health measures and adherence to them	Training session	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Planting of native trees to replace the ones lost	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Irrigation water quality tests (Level of biochemicals)	no. of survey	-	1	-	1	-	-	2	2,500	-	2,538	-	2,589	-	-	5,126
Adoption of adequate measures for controlling flow of downstream usage (reparation	Lumpsum	-	3	3	3	3	-	12	420	-	1,305	1,318	1,331	1,344	-	5,297
Control of spread of water borne diseases (bi-annual survey in project sites)	no. of surveys	2	2	2	2	2	2	12	500	1,005	1,015	1,025	1,035	1,046	1,056	6,183
Establishment of warning signposts around Balancing Storage and public awareness	Lumpsum	1	-	-	-	-	-	1	1,000	1,025	-	-	-	-	-	1,025
Control of water pollution	no. of surveys	-	1	-	1	-	-	2	2,500	-	2,538	-	2,589	-	-	5,126
Regulation of water level/ flow	no. of survey	-	1	1	1	1	-	4	5,000	-	5,075	5,126	5,177	5,229	-	20,608
Capacity building of Grievance redress committees (GRCs) in every block and monitor G	raining session	-	1	1	-	-	-	2	1,000	-	1,035	1,046	-	-	-	2,081
Mitigation of soil erosion	no. of surveys	-	1	1	1	1	-	4	250	-	254	256	259	261	-	1,030
Subtotal										16,181	15,312	9,294	13,508	8,414	1,056	63,764
D. Environment and social management plan for Nasho																
Preparation of Environmental management and Rehabilitation Plans for quarries, borrow	Plans	4	-	-	-	-	-	4	2,000	8,040	-	-	-	-	-	8,040
Preparation and Implementation of employment and recruitment Policy including code of c	Lumpsum	1	-	-	-	-	-	1	2,000	2,010	-	-	-	-	-	2,010
Provision for workers occupational health and safety hazards	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
First aid Kits and first aid helper will be provided at each working area	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
Training of drivers and preparation of traffic management plan	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Sensitization on methods of HIV/AIDS prevention	Session	2	1	-	-	-	-	3	1,000	2,050	1,035	-	-	-	-	3,086
Rapid identification survey of nesting habitats and relocation areas	Lumpsum	1	-	-	-	-	-	1	2,000	2,010	-	-	-	-	-	2,010
Preparation and implementation of borrow pits management plan	Lumpsum	1	-	-	-	-	-	1	10,000	10,050	-	-	-	-	-	10,050
Specific area restricted to only authorize personnel, should be allocated for fuel storage	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Alternative water points for livestock and domestic uses	Lumpsum	2	2	-	-	-	-	4	5,000	10,251	10,354	-	-	-	-	20,605
Sensitization on the importance of wild animals protection and reporting mechanism	Lumpsum	-	1	1	1	1	-	4	500	-	518	523	528	533	-	2,102
Sensitization of community on ownership, sustainability and vandalism of infrastructure	Lumpsum	-	1	1	1	1	-	4	1,000	-	1,035	1,046	1,056	1,067	-	4,204
Control of spread of water borne diseases (bi-annual survey in project sites)	Lumpsum	2	2	2	2	2	2	12	500	1,005	1,015	1,025	1,035	1,046	1,056	6,183
Provision of though for cattle in case of damages during the construction phase	Lumpsum	1	-	-	-	-	-	1	5,000	5,276	-	-	-	-	-	5,276
Control of water weeds (mechanical and manual removal of weeds)	Lumpsum	-	1	1	1	1	1	5	500	-	533	538	544	549	555	2,718
Subtotal										55,044	14,490	3,132	3,163	3,195	1,611	80,635

Table 1B: Catchment rehabilitation and protection (USD '000) (2/2)

E. Environment and social management plan for Kibare																
Preparation of Environmental management and Rehabilitation Plans for quarries, borrow	Plans	4	-	-	-	-	-	4	2,000	8,040	-	-	-	-	-	8,040
Preparation and Implementation of employment and recruitment Policy including code of c	Lumpsum	1	-	-	-	-	-	1	2,000	2,010	-	-	-	-	-	2,010
Provision for workers occupational health and safety hazards	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
First aid Kits and first aid helper will be provided at each working area	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
Training of drivers and preparation of traffic management plan	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Sensitization on methods of HIV/AIDS prevention	Session	2	1	-	-	-	-	3	1,000	2,050	1,035	-	-	-	-	3,086
Rapid identification survey of nesting habitats and relocation areas	Lumpsum	1	-	-	-	-	-	1	2,000	2,010	-	-	-	-	-	2,010
Preparation and implementation of borrow pits management plan	Lumpsum	1	-	-	-	-	-	1	10,000	10,050	-	-	-	-	-	10,050
Specific area restricted to only authorize personnel, should be allocated for fuel storage	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Alternative water points for livestock and domestic uses	Lumpsum	2	2	-	-	-	-	4	5,000	10,251	10,354	-	-	-	-	20,605
Sensitization on the importance of wild animals protection and reporting mechanism	Lumpsum	-	1	1	1	1	-	4	500	-	518	523	528	533	-	2,102
Sensitization of community on ownership, sustainability and vandalism of infrastructure	Lumpsum	-	1	1	1	1	-	4	1,000	-	1,035	1,046	1,056	1,067	-	4,204
Control of spread of water borne diseases (bi-annual survey in project sites)	Lumpsum	2	2	2	2	2	2	12	500	1,005	1,015	1,025	1,035	1,046	1,056	6,183
Provision of though for cattle in case of damages during the construction phase	Lumpsum	1	-	-	-	-	-	1	5,000	5,276	-	-	-	-	-	5,276
Control of water weeds (mechanical and manual removal of weeds)	Lumpsum	-	1	1	1	1	-	4	500	-	533	538	544	549	-	2,164
Subtotal										55,044	14,490	3,132	3,163	3,195	1,056	80,080
F. Environment and social management plan for Ihema																
Preparation of Environmental management and Rehabilitation Plans for quarries, borrow	Plans	4	-	-	-	-	-	4	2,000	8,040	-	-	-	-	-	8,040
Preparation and Implementation of employment and recruitment Policy including code of c	Lumpsum	1	-	-	-	-	-	1	2,000	2,010	-	-	-	-	-	2,010
Provision for workers occupational health and safety hazards	Lumpsum	1	-	-	-	-	-	1	3,000	3,075	-	-	-	-	-	3,075
First aid Kits and first aid helper will be provided at each working area	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
Training of drivers and preparation of traffic management plan	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Sensitization on methods of HIV/AIDS prevention	Session	2	1	-	-	-	-	3	1,000	2,050	1,035	-	-	-	-	3,086
Rapid identification survey of nesting habitats and relocation areas	Lumpsum	1	-	-	-	-	-	1	2,000	2,010	-	-	-	-	-	2,010
Preparation and implementation of borrow pits management plan	Lumpsum	1	-	-	-	-	-	1	5,000	5,025	-	-	-	-	-	5,025
Specific area restricted to only authorize personnel, should be allocated for fuel storage	Lumpsum	1	-	-	-	-	-	1	2,000	2,050	-	-	-	-	-	2,050
Sensitization on the importance of wild animals protection and reporting mechanism	Lumpsum	-	1	1	1	1	-	4	500	-	518	523	528	533	-	2,102
Sensitization of community on ownership, sustainability and vandalism of infrastructure	Lumpsum	-	1	1	1	1	-	4	1,000	-	1,035	1,046	1,056	1,067	-	4,204
Control of spread of water borne diseases (bi-annual survey in project sites)	Lumpsum	2	2	2	2	2	2	12	500	1,005	1,015	1,025	1,035	1,046	1,056	6,183
Control of water weeds (mechanical and manual removal of weeds)	Lumpsum	-	1	1	1	1	-	4	500	-	533	538	544	549	-	2,164
Subtotal										32,441	4,136	3,132	3,163	3,195	1,056	47,124
G. Environment and Social Management Plan Kanyeganyege																
Overall allocation for the plan	Lumpsum									27,638	20,301	5,126	2,589	2,615	2,641	60,908
H. Environment and Social Management Plan Gishanda																
Overall allocation for the plan	Lumpsum									27,638	20,301	5,126	2,589	2,615	2,641	60,908
I. Resettlement Action Plan (RAP)																
Compensation for the resettlement	Lumpsum									179,393	181,186	1,046	1,056	1,067	1,077	364,825
Total Investment Costs										941,353	1,521,012	1,325,584	897,458	77,630	38,073	4,801,111
II. Recurrent Costs																
A. Environment and social management plan for Nasho																
Environment, Social, Health Safety (ESHS) officer to be contracted by the Contractor	Person month	12	12	-	-	-	-	24	1,000	12,060	12,181	-	-	-	-	24,241
Life insurance for all workers	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
Subtotal										17,186	12,181	-	-	-	-	29,366
B. Environment and social management plan for Kibare																
Environment, Social, Health Safety (ESHS) officer to be contracted by the Contractor	Person month	12	12	-	-	-	-	24	1,000	12,060	12,181	-	-	-	-	24,241
Life insurance for all workers	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
Subtotal										17,186	12,181	-	-	-	-	29,366
C. Environment and social management plan for Ihema																
Environment, Social, Health Safety (ESHS) officer to be contracted by the Contractor	Person month	-	12	-	-	-	-	12	1,000	-	12,181	-	-	-	-	12,181
Life insurance for all workers	Lumpsum	1	-	-	-	-	-	1	5,000	5,126	-	-	-	-	-	5,126
Subtotal										5,126	12,181	-	-	-	-	17,306
Total Recurrent Costs										39,497	36,542	-	-	-	-	76,038
Total										980,850	1,557,554	1,325,584	897,458	77,630	38,073	4,877,150

Table 2B: Infrastructure development and management (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)
Table 2. Sub-component A.2: Infrastructure Development and Management

Detailed Costs	Unit	Quantities 2021	2022	2023	2024	2025	2026	Total	Unit Cost (US$)	Totals Including Contingencies (US$) 2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Infrastructure development																
Civil works for Bulk Irrigation Infrastructure in Kibare, Ihema and Ndego)	Hectares	-	500	500	505	505	-	2,010	10,120	-	5,392,961	5,446,890	5,556,373	5,611,936	-	22,008,160
In-field irrigation installation in Kibare, Ihema and Ndego	Hectares	-	-	500	500	505	505	2,010	2,400	-	-	1,291,753	1,304,670	1,330,894	1,344,203	5,271,520
In-field irrigation installation in Kibare, Ihema and Ndego (benef. contribution) /a	Hectares	-	-	500	500	505	505	2,010	240	-	-	129,175	130,467	133,089	134,420	527,152
Civil Works Kanyeganyege Dam and irrigation infrastructure (150ha)	Hectares	-	75	75	-	-	-	150	12,000	-	959,222	968,814	-	-	-	1,928,037
Civil Works for Gishyanda Dam and irrigation infrastructure (125ha)	Hectares	-	75	50	-	-	-	125	12,000	-	959,222	645,876	-	-	-	1,605,099
Subtotal										-	7,311,405	8,482,509	6,991,510	7,075,920	1,478,623	31,339,967
B. Supervision of works																
Supervision work for Nasho, Kibare and Ihema schemes /b	Lumpsum	-	0.2	0.2	0.2	0.2	-	0.8	1,500,000	-	319,741	322,938	326,168	329,429	-	1,298,276
Supervision work for Kanyeganyege (10% of the investment cost) /c	Lumpsum	-	0.2	0.2	0.2	0.2	0.2	1	180,000	-	38,369	38,753	39,140	39,532	39,927	195,720
Supervision work for Gishanda (10% of the investment) /d	Lumpsum	-	0.2	0.2	0.2	0.2	0.2	1	150,000	-	31,974	32,294	32,617	32,943	33,272	163,100
International technical assistance (irrigation expert)	Person month	6	12	12	12	12	6	60	10,000	60,300	121,806	123,024	124,254	125,497	63,376	618,257
Subtotal										60,300	511,890	517,009	522,179	527,400	136,575	2,275,353
C. Formation and capacity building scheme steering commitees																
Capacity building for Sector Steering Committes /a /e	Lumpsum	-	1	1	-	-	-	2	10,000	-	10,354	10,457	-	-	-	20,811
Study tours	person	-	-	1	-	-	-	1	2,500	-	-	2,614	-	-	-	2,614
Subtotal										-	10,354	13,071	-	-	-	23,425
D. Formation and Strengthening of Sub-catchment committees																
Mapping of watersheds /f	Lumpsum									12,060	-	-	-	-	-	12,060
Watershed Management Plans /g	Lumpsum									45,225	-	-	-	-	-	45,225
Capacity building at watershed and district level	People	20	20	-	-	-	-	40	500	10,251	10,354	-	-	-	-	20,605
Subtotal										67,536	10,354	-	-	-	-	77,890
E. Irrigation Water User Organisations																
Production of Manual on O&M schemes (pumped and dam schemes)	Lumpsum	-	-	1	-	-	-	1	15,000	-	-	15,378	-	-	-	15,378
Layout and printing of O&M manuals	Lumpsum	-	-	1	-	-	-	1	14,000	-	-	14,640	-	-	-	14,640
Production of training manual on O&M and IWUOs	Lumpsum	-	-	1	-	-	-	1	7,000	-	-	7,176	-	-	-	7,176
Organization of workshop at district level (IWUO and stakeholders)	Workshop	2	1	1	1	-	-	5	1,500	3,075	1,553	1,569	1,584	-	-	7,781
Training of trainers on IWLUO policy and IMTA	Session	-	-	-	2	-	-	2	30,000	-	-	-	63,370	-	-	63,370
Training of IWUO at scheme and sector levels	Session	-	5	5	5	5	-	20	30,000	-	155,303	156,856	158,424	160,008	-	630,591
Support to IWUOs in legislation process	Lumpsum	-	-	-	1	1	-	2	1,500	-	-	-	1,553	1,569	-	3,122
Support to IWUOs for publication of Official Gazette	Lumpsum	-	-	-	-	1	-	1	1,000	-	-	-	-	1,046	-	1,046
Follow up of IWUO activities (training and support)	Lumpsum	-	2	2	2	2	-	8	3,500	-	7,247	7,320	7,393	7,467	-	29,428
Study tour	people	-	40	40	-	-	-	80	2,700	-	111,818	112,936	-	-	-	224,754
Irrigation Management Transfer Agreement	Lumpsum	-	-	-	1	-	-	1	1,000	-	-	-	1,035	-	-	1,035
Subtotal										3,075	275,921	315,875	233,360	170,090	-	998,321
Total										130,911	8,119,923	9,328,463	7,747,049	7,773,410	1,615,198	34,714,955

Table 3B: Enhancing climate smart agriculture practices and technologies (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)
Table 3. Sub-component A.3: Enhancing Climate Smart Agriculture Practices and Technologi

Detailed Costs	Unit	Quantities 2021	2022	2023	2024	2025	2026	Total	Unit Cost (US$)	Totals Including Contingencies (US$) 2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Farmer Field School roll out																
1. Preparatory phase																
Identification and validation of new FFS facilitators /a	Lumpsum									14,336	-	-	-	-	-	14,336
Update of existing FFS and facilitators training modules, translation and printing	Lumpsum									30,150	-	-	-	-	-	30,150
Facilitators refreshment trainings /b	Session	2	-	-	-	-	-	2	7,675	15,735	-	-	-	-	-	15,735
FFS facilitators training /c	Session	5	-	-	-	-	-	5	46,055	236,055	-	-	-	-	-	236,055
Study fields /d	Field school	41	-	-	-	-	-	41	700	29,420	-	-	-	-	-	29,420
Subtotal										325,697	-	-	-	-	-	325,697
2. Implementation																
Preparatory meetings	Meeting	-	200	200	150	-	-	550	150	-	31,061	31,371	23,764	-	-	86,195
FFS /e	Field school	-	200	200	150	-	-	550	700	-	144,949	146,399	110,897	-	-	402,245
Visits and exchanges for FFS members	Visit	-	30	30	30	20	-	110	270	-	8,386	8,470	8,555	5,760	-	31,172
Bicycles /f	Number	-	49	30	-	-	-	79	105	-	5,327	3,294	-	-	-	8,621
PICSA training	Session	-	88	89	50	-	-	227	1,434	-	128,091	130,842	74,242	-	-	333,175
Subtotal										-	317,814	320,376	217,457	5,760	-	861,408
Subtotal										325,697	317,814	320,376	217,457	5,760	-	1,187,105
B. Farmer promoters and demostration plots																
Inputs and materials for RAB station trials covering Kayonza	Lumpsum	0.2	0.3	0.3	0.2	-	-	1	40,000	8,201	12,424	12,548	8,449	-	-	41,623
Inputs and materials for cells trials	No. of cells	7	10	13	-	-	-	30	6,000	43,054	62,121	81,565	-	-	-	186,740
Refreshment trainings farmer promoters	People	90	130	85	-	-	-	305	133	12,270	17,901	11,822	-	-	-	41,993
Exchanges and local visits /g	Visit	2	15	10	3	-	-	30	2,160	4,428	33,545	22,587	6,844	-	-	67,405
Subtotal										67,954	125,992	128,522	15,293	-	-	337,761
C. Support to sustainable mechanization																
TA international expertise /h	Person day	40	15	15	10	-	-	80	500	20,100	7,613	7,689	5,177	-	-	40,579
Support research and construction of best adapted tools /i	Lumpsum	0.5	0.5	-	-	-	-	1	50,000	25,628	25,884	-	-	-	-	51,511
Trainings to young artisans /j	Session	1	4	3	-	-	-	8	10,000	10,251	41,414	31,371	-	-	-	83,036
Local exchanges and visits	Lumpsum	0.3	0.4	0.3	-	-	-	1	15,000	4,613	6,212	4,706	-	-	-	15,531
International exchange trainings for local ToT manufacturers /k	Visit	3	3	-	-	-	-	6	2,500	7,688	7,765	-	-	-	-	15,453
Trainings to young service providers /l	Session	-	4	5	3	-	-	12	10,000	-	41,414	52,285	31,685	-	-	125,384
Subtotal										68,280	130,302	96,051	36,862	-	-	331,495
D. Inputs for Farmers' initial support																
Improved seeds /m	kg	-	14,400	14,400	9,600	-	-	38,400	10	-	149,091	150,581	101,392	-	-	401,064
Nutritious improved seeds, pilot /n	kg	-	600	600	600	-	-	1,800	15	-	9,318	9,411	9,505	-	-	28,235
Fertilizers /o	Lumpsum	-	0.4	0.4	0.1	0.1	-	1	180,000	-	74,545	75,291	19,011	19,201	-	188,048
Improved manual tools for women and most vulnerable	Lumpsum per HHs	200	500	1,000	500	500	400	3,100	50	10,251	25,884	52,285	26,404	26,668	21,548	163,040
Subtotal										10,251	258,838	287,569	156,312	45,869	21,548	780,386
Total Investment Costs										472,181	832,946	832,518	425,925	51,629	21,548	2,636,747
II. Recurrent Costs																
A. Allowances																
FFS facilitators allowance /p	Allowance.FFS	-	200	200	150	-	-	550	124	-	25,677	25,933	19,645	-	-	71,255
Inputs and allowance for FF and demostration plots /q	Number	90	130	305	305	-	-	830	66	6,089	8,883	21,050	21,261	-	-	57,283
Total Recurrent Costs										6,089	34,560	46,984	40,905	-	-	128,538
Total										478,271	867,506	879,502	466,830	51,629	21,548	2,765,285

Table 4B: Developing farming as a business (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)
Table 4. Sub-component B.1: Developing farming as a business

Detailed Costs	Unit	Quantities							Unit Cost	Totals Including Contingencies (US$)						
		2021	2022	2023	2024	2025	2026	Total	(US$)	2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Business Development Services																
Inception Workshop	Lumpsum	1	-	-	-	-	-	1	6,500	6,533	-	-	-	-	-	6,533
TA for preparing of Farming as a Business (Faab) curriculum	Lumpsum	1	-	-	-	-	-	1	13,000	13,065	-	-	-	-	-	13,065
BDSPs services for capacity building on FaaB, integrated to FFS sessions	Lumpsum	-	600	600	600	-	-	1,800	325	-	197,935	199,914	201,913	-	-	599,762
Support to preparation of Business Plans	Number	80	200	200	-	-	-	480	260	20,904	52,783	53,310	-	-	-	126,997
Subtotal										40,502	250,717	253,225	201,913	-	-	746,357
B. Capacity Building of Cooperatives																
Organizational development of existing cooperatives	TA	-	50	-	-	-	-	50	2,600	-	131,957	-	-	-	-	131,957
Support TA for external relationships of cooperatives with IWUOs and FFS	Session	-	50	50	50	-	-	150	650	-	33,649	33,985	34,325	-	-	101,960
Exchange visits / study tours for cooperative leaders	Person	-	150	150	-	-	-	300	130	-	20,189	20,391	-	-	-	40,581
Support to preparation of Business Plans	Number	-	25	25	-	-	-	50	650	-	16,495	16,660	-	-	-	33,154
Subtotal										-	202,289	71,036	34,325	-	-	307,651
C. Promotion of mechanization, post-harvest storage and irrigation technologies																
Cat. 1a Small Equipment Investments for individual men (>30)	Lumpsum	-	20	80	70	70	-	240	5,000	-	100,000	400,000	350,000	350,000	-	1,200,000
Cat. 1b Small Equipment Investments for individual women & youth (<30)	Lumpsum	-	20	80	70	70	-	240	5,000	-	100,000	400,000	350,000	350,000	-	1,200,000
Cat. 2 Cooperative microprojects on post-harvest management facilities	Lumpsum	-	-	8	10	7	-	25	30,000	-	-	240,000	300,000	210,000	-	750,000
Cat. 2 Option for agricultural insurance (one season only)	Lumpsum	-	-	8	10	7	-	25	10,000	-	-	80,000	100,000	70,000	-	250,000
Cat. 3 Joint-venture investments on storage/processing infrastructure	Lumpsum	-	-	1	2	-	-	3	300,000	-	-	300,000	600,000	-	-	900,000
Cat. 3 Option for agricultural insurance (one season only)	Lumpsum	-	-	1	2	-	-	3	10,000	-	-	10,000	20,000	-	-	30,000
Subtotal										-	200,000	1,430,000	1,720,000	980,000	-	4,330,000
Total Investment Costs										40,502	653,007	1,754,261	1,956,238	980,000	-	5,384,007
II. Recurrent Costs																
BDF grant management fee (about 7.35 % of total grants)	Lumpsum									-	42,500	42,500	85,000	-	-	170,000
Total Recurrent Costs										-	42,500	42,500	85,000	-	-	170,000
Total										40,502	695,507	1,796,761	2,041,238	980,000	-	5,554,007

Table 5B: Supporting backward and forward linkages market linkages (USD '000) (1/2)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIV
Table 5. Sub-component B.2: Supporting backward and forward market linkage

Detailed Costs	Unit	Quantities							Unit Cost	Totals Including Contingencies (US$)						
		2021	2022	2023	2024	2025	2026	Total	(US$)	2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Market Access																
Pre-season meetings for cooperatives	Days	-	112	112	112	112	-	448	520	-	59,117	59,708	60,305	60,908	-	240,037
Participation in fairs/ shows	Event	-	2	2	2	2	-	8	5,200	-	10,768	10,875	10,984	11,094	-	43,721
Support coperatives in signing contracts	Lumpsum									1,307	-	-	-	-	-	1,307
Subtotal										1,307	69,884	70,583	71,289	72,002	-	285,064
B. Facilitating Public Private Producers Partnerships																
Inception workshop	Lumpsum									6,663	-	-	-	-	-	6,663
Facilitation of 4Ps development	Cooperative	-	5	15	15	10	-	45	2,600	-	13,196	39,983	40,383	27,191	-	120,752
Provision of advisory services to cooperatives	Cooperative	-	5	15	15	10	-	45	6,500	-	32,989	99,957	100,957	67,977	-	301,880
Retrofiting workshop	Lumpsum									6,663	6,730	6,797	6,865	6,934	7,003	40,992
Subtotal										13,326	52,915	146,737	148,204	102,102	7,003	470,287
C. Access to Finance																
1. Selection of Partner Financial Institutions																
Workshop and communication: Call for EoIs	Lumpsum	1	1	-	-	-	-	2	13,000	13,326	13,460	-	-	-	-	26,786
Assessment and due diligence of candidate PFIs	Person day	20	20	-	-	-	-	40	520	10,452	10,557	-	-	-	-	21,009
Assessment and due diligence of candidate PFIs	Person day	10	10	-	-	-	-	20	520	5,226	5,278	-	-	-	-	10,504
TA for development of PFI workplans	Person day	50	50	-	-	-	-	100	520	26,130	26,391	-	-	-	-	52,521
Subtotal										55,134	55,686	-	-	-	-	110,820
2. Develop tailored agrifinance products of PFIs																
TA for MFI product development	Person day	100	100	100	-	-	-	300	520	52,260	52,783	53,310	-	-	-	158,353
TA for SACCO product development	Person day	100	100	100	-	-	-	300	520	52,260	52,783	53,310	-	-	-	158,353
TA for MFI product development	Person day	40	40	40	-	-	-	120	520	20,904	21,113	21,324	-	-	-	63,341
TA for SACCO product development	Person day	40	40	40	-	-	-	120	520	20,904	21,113	21,324	-	-	-	63,341
Subtotal										146,328	147,791	149,269	-	-	-	443,388

Table 5B: Supporting backward and forward linkages market linkages (USD '000) (2/2)

4. Conduct financial literacy trainings (FLT)																
Development and production of FLT manual	Person day	20	-	-	-	-	-	20	520	10,452	-	-	-	-	-	10,452
Production and printing of the FLT manual	Lumpsum									33,316	-	-	-	-	-	33,316
FLT TOTs	Lumpsum	3	3	3	-	-	-	9	9,750	29,984	30,284	30,587	-	-	-	90,855
FLT TOTs	Person day	15	15	15	-	-	-	45	520	7,839	7,917	7,997	-	-	-	23,753
FLT Trainings of smallholders	Lumpsum	25	75	75	75	25	-	275	650	16,658	50,473	50,978	51,488	17,334	-	186,931
FLT Trainings of smallholders	Person day	100	300	300	300	100	-	1,100	260	26,130	79,174	79,966	80,765	27,191	-	293,226
Subtotal										124,379	167,849	169,527	132,253	44,525	-	638,533
5. Facilitate PFI access to credit lines																
MFI access to credit lines workshop	Lumpsum	-	1	1	-	-	-	2	13,000	-	13,460	13,594	-	-	-	27,054
MFI access to credit lines coaching	Person day	-	20	20	-	-	-	40	520	-	10,557	10,662	-	-	-	21,219
SACCO acess to credit lines workshop	Lumpsum									-	6,730	6,797	-	-	-	13,527
SACCO access to credit lines coaching	Person day	-	20	20	-	-	-	40	520	-	10,557	10,662	-	-	-	21,219
Subtotal										-	41,302	41,715	-	-	-	83,018
Subtotal										471,255	781,578	733,152	261,478	131,536	-	2,378,999
D. Improved access to agricultural insurance																
1. Farmer agricultural insurance literacy																
Adjustment of training of trainers manual	Lumpsum	2	-	-	-	-	-	2	13,000	26,130	-	-	-	-	-	26,130
Production and printing of manuals	Lumpsum									33,316	-	-	-	-	-	33,316
Training of trainers	Session	2	4	1	1	-	-	8	13,000	26,653	53,838	13,594	13,730	-	-	107,815
Training of farmers	Session	25	50	50	50	25	-	200	650	16,658	33,649	33,985	34,325	17,334	-	135,952
Training of farmers	Person day	100	200	200	200	100	-	800	260	26,130	52,783	53,310	53,844	27,191	-	213,258
Subtotal										128,886	140,270	100,890	101,899	44,525	-	516,470
2. Awareness raising campaigns and materials																
Development of materials	Lumpsum									-	65,978	-	-	-	-	65,978
Dissemination	Lumpsum									-	67,298	-	-	-	-	67,298
Subtotal										-	133,276	-	-	-	-	133,276
3. NAIS stakeholder capacity building																
Training development /a	Lumpsum	0.5	1	-	-	-	-	1.5	32,500	16,331	32,989	-	-	-	-	49,320
Training delivery /b	Session	1	2	2	-	-	-	5	19,500	19,989	40,379	40,782	-	-	-	101,151
Subtotal										36,321	73,368	40,782	-	-	-	150,471
Subtotal										165,207	346,914	141,672	101,899	44,525	-	800,217
Total										651,094	1,251,291	1,092,144	582,870	350,165	7,003	3,934,567

Table 6B: Policy and institutional development (USD '000)

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project Phase II (KIIWP2)

Table 6. Sub-component C.1: Policy and institutional development

Detailed Costs	Unit	Quantities							Unit Cost	Totals Including Contingencies (US$)						
		2021	2022	2023	2024	2025	2026	Total	(US$)	2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Policy support and implementation																
1. Studies																
Start-up workshop	Session	1	-	-	-	-	-	1	25,000	25,628	-	-	-	-	-	25,628
Baseline study	Studies	1	-	-	-	-	-	1	6,000	6,030	-	-	-	-	-	6,030
Endline study (impact assessment)	Studies	-	-	-	-	-	1	1	80,000	-	-	-	-	-	84,501	84,501
Policy assesment and regulation studies /a	Studies	3	3	-	-	-	-	6	25,000	75,375	76,129	-	-	-	-	151,504
Agricultural insurance studies /b	Studies	-	-	1	1	-	-	2	80,000	-	-	82,016	82,836	-	-	164,852
Nutrition studies for baseline and completion (MDD-W)	Studies	1	-	-	-	-	1	2	25,000	25,125	-	-	-	-	26,407	51,532
Endline study on gender	Studies	-	-	-	-	-	1	1	25,000	-	-	-	-	-	26,407	26,407
External audit	Lumpsum	2	2	2	2	2	2	12	5,000	10,050	10,151	10,252	10,355	10,458	10,563	61,828
Subtotal										142,208	86,279	92,268	93,191	10,458	147,877	572,281
2. Support to multistakeholder dialogue																
Forums and workshops for policy dialogue	Lumpsum	0.2	0.3	0.3	0.2	-	-	1	150,000	30,753	46,591	47,057	31,685	-	-	156,085
Study tour international /c	People	-	-	15	-	-	-	15	2,500	-	-	39,214	-	-	-	39,214
Support dialogue and advocacy for Cooperatives unions of Kayonza and Nat	Lumpsum	-	0.4	0.4	0.2	-	-	1	100,000	-	41,414	41,828	21,123	-	-	104,365
Support dialogue and advocacy for WUO and WLUOs	Lumpsum	0.3	0.3	0.3	0.1	-	-	1	100,000	30,753	31,061	31,371	10,562	-	-	103,746
Gender learning and sharing events (multi stakeholder coordination)	Lumpsum									2,870	2,899	2,928	2,957	2,987	3,017	17,658
Nutrition multi stakeholder coordination	Lumpsum									2,870	2,899	2,928	2,957	2,987	3,017	17,658
Subtotal										67,247	124,863	165,326	69,284	5,974	6,033	438,727
Subtotal										209,454	211,143	257,594	162,475	16,432	153,911	1,011,008
B. Institutional Streghtening																
1. RAB and district staff capacity building on identified needs																
Needs assessment of capacity building	Lumpsum									5,126	-	-	-	-	-	5,126
Diverse trainings of RAB national level staff /e	Lumpsum	0.2	0.3	0.2	0.3	-	-	1	90,000	18,452	27,954	18,823	28,516	-	-	93,745
Diverse trainings of district decentralized staff /f	Lumpsum	0.2	0.3	0.3	0.2	-	-	1	60,000	12,301	18,636	18,823	12,674	-	-	62,434
International exchanges of RAB and decentralized staff /g	Lumpsum	-	3	4	3	-	-	10	6,000	-	18,636	25,097	19,011	-	-	62,744
National exchanges for government staff /h	Lumpsum	-	30	30	30	10	10	110	600	-	18,636	18,823	19,011	6,400	6,464	69,335
Subtotal										35,879	83,863	81,565	79,212	6,400	6,464	293,384
Total										245,333	295,006	339,159	241,687	22,832	160,375	1,304,391

Table 7B: Project coordination (USD '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management F
Table 7. Sub component C.2: Project coordination

Detailed Costs	Unit	Quantities 2021	2022	2023	2024	2025	2026	Total	Unit Cost (US$)	Totals Including Contingencies (US$) 2021	2022	2023	2024	2025	2026	Total
II. Recurrent Costs																
A. New staff																
1. Central Level																
Program Manager	Person month	12	12	12	12	12	12	72	2,819	33,997	34,337	34,680	35,027	35,378	35,731	209,151
Irrigation Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Climate and Environment Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Civil Engineering Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Cooperative Development Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Social Safeguard and Compliance Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Access to Finance Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Accountant	Person month	12	12	12	12	12	12	72	2,148	25,905	26,164	26,426	26,690	26,957	27,226	159,367
Procurement Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
M&E Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Drivers	Person month	36	36	36	36	36	36	216	403	14,581	14,726	14,874	15,022	15,173	15,324	89,700
Subtotal										307,578	310,654	313,761	316,898	320,067	323,268	1,892,226
2. District Level																
Watershed Management Officer	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Value Chain Development/Agribusiness Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Electromechanical Engineering	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Senior Agronomist and FFS Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Land Husbandry Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Accountant for KIIWP transaction at District	Person month	12	12	12	12	12	12	72	2,148	25,905	26,164	26,426	26,690	26,957	27,226	159,367
Irrigation Technicians /a	Person month	24	24	24	24	24	24	144	2,416	58,274	58,857	59,445	60,040	60,640	61,246	358,502
Water Users' Association Officer	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Horticulture Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Social Inclusion, Gender and Youth Specialist	Person month	12	12	12	12	12	12	72	2,416	29,137	29,428	29,723	30,020	30,320	30,623	179,251
Subtotal										317,274	320,447	323,652	326,888	330,157	333,459	1,951,877
Subtotal										624,853	631,101	637,412	643,786	650,224	656,726	3,844,103
B. Shared SPIU Staff																
Coordinator of SPIU	Person month	6	4	4	4	4	4	26	3,893	23,475	15,806	15,964	16,124	16,285	16,448	104,103
Head of Finance	Person month	6	4	4	4	4	4	26	3,221	19,423	13,078	13,209	13,341	13,474	13,609	86,133
Head of Procurement	Person month	6	4	4	4	4	4	26	3,221	19,423	13,078	13,209	13,341	13,474	13,609	86,133
Head of M&E	Person month	6	4	4	4	4	4	26	3,221	19,423	13,078	13,209	13,341	13,474	13,609	86,133
Chief accountant	Person month	6	4	4	4	4	4	26	2,416	14,568	9,809	9,908	10,007	10,107	10,208	64,606
Access to finance specialist	Person month	6	4	4	4	4	4	26	2,416	14,568	9,809	9,908	10,007	10,107	10,208	64,606
Gender Specialist	Person month	6	4	4	4	4	4	26	2,416	14,568	9,809	9,908	10,007	10,107	10,208	64,606
Administration and logistic specialist	Person month	6	4	4	4	4	4	26	2,416	14,568	9,809	9,908	10,007	10,107	10,208	64,606
Knowledge management officer	Person month	6	4	4	4	4	4	26	2,550	15,377	10,354	10,457	10,562	10,667	10,774	68,190
Information technology officer	Person month	6	4	4	4	4	4	26	1,611	9,714	6,541	6,606	6,672	6,739	6,807	43,080
Internal auditer	Person month	6	4	4	4	4	4	26	2,148	12,952	8,721	8,809	8,897	8,986	9,075	57,440
Administration officer	Person month	6	4	4	4	4	4	26	805	4,854	3,268	3,301	3,334	3,367	3,401	21,527
Administrative assistant	Person month	6	4	4	4	4	4	26	805	4,854	3,268	3,301	3,334	3,367	3,401	21,527
Messenger	Person month	6	4	4	4	4	4	26	173	1,043	702	709	717	724	731	4,626
Procurement Assistant	Person month	6	4	4	4	4	4	26	1,611	9,714	6,541	6,606	6,672	6,739	6,807	43,080
Nutrition specialist	Person month	6	4	4	4	4	4	26	2,416	14,568	9,809	9,908	10,007	10,107	10,208	64,606
GIS Specialist	Person month	6	4	4	4	4	4	26	2,416	14,568	9,809	9,908	10,007	10,107	10,208	64,606
Allowance for satellite imagery acquisition and analys	Lumpsum									60,000	-	-	-	-	-	60,000
Subtotal										287,663	153,293	154,826	156,374	157,938	159,517	1,069,610
Total										912,515	784,394	792,238	800,160	808,162	816,244	4,913,714

Table 8B: Emergency fund (USD '000)

Rwanda
Kayonza Irrigation and Integratec
Table 8. Sub-component C.3: Em

Detailed Costs	Unit	Quantities 2021	2022	2023	2024	2025	2026	Total	Unit Cost (US$)	Totals Including Contingencies (US$) 2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Emergency Fund																
Emergency fund	Lumpsum									0	-	-	-	-	-	0
Total										0	-	-	-	-	-	0

Table 9B: Unallocated (USD '000)

Rwanda
Kayonza Irrigation and Integratec
Table 9. Sub-component C.4: Una

Detailed Costs	Unit	Quantities 2021	2022	2023	2024	2025	2026	Total	Unit Cost (US$)	Base Cost (US$) 2021	2022	2023	2024	2025	2026	Total
I. Investment Costs																
A. Unallocated																
Unallocated	Lumpsum									2,960,292	-	-	-	-	-	2,960,292
Total										2,960,292	-	-	-	-	-	2,960,292

Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 4: Economic and Financial Analysis

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

ANNEX 4: ECONOMIC AND FINANCIAL ANALYSIS

A. Introduction

1. The KIIWP2 project is expected to generate substantial benefits for rural households and communities living in the project area. KIIWP2 interventions are aimed at: i) boosting agriculture production and productivity thorough increased access to water, technical assistance and inputs; ii) diversifying productive activities for rural poor, iii) increasing farmers resilience by strengthening adaptation to climate change, iv) facilitating access to finance; v) promoting entrepreneurship and value-addition in agriculture, vi) reducing post-harvest losses; and vii) improving food and nutrition security.

2. The economic and financial analysis (EFA) of KIIWP2 accounts for benefits and costs directly linked to the above mentioned interventions. The target group is expected to experience increase in income as a direct result of the: (i) increased water availability for productive use; (ii) diversification of productive activities and sources of income thanks to greater access to technical assistance and inputs; (iii) increased food availability for rural poor, (iv) increased value-added of agricultural outputs; (v) enhanced productivity through improved infrastructure; (vi) improved quality of processed products, thus attracting higher prices at local market; (vii) increased employment opportunity either for hired or family labour, for both on-farm and off-farm activities; and (viii) tax revenues as a result of increased volume of taxable production.

3. Increase in income would be largely dependent on rural household and rural communities adopting improved technologies which the project will promote through technical assistance and infrastructure investments. The project will also aim at strengthening marketing linkages and creating a favourable economic environment for farmers/rural community to produce more competitive products and expand production.

4. Due to the current COVID-19 pandemic, this EFA was prepared remotely. The analysis made use of indicative crop, activity and farm models to assess the economic viability of KIIWP2. The EFA builds upon the precautionary principle, accounting for project benefits in a realistic and conservative manner. A cash-flow analysis is finally carried out to present the "with" and "without" project analysis. The key-indicators used to carry out the analysis are Net Present Values (NPVs), Financial and Economic Internal Rate of Return (FIRR - EIRR), Benefit-cost ratio (BCR). The EFA is formulated by using the newly developed IFAD-FARMOD software (v. 5.03).

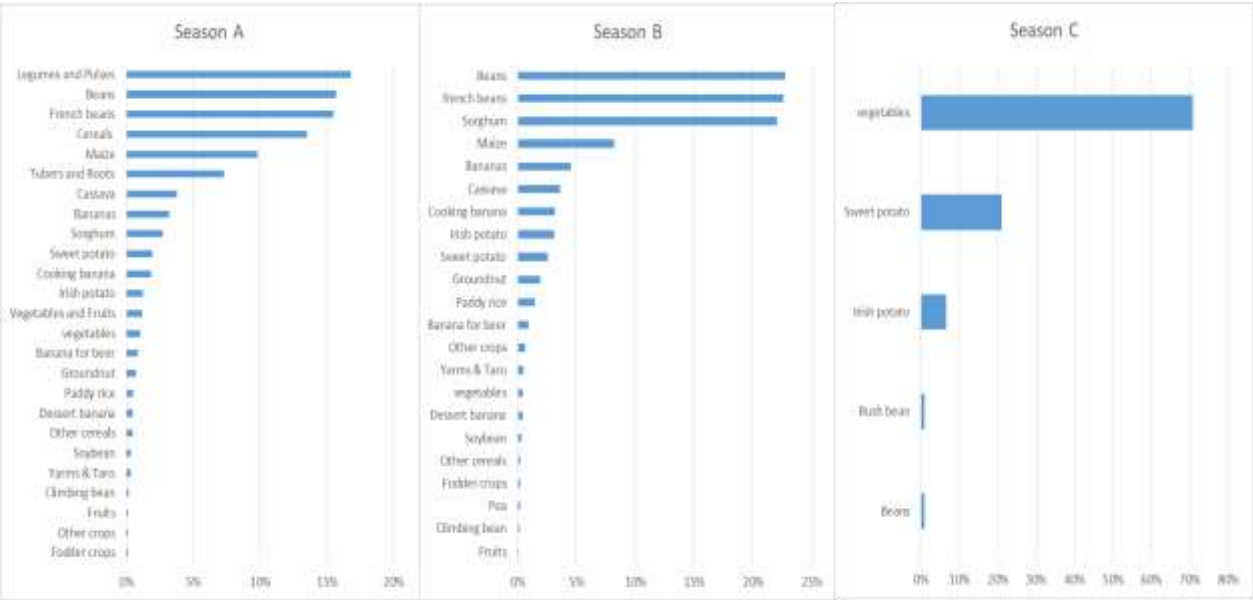
B. Family farming in Rwanda

5. The agricultural sector in Rwanda is particularly relevant and contributes to a large extend to the welfare and food security of its rural population. According to the WFP (2018)[1], albeit contributing to about 31 percent of Rwanda GDP, agriculture is characterized by small-scale, subsistence, rain-fed farming. At national level, the average landholding size is 0.6 ha often divided into three to four sub-plots. About 50 percent of farmers cultivate less than 0.35 ha and 15 percent farm less than 0.1 ha. On average, each rural household cultivate around 3.2 crops per plot.

[1] Comprehensive food security and vulnerability analysis (2018) – World Food Programme

6. Land holdings and production vary substantially in each district and they are largely dependent on agro-ecological features as well as population size. Difference in land productivity and crop yields across districts can be remarkable and would largely depend on soil fertility, altitude and climate. Farming characteristics within the project target area of Ndego, in the Kayonza district, differ substantially from national averages. The agricultural census (2020)[2] reports main crops and total acreage by district. The graph below summarizes the key crops by season in Kayonza.

Figure 1: Crop relevance by season (percentage share of total area cropped) in Kayonza

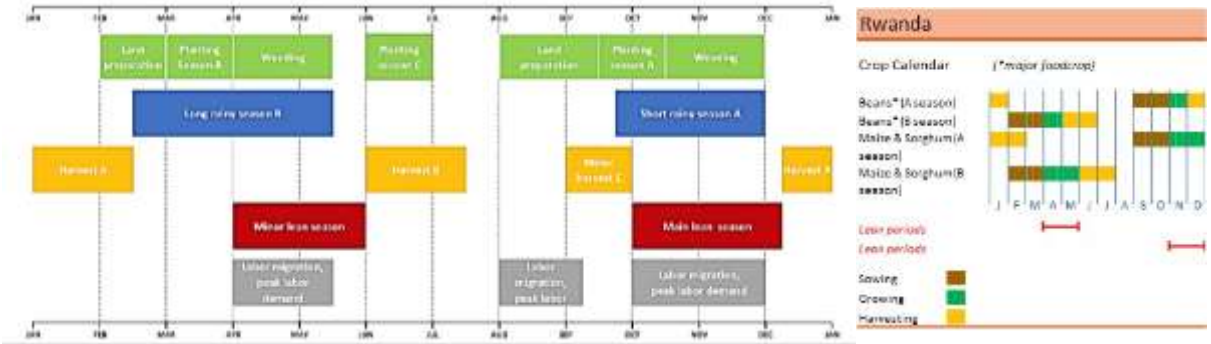


Source: Own elaboration based on data from the upgraded season agricultural report 2020 of NISR

7. At national level, mixed farming is the most frequent production systems. Crop production and livestock rearing are carried out simultaneously to sustain household food and cash needs. Rwanda is characterized by three cropping seasons (A, B and C), but in Kayonza district season C is often not seized given the lack of rain and consequent aridity. Rotation of staple annual crops follows the general calendar provided in figure 2 below. For lower income households, small livestock (goats, sheep and chicken) is normally preferred to larger animals (i.e. buffalo and cows), given the lower cash requirement involved. It is in the eastern province where goats and chicken are more frequently raised (by 64.8 percent and 49.5 percent of households respectively)[3]. According to the WFP (2018), the most common income-generating activity is agricultural production on the household's own farm (practiced by 56 percent of households) and daily labour agricultural work (16 percent). Livestock raising was mainly practiced as a second activity (for 25 percent of households) or a third activity (47 percent of households).

[2] Upgraded seasonal agricultural census 2020 – National Institute of Statistics of Rwanda
[3] Comprehensive food security and vulnerability analysis (2018) – World Food Programme

Figure 2: Seasonal agricultural calendar for Rwanda



Source: USAID - FEWS NET (left) and FAO.GIEWS (right)

C. Methodology, data and assumptions

8. Financial analysis**.** The primary objective of the financial analysis is to determine the financial viability and incentives for the project target group as a result of their engagement in project activities, and hence to determine the economic impact on family labour, cash flow and household incomes. A number of indicative economic activities to be supported by the project were identified during the design mission and are presented in the table below.

Table 1: Key commodity considered in the EFA

Cereals	Grain legumes	Vegetables	Roots and tubers	Fruit	Livestock
Maize	French beans	Tomatoes	Cassava	Banana	Chicken
Sorghum	Common beans	Onions	Sweet Potato	Avocado	Goat
Millet	Soya beans	Watermelon	Irish potato	Papaya	
Wheat		Sweet pepper			
		Tree tomato			

9. These production models are used as building blocks for the elaboration of six household/farm models where differentiation is made both in terms of cultivation patterns, land holding, source of income, production systems and poverty level. In particular, the analysis employs the Ubudehe categorization system adopted by the Rwandan government to differentiate households according to their income levels – where Ubudehe 1 denotes the poorest category and Ubudehe 4 the wealthiest.

Table 2: Key characteristics of farm/household models

Code	Model	Ha	Crops	Livestock	Project interventions
CAT1 A - UB1	Crop-farming (very small)	0.2	Maize, Beans, Irish potato	Chicken	1) Farmer Field School,
CAT1 B - UB1	Crop-farming (very small)	0.2	Maize, Beans, Irish potato	Chicken	2) Seeds and fertilizers starting kit,
CAT1 A - UB2	Mixed-farming (small)	0.4	Maize, Beans, Irish potato, tomato	Chicken, Goat	3) Training on CSA practices,

CAT1 B - UB2	Mixed-farming (small)	0.4	Maize, Beans, Irish potato, tomato	Chicken, Goat	4) Grant financing cat. 1 (50% project and 50% own)
CAT1 A - UB3	Mixed-farming (medium)	0.6	Maize, Beans, Irish potato, banana	Chicken, Goat	cat.2 (70% project and 30% own)
CAT1 B – UB3	Mixed-farming (medium)	0.6	Maize, Beans, Irish potato, banana	Chicken, Goat	

10. The economic evaluation of the entire project is based on the aggregated net incremental benefits of the target population. In order to include both on- and off-farm benefits in the EFA, other economic models were considered. Key characteristics for each model are summarized in the table below.

Table 3: Key characteristics of additional economic models

Model	Unit/scope	Crops	Key benefits	Project interventions
Cooperative post/harvest storage facility	600 sq.mt / drying, sorting and storing	Cereals, pulses and vegetables	Fees for renting drying and storage facility space to cooperative members	Grant financing (50% project – 50% cooperatives)
Joint venture cooperative and private sector	Maize flour mill	Maize	Revenues from sales	Grant financing (40% project – 20% cooperatives – 40% private sector)
Kibare irrigation system	570 ha	Maize, beans, sorghum, cassava, soybeans, French beans, Irish potatoes, Tomatoes, onions, sweet pepper watermelon, bananas, avocado	Increase in crops, vegetables and fruit production and productivity	Construction of pumped irrigation systems and installation of central pivots or sprinkler irrigation outlets
Ihema irrigation system	700 ha			
Nasho irrigation system	740 ha			
Kanyeganyenge Dam and Irrigation Scheme	150 ha			Construction of dams and irrigation infrastructure
Gishanda Dam and Irrigation Scheme	125 ha			

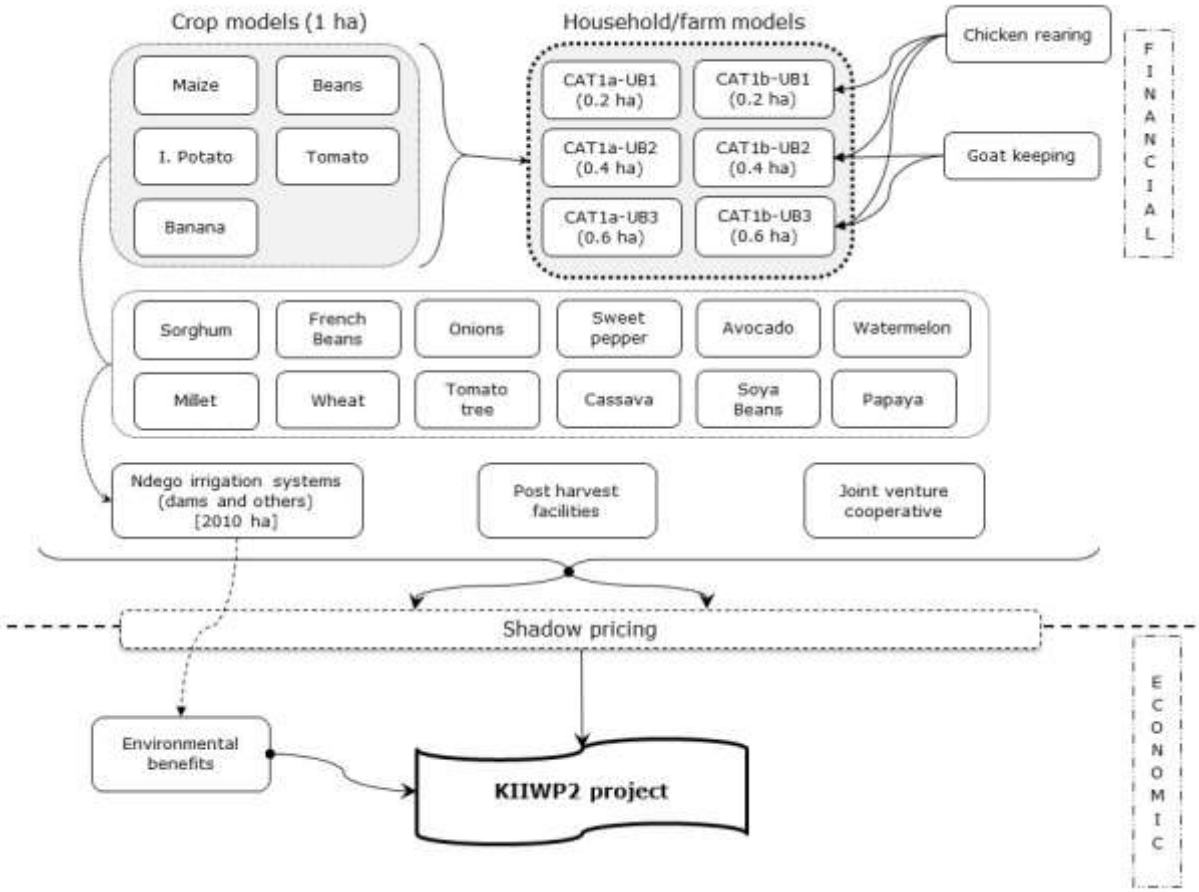
11. All the technical assumptions considered in the models were sourced from national agricultural surveys and statistics, technical studies and reports. The diagram in figure 2**Error! Reference source not found.** provides a logical sketch of the adopted approach while summary results from the financial models are presented in table 4.

Table 4: Summary of financial models' results

MODELS	Before financing			After financing		
	NPV ('000 Rwf) @ 11%	IRRf	B/C ratio	NPV ('000 Rwf) @ 11%	IRRf	B/C ratio
CAT1 A - UB1	(250)	7%	0.86	311	44%	1.14
CAT1 B - UB1	(200)	8%	0.90	488	n/a[4]	1.22
CAT1 A - UB2	624	16%	1.14	1,748	n/a	1.35
CAT1 B - UB2	624	16%	1.14	2,000	n/a	1.42
CAT1 A - UB3	1,335	18%	1.20	3,028	n/a	1.39
CAT1 B – UB3	1,335	18%	1.20	3,404	n/a	1.46
Cooperative post/harvest storage facility	6,161	14%	1.17	22,863	n/a	1.50
Joint venture cooperative and private sector	4,565,967	n/a	1.76	4,708,095	n/a	1.78

[4] There are instances in which the IRR values could not be mathematically computed. Those instances relate to a mathematical condition which requires cash flows to change sign – from negative to positive values or vice versa – at least once during the calculation timeframe. In the after financing scenario, deficits in cash flows are fully offset thanks to the accounting of grant and credit inflows, hence the mathematical condition above is not met.

Figure 3: EFA diagram



12. Programme target group and beneficiaries**.** The primary target group for the Programme will be smallholder farmers - particularly women and youth. It is estimated that the number of direct beneficiaries will be 40,000 HHs. The aggregation for production models is based on the number of HHs directly engaged in the activity, the number of hectares brought into the new production systems or the number of infrastructures rehabilitated or newly established.

13. Overall the project will benefits women, youth and men directly involved in farm and off-farm activities proposed by the project as well as indirect beneficiaries benefitting from the use of common goods and public infrastructures. The inclusion pattern of the EFA modes and beneficiary is based on the roll out of the infrastructure investment and rehabilitation works and aligned to the phasing described in the costab.

14. Key assumptions. The following sources of information gathered during the design mission have been used to set up the analysis: a) National statistics and survey data from the National Institute of statistics of Rwanda; b) International statistics from FAOSTAT and VAM-WFP, c) Research papers, d) technical reports; e) past country/programme evaluation reports, and e) own estimates. In particular, information on labour and input requirements for various operations, capital costs, prevailing wages, yields, farm gate and market prices of commodities, input and farm-to-market transport costs were updated from previous from similar past investments in the country. Country data and information from the WFP

VAM platform, the E-SOKO platform from the Ministry of Agriculture and FAO price tool were also used for data validation. Conservative assumptions were made for inputs and outputs, and do take account of possible risks.

15. Exchange rate. The exchange rate used in the analysis is fixed at 1 USD = 965 RWF computed as the average exchange rate prevailing during the design mission.

16. Numeraire and Prices. The adopted numeraire for the EFA is the domestic price level expressed in local currency unit. The financial prices for project inputs and products represent average farm-gate and market prices prevailing in March 2021. Prices used represent estimates of the average seasonal prices and the analysis is carried out using nominal constant prices.

17. Labour. Family labour has been valued both in financial and economic analysis. It has been assumed that farm labour is provided by the households and is valued at RWF 800 day^{-1}. Hired labour (skilled) is priced at RWF 1,000 day^{-1}, which is the prevailing market rate for on-farm and off-farm activities. In the HHs models that follow, family labour is the main source of workforce. Labour inputs requirements are affected by land size and varies from 79 working days (Ubudehe 1 – 0.2 ha) to 445 working days (Ubudehe 3 – 0.6 ha). The increase in labour demand induced by the project is equal to 64% on average, across the HHs models presented.

18. Opportunity cost of capital. A discount rate of 11 per cent has been used in the financial analysis to assess the viability and robustness of the investments. The values is calculated as the average of lending, discount and money market interest rates provided in the table below. In the economic analysis this value is reduced to 8 per cent consistently with data on real interest rates, Treasury bill yield rates, money market rates and the risk profile of the economy.

Table 5: Latest available data series on interest rates (data in percentage values)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Real interest rate	9	13	9	11	14	12	17	12	8	18	14
Lending interest rate	17	17	17	17	17	17	17	17	17	17	17
Discount interest rate	12	10	11	12	11	11	11	10	10	10	9
Money market interest rate	9	7	7	9	9	6	4	6	6	6	5
Treasury bill rate	1	6	6	9	9	4	3	6	7	5	5

Source: International financial statistics - IFS country data retrieved on March 2021

D. Households models and basic assumptions

19. Several farm/households models were elaborated to determine the financial viability of the proposed interventions and to analyse the potential change in income the project may enable. The underlying assumption is that, thanks to investment in infrastructure, increased access to inputs, water or water saving technologies, small farming equipment and technical assistance, project beneficiaries will be able to increase production, reclaim and rehabilitate farm land and engage in new farming practices. Tables below shows the key assumptions concerning cropping patters and farm income composition based on landholding and activities. Increase in livestock productivity (20% increase for chicken and

27% increase for goat) relates to access to inputs (vaccination, better feed and water) and increase in animal keeping standards. Finally, self-consumption of agriculture produce is accounted for and equivalent to 30% of the total production.

Table 6: Assumptions related to HHs models

Model	hectares	SHARE OF CROPS ON TOTAL CULTIVATED AREA					
		Maize	Beans	Potato	Tomato	Banana	Cropping intensity
Wop							
CAT1 A & B - UB1	0.2	45%	45%	18%	-	-	108%
CAT1 A & B - UB2	0.4	45%	45%	18%	41%	-	149%
CAT1 A & B - UB3	0.6	42%	42%	17%	33%	33%	167%
WP							
CAT1 A & B - UB1	0.2	50%	50%	44%	-	-	144%
CAT1 A & B - UB2	0.4	50%	50%	25%	51%	-	176%
CAT1 A & B - UB3	0.6	50%	50%	20%	47%	33%	200%

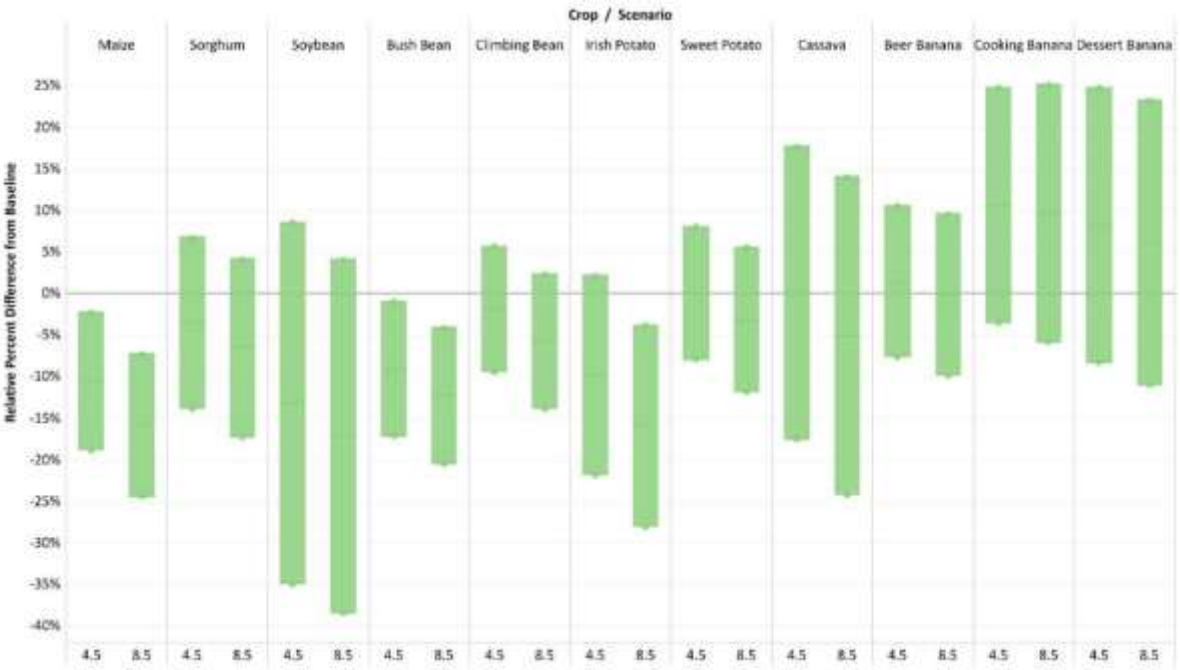
Table 7: Relevance of crop/activity to formation of gross revenue

Model	Contribution to gross revenues							
	Maize	Beans	Potato	Tomato	Banana	Chicken	Goat	Total
Wop								
CAT1 A & B - UB1	33%	25%	25%	-	-	17%		100%
CAT1 A & B - UB2	9%	6%	6%	42%	-	4%	33%	100%
CAT1 A & B - UB3	7%	5%	5%	30%	28%	5%	20%	100%
WP								
CAT1 A & B - UB1	22%	29%	42%	-	-	7%		100%
CAT1 A & B - UB2	9%	12%	10%	40%	-	3%	26%	100%
CAT1 A & B - UB3	8%	11%	7%	33%	22%	4%	15%	100%

20. Furthermore, the analysis takes into account climate change effects and impacts on crop yields. Several technical reports and climate models were analysed to consider robust assumption on projected yields. In particular, Austin et al.[5] have identified the potential responses of 11 staple crop yields to projected changes in temperature and precipitation in Rwanda, using a cross sectional model based on yield data collected across more than 14,000 villages. In detail, they estimated that future climate change will have the largest impacts on potential productivity of maize, bush bean, and Irish potato. All three crops are likely to experience a reduction in potential yields of at least 10% under Representative Concentration Pathway (RCP) 4.5 and at least 15% under RCP 8.5 by 2050. Estimates from the modelling are presented in the figure below.

[5] Austin, K., Beach, R., Lapidus, D., Salem, M., Taylor, N., Knudsen, M. and Ujeneza, N. (2020) 'Impacts of Climate Change on the Potential Productivity of Eleven Staple Crops in Rwanda', *Sustainability*. MDPI AG, 12(10), p. 4116. doi: 10.3390/su12104116

Figure 4: Predicted changes in average crop yields by 2050 relative to average yields modelled using climatic conditions from the recent past, under RCP 4.5 and RCP 8.5.



Source: Austin et al. (2020)

21. The evidence provided above helped to identify potential changes on the 20-year timeframe. Since this EFA adopted a dynamic factual-counterfactual comparison[6], variations in yields from the table below are expressed as a change with respect to the current crop yields.

Table 8: Change in yields by 2040 as a result of climate change and project interventions

	Yields (ton/ha)				
	Current (tons)	WOP future (tons)	Δ(%)	WP future (tons)	Δ(%)
Maize	1.50	1.38	-8%	2.50	66%
Sorghum	1.00	0.96	-4%	1.50	50%
Soybeans	0.80	0.73	-9%	2.00	150%
French beans	0.70	0.65	-6%	1.5	114%
Irish potato	3.80	3.50	-8%	8.00	110%
Sweet potato	5.60	5.54	-1%	9.00	60%
Cassava	12.35	12.22	-1%	20.00	62%
Banana	13.00	13.65	6%	17.00	30%

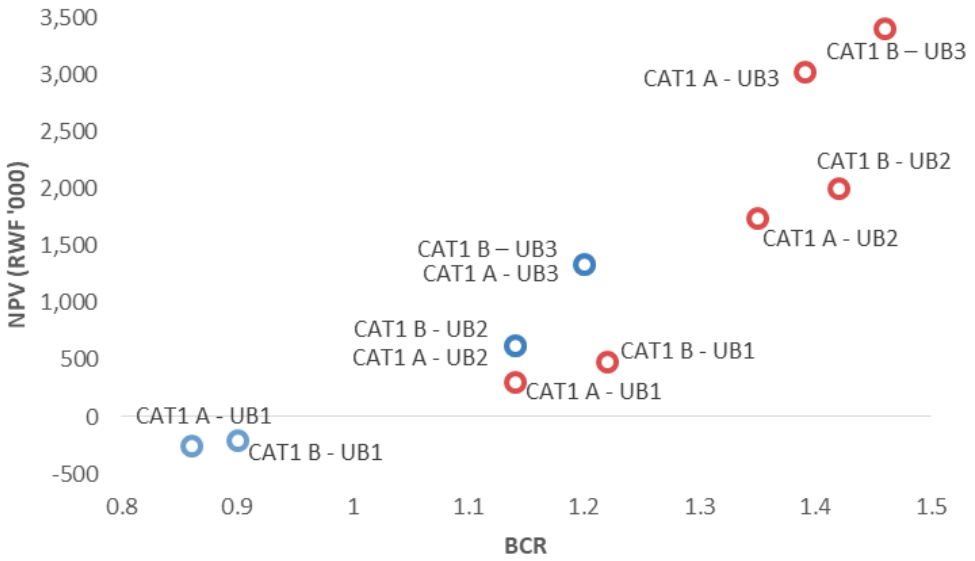
22. Generally, the HHs' models described so far present positive returns in both the pre- and post-financing scenarios (Table 4), exception made for the poorest beneficiaries in the target population (Ubudehe 1). For the latter, the proposed activity will become viable only

[6] Both with and without- project scenarios present changing yields over the 20-year timeframe

thanks to the project financing and else - due to the lack of savings and own financial resources - they would not be able to undertake the proposed activities and make a profit.

23. The results of the financial analysis indicates that the activities proposed under the KIIWP2 project are technically viably solutions capable to address current production constraints and, on this basis, should be adopted by farmers. In addition, the EFA carried out a Financing analysis to present the set of incentives the target population may have while participating to the project. In light of the financial support provided by the project and since post-financing results are higher those shown in the pre-financing scenario, it is very likely that project activities will largely be taken up by farmers. The figure below provides a comparison of the pre-post financing results.

Figure 5: Comparison of pre-financing (blue) and post-financing (red) results



D. Economic analysis

24. The objectives of the economic analysis are: (i) to examine the overall Programme viability; (ii) to assess the Project's impact and the overall economic rate of return; and (iii) to perform sensitivity analyses upon risks and variables affecting project's results.

25. Key Assumptions. Production and activity models considered in the financial analysis are used as building blocks for determining the viability of the whole project, once addressing for market distortion and opportunity costs for inputs and outputs. In addition, other quantifiable benefit related to reduction of GHG emission resulting from the adoption of climate-smart agriculture (CSA) practices have been estimated and included in the analysis. Their description and results are presented further below. The economic analysis of the project hinges on the following assumptions:

i. The economic analysis timeframe is 20 years;

ii. Project inputs and outputs are valued at their economic parity prices. Conversion factors for main inputs and outputs are calculated in the FARMOD based on the SERF value, custom duty rates on import and export as well as on tax rates;

iii. An economic discount rate of eight percent has been calculate as the weighted average of saving interest rates, Treasury bill rates and the real interest rates from the latest available period (table 6).

iv. Family labour is valued at its opportunity cost amounting to 80 percent of its current market value;

v. The shadow exchange rate factor (SERF) is calculated upon international trade statistics and applied to the conversion of tradable commodity prices. Following the standard calculation procedure based on the balance of trade method (table 10), the SERF value was estimated at 1.11 while the standard conversion factor (SCF) is equal to 0.90.

Table 9: Calculation of the SERF based on the balance of trade method (USD million)

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
Total imports of G&S	M	1,308	1,431	2,039	2,300	2,302	2,470	2,382	2,254	2,239	2,445	2,703	2,399
Total exports of G&S	X	235	297	464	591	703	723	682	731	1,042	1,121	1,166	881
Average duties on imports	t	18%	12%	12%	14%	14%	14%	15%	16%	15%	14%	14%	
Import duties	Tm	235	172	245	322	322	346	357	361	336	342	378	349
Average taxes on exports	s	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Export duties	Tx	-	-	-	-	-	-	-	-	-	-	-	-
Total international commerce	M+X	1,543	1,728	2,503	2,891	3,005	3,193	3,064	2,985	3,281	3,566	3,869	3,280
	M+Tm	1,543	1,603	2,284	2,622	2,624	2,816	2,739	2,615	2,575	2,787	3,081	2,748
	X-Tx	235	297	464	591	703	723	682	731	1,042	1,121	1,166	881
	SCF	**0.87**	**0.91**	**0.91**	**0.90**	**0.90**	**0.90**	**0.90**	**0.89**	**0.91**	**0.91**	**0.91**	**0.90**
	OER (LCU/USD)	568	583	600	614	646	682	719	787	831	861	900	
	SER	655	641	659	682	715	756	803	882	916	944	988	

Source: Own elaboration using World Trade Organization data

26. Other quantified benefits and models. This EFA includes benefits related to the provision of public and private infrastructures such as pumped irrigation schemes, water harvesting structure (dams and reservoirs), post-harvest facilities and joint venture investments in food processing facilities. Benefits, costs and profitability results have been estimated as follows:

i. Investments in irrigation infrastructures (dams, pumping stations, pivots and sprinklers): The investments are expected to increase water availability and shift crop production from rain-fed to irrigated agriculture. Increase in yields are expected accordingly, especially so considering the increased access to water during the dry season. Similarly, cropping intensity is also expected to increase. Water users are expected to contribute to the investment by paying about 15 percent of the initial investment cost for the construction/rehabilitation work and by covering O&M layouts. Command areas vary according to the irrigation scheme, orography, water reservoir capacity and the altitude of the water catchment area. The table below summarizes the key profitability indicators of the different irrigation schemes within the Ndego area.

Table 10: Summary of profitability results for irrigation schemes

Model	Command area	Financial			Economic		
		NPV (Rwf mil.) @ 11%	IRRf	B/C ratio	NPV (Rwf mil.) @ 8%	IRRe	B/C ratio
Kibare irrigation system	570 ha	2,303	15%	1.15	4,179	18%	1.34
Ihema irrigation system	700 ha	2,671	16%	1.15	5,000	18%	1.33
Nasho irrigation system	740 ha	1,332	13%	1.07	4,206	16%	1.28
Kanyeganyenge Dam and Irrigation Scheme	150 ha	91	12%	1.03	151	9%	1.05
Gishanda Dam and Irrigation Scheme	125 ha	111	12%	1.04	159	10%	1.06

ii. Post-harvest facility model: It is assumed that thanks to the project support, cooperatives would be able to invest in post-harvest facilities. Key benefits in this model are linked to the reduction in post-harvest losses and increasing revenues for farmers and cooperatives. Gross revenues in the model relates to renting fees paid by members to store their produce. Also in this case, beneficiary are expected to contribute to the initial investment with an in-cash/in-kind contribution equivalent to 50 per cent of the initial investment cost. The remaining 50 percent is going to be covered through a grant. Since this activity is newly implemented, there is no direct comparable scenario to benchmark its performance. Hence, in order to avoid an overestimation of benefits, the foregone opportunity income of those people working in the facility is considered in the WoP scenario. The financial results (before and after financing) are positive and amounting to an FNPV of RWF 6.1 million and RWF 22.6 million respectively. The FIRR amounts to 50 percent and a BCRs equal 1.17 and 1.50 before and after financing. On the economic evaluation, the activity presents an ENPV of RWF 6.2 million, with an EIRR of 11.5 percent and a BCR of 1.19.

iii. Joint venture capital investment model: A maize flour mill model is considered here to represent the economic impact that the grant financing and the joint private-cooperative partnership may leverage. The investment foresees building a workshop and installing the complete set of machineries required for the processing of maize flour. The initial investment cost amounts to RWF 285 million (USD 295,000) and has a processing capacity of 2,000 tons of finished product per year. As in the previous case, also here the foregone employment opportunity for the personnel working in the facility is assumed as a counterfactual scenario, so as to avoid an overestimation of benefits. The investment yield a positive FNPV of RWF 4,565 million and an ENPV of 4,708

million. The BCR of the investment is of 1.76 and 1.78 for the financial and economic analysis respectively.

27. Environmental benefits. The EFA includes economic benefits related to carbon sequestration and directly linked to the adoption of Climate-Smart Agriculture practices and to the reforestation of the land husbandry activities and reforestation of the catchment areas. The calculation of the net emission/sequestration effect for different crops and CSA practices is carried out on the Ex-Act software. Estimates on the potential carbon sequestration of reforestation in Rwanda is based on the work of Branca and Tinlot (2012)[7]. Carbon price is assumed at USD 41 tons.Co2eq. The table 11 below summarizes the net emission effect per crop per ha over the 20-year timeframe of the analysis.

Table 11: Potential reduction in GHG emission

Crops	CSA practices	Tons of CO2 eq. per ha over 20 years
Maize	from conventional (BAU) to minimum tillage, manual	(53.52)
Maize	from conventional (BAU) to minimum tillage, mechanized	(55.33)
Wheat	from conventional (BAU) to minimum tillage, mechanized	(60.25)
Millet	from conventional manual (BAU) to minimum tillage mechanized	(111.81)
Pulses	from conventional (BAU) to improved	(39.27)
Tomato	from open field (BAU) to production inside tunnels	(102.08)
Cauliflower	irrigated, from low input/output (BAU) to improved	(109.80)
Potato	irrigated, from low input/output (BAU) to improved	(109.80)
Mustard	irrigated, from low input/output (BAU) to improved	(109.80)
Lentil	irrigated, from low input/output (BAU) to improved	(109.80)
		Tons of CO2 eq. per ha per year
Average tons of CO2 eq. sequestered/ha/year in cropland		4.31
Average tons of CO2 eq. sequestered/ha/year in forest land		9.17

28. Programme Economic Costs. The economic analysis includes the investment and incremental recurrent costs of project components. Programme financial costs have been converted to economic values by removal of taxes, duties and subsidies. In order to avoid double counting, the final aggregation considered only those costs that were not already accounted for in the productive models. Specifically, the estimation of economic costs considered: (a) all investments costs deducted from taxes; (b) the recurrent costs of the program; and (c) the use of a conversion factor of 1.11 (SERF) to correct market costs to economic costs into Costab. The remaining balance is calculated deducting expenses for civil works, grants and subsidies and good, services & inputs provided by the project.

[7] Granca G. and Tinlot M. (2012); 'The Carbon Balance of the World Bank-financed Land Husbandry, Water Harvesting and Hillside Irrigation (LWH) Project of the Government of Rwanda - Application of the EX-Ante Carbon-balance tool (EX-ACT)'; *EASYpol module 121*; FAO; Rome.

Table 12: Project economic cost - base cost (RWF '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Pr
Expenditure Accounts by Years -- Base Costs
Economic Costs

	Base Cost (RWF '000)					
	2021	2022	2023	2024	2025	2026
I. Investment Costs						
A. Technical Assistance & Consultancies	790,347	1,362,217	1,158,942	845,501	314,270	151,693
B. Grants and Subsidies	0	203,615	1,455,847	1,751,089	997,714	-
C. Goods Services & Inputs	360,126	759,013	552,990	176,272	80,857	38,841
D. Training Workshops & Meetings	463,278	660,174	623,548	364,655	56,103	14,323
E. Civil Work	555,811	7,401,519	8,309,270	6,671,040	6,000,240	1,242,956
F. Unallocated	2,856,682	-	-	-	-	-
Total Investment Costs	5,026,244	10,386,537	12,100,597	9,808,557	7,449,183	1,447,813
II. Recurrent Costs						
A. Salaries and Allowances	899,644	780,457	745,717	745,717	745,717	745,717
B. Operating Costs /a	16,570	67,426	76,566	112,672	-	-
Total Recurrent Costs	916,214	847,883	822,283	858,389	745,717	745,717
Total BASELINE COSTS	5,942,458	11,234,421	12,922,880	10,666,946	8,194,901	2,193,530
Project costs accounted for in the EFA	786,535	8,015,270	9,959,894	8,300,788	6,829,862	1,220,713
Remaining balance	**5,155,923**	**3,219,150**	**2,962,986**	**2,366,158**	**1,365,038**	**972,817**
Project O&M expenses in the future (year 6 onwards)	**112,672**					

29. Benefits Estimation and results by sub-components. The incremental benefits stream comprises the economic net values of all the models developed in the analysis. These benefits are then aggregated following the inclusion phasing foreseen in the costab. The analysis can also show the contribution of each sub-component to the final results (table 14).

Table 13: Summary of economic results by sub-components

	ENPV @8% (Millions of RWF)	EIRR (%)	BCR
A.2 Infrastructure development and management	9,180	18	1.28
Kibare irrigation system			
Ihema irrigation system			
Nasho irrigation system			
Kanyeganyenge Dam and Irrigation Scheme			
Gishanda Dam and Irrigation Scheme			
B.1: Promotion of mechanization, post-harvest storage and irrigation technologies	8,491	89	1.52
HH farming model (1a-1b; Ubudehe 1-3)			
Cooperative storage facility			
Joint venture between cooperative and private sector			
A.1: Catchment Rehabilitation and Protection	Reduction in GHG emission integrated in final economic analysis		
Land husbandry activity and reforestation			
A.4: Enhancing Climate Smart Agriculture Practices and Technologies	Reduction in GHG emission integrated in final economic analysis		
D. Inputs for Farmers' initial support	Integrated in B1		

30. Aggregation of project activities and benefits. In order to consolidate project effects, the EFA inclusion pattern adhered fully to the investment roll-out schedule expected during

implementation and reported in the cost tables of the project. The table below provides a consolidated summary.

Table 14: Consolidated phasing of costs and benefits inclusion

	Unit	PY1	PY2	PY3	PY4	PY5	PY6
A.2 Infrastructure development and management							
Kibare irrigation system	ha			142	142	143	143
Ihema irrigation system	ha			174	174	175	175
Nasho irrigation system	ha			184	184	186	186
Kanyeganyenge Dam and Irrigation Scheme	ha		75	75			
Gishanda Dam and Irrigation Scheme	ha		75	50			
B.1: Promotion of mechanization, post-harvest storage and irrigation technologies							
HH farming model (1a-1b; Ubudehe 1-3)	no.		40	160	140	140	
Cooperative storage facility	no.			8	10	7	
Joint venture between cooperative and private sector	no.			1	2		
A.1: Catchment Rehabilitation and Protection							
Land husbandry activity and reforestation	ha	650	1150	1250	900		

31. Economic Profitability. The project is a technical and economically viable investment to the economy as a whole. The project economic NPV of the net benefit stream over the 20-year timeframe, discounted at 8%, is RWF 12,047 million (USD 12.5 million). This value yields an EIRR of 14% and BCR of 1.19 for the base case scenario and it results in a payback period of nine years.

Table 15: Programme economic cash flow (Millions of RWF)

	Total net incremental benefits	Total incremental cost	Net cash flow
PY1	0	5,156	(5,156)
PY2	(1,222)	3,219	(4,441)
PY3	(2,061)	2,963	(5,024)
PY4	(690)	2,366	(3,056)
PY5	(447)	1,365	(1,812)
PY6	(324)	1,085	(1,409)
PY7	1,996	113	1,884
PY8	3,759	113	3,646
PY9	5,145	113	5,032
PY10	6,518	113	6,405
PY11	6,620	113	6,507
PY12	6,651	113	6,538
PY13	6,660	113	6,548
PY14	6,652	113	6,540
PY15	6,656	113	6,544
PY16	6,660	113	6,547

PY17	6,663	113	6,550
PY18	6,666	113	6,553
PY19	6,669	113	6,556
PY20	6,671	113	6,558

32. Sensitivity Analysis. The section presents the effect of variations in project benefits and costs. Profitability results were tested in the sensitivity analysis to measure variations due to unforeseen factors, hence identifying those variables affecting final results the most. Table 16 below presents t**Error! Reference source not found.Error! Reference source not found.**he extent to which a change in variables' levels would induce a change to project key indicators. The project appears to be more sensitive to a decline in benefits rather than an increase in costs.

Table 16: Sensitivity of the ENPV to variations of benefits and costs

	Variation	Link with the risk matrix	IRR (%)	BCR	NPV (USD m)
Base scenario			**14**	**1.19**	**12.5**
Project benefits	-10%	Combination of risks affecting output prices, yields and adoption rates	9	1.02	1.7
Project benefits	-20%		3.2	0.86	-9
Project cost	10%	Increase of construction material prices	10	1.07	5.3
Project cost	20%		7	0.97	-1.7
1 year lag in ben.		Risks affecting adoption rates and low implementation capacity	10	1.06	4.2
2 year lag in ben.			6.5	0.94	-3.3
Output prices	-10%	Low management & negotiating capacity of farmers groups	9	1.02	1.7
Output prices	-20%		3.2	0.86	-9
Input prices	10%	Market price fluctuations	11	1.10	6.7
Input prices	20%		9	1.03	2.1

33. Finally, the sensitivity analysis allows to examine the effects of a simultaneous variation of decrease in benefits and increase in costs, on the overall project profitability, hence determining all possible combinations of variables' changes that would result in a negative (or positive) NPV.

Table 17: Simultaneous sensitivity analysis

Combined Factors	EIRR	ENPV (USD M)	BCR
1%,1%	13%	10.3	1.16
3%,3%	11%	7.1	1.10
5%,5%	9.6%	3.5	1.05
7%,7%	7.9%	-0.05	0.99

Annex A

PRICES AND MODELS

Table A 1: Prices and conversion factors (RWF)

Prices	Unit	Financial Prices	Economic Prices	Conv. Factor
Outputs				
Crop Production				
Wheat grain	kg	718	559	0.78
Wheat straws	kg	200	164	0.82
Sorghum grain	kg	430	287	0.67
Sorghum stalks	sack	800	656	0.82
Sorghun stovers	bundle	133	109	0.82
Irish Potato	kg	230	179	0.78
Maize	kg	350	273	0.78
Maize stalks	kg	20	16	0.82
Avocado	kg	280	218	0.78
Tomato	kg	240	160	0.67
Onion	kg	320	214	0.67
French beans	kg	450	300	0.67
Millet	kg	850	567	0.67
Mango	per kg	283	220	0.78
Sweet potato	kg	200	156	0.78
Papaya	kg	280	218	0.78
Tree tomato	kg	640	498	0.78
Banana	Kg	205	160	0.78
Cassava	kg	150	117	0.78
Sweet pepper	kg	300	234	0.78
Soybean	kg	500	389	0.78
Watermelon	kg	200	156	0.78
Beans	kg	575	448	0.78
Livestock				
Goats (mature animals)	head	70 000	54 508	0.78
Goats (young animals)	head	20 000	15 574	0.78
Manure	kg	27	22	0.82
Goat milk	lt	312	256	0.82
Chicken	head	4 000	3 280	0.82
Chicken eggs	no.	98	80	0.82
Savings benefit				
Foregone opportunity income	lumpsur	576 000	547 200	0.95
Foregone income (WOP coounterfa	pers.day	4 500	4 275	0.95
Cooperative storage facility				
Fee for strorage rent	ton	35 000	25 956	0.74
Joint Venture output				
Wheat flour	kg	900	667	0.74
Maize flour	Unit	750	556	0.74
Environmental benefits				
CO2 - GHG sequestration	Tons.CO	39 565	39 565	1.00
Inputs				
Seeds				
Sorghum seeds	kg	465	362	0.78
Maize seeds	kg	320	249	0.78
Wheat seeds	kg	598	466	0.78
Potato seeds	kg	200	156	0.78
Tomato seedlings	seedling	7	6	0.78
Avocado seedings	seedling	800	623	0.78
Onion seeds	kg	33 000	25 697	0.78
French beans seeds	kg	450	350	0.78
Millet seeds	kg	450	350	0.78
Starting kit (seeds) - FFS	per kit	18 750	15 375	0.82
Starting kit (fertilizers) - FFS	per kit	18 750	15 375	0.82
Sweet potato seeds	kg	172	134	0.78
Papaya seedlings	seedling	999 999	778 692	0.78
Tree tomato	seedling	150	117	0.78
Banana seedlings	seedling	999 999	778 692	0.78
Cassava seed	kg	250	195	0.78
Sweet pepper seeds	kg	450 000	350 412	0.78
Soybeans seeds	kg	500	408	0.82
Watermelon seeds	kg	15 000	12 237	0.82
Beans seeds	kg	500	408	0.82
Fertilizers, Pesticides, etc.				
Urea	kg	450	317	0.70
TSP	kg	600	423	0.70
Manure	kg	15	12	0.78
Pesticides	lt	8 000	6 230	0.78
Ammonium sulphate	kg	928	723	0.78
Calcium carbide	kg	1 021	795	0.78
Potassium chloride	kg	520	405	0.78
KCL	kg	500	389	0.78
Superphosphate 18% P2O5	kg	410	319	0.78
Basal Fertilizers (NPK, DAP, CAN)	kg	700	545	0.78
Herbicide	kg	20 000	15 574	0.78
Risobium	kg	2 500	1 947	0.78
Fungicides	kg	23 000	17 910	0.78
Insecticides	lts	29 000	22 582	0.78
Husbandry Costs (Annual): Livestock				
Small ruminants: Straw	ton	2 000	1 640	0.82
Small ruminants: Sorghum stover	ton	3 000	2 460	0.82
Veterinary services	lumpsur	664	544	0.82
Mineral blocks	unit	6 641	5 171	0.78

Prices	Unit	Financial Prices	Economic Prices	Conv. Factor
Pen house	$	25 000	19 467	0.78
Fowl	head	2 000	1 557	0.78
Chicks	no	864	673	0.78
Tools for water and	lumpsum	1 200	984	0.82
Chicken feed	kg	120	93	0.78
Vaccination	cycles	400	311	0.78
Equipment	Lumpsum	1 500	1 168	0.78
Leguminose green	kg	100	78	0.78
Transport				
Transport to local m	ton.km	200	164	0.82
Bags/boxes	unit	300	234	0.78
Labour				
Oxen hire	day	17 000	13 940	0.82
Supplementary irri	hour	3 985	3 268	0.82
Tractor hire	hour	10 000	8 200	0.82
Mechanized land p	per day	80 000	65 262	0.82
Water				
water fee	per ha	45 000	36 900	0.82
Agricultural tools				
Bags	sack of 50	300	234	0.78
Tools	lumpsum	20 000	18 902	0.95
Gunny bags	no	500	408	0.82
Infrastructure				
Irrigation infrastruc	per ha	12 358 118	8 248 436	0.67
O&M investment	$	1	1	0.82
In-kind contributio	$	1	1	0.82
Rehabilitation/con	per ha	809 607	540 373	0.67
Rehabilitation and	per ha	1 474 507	984 161	0.67
Individual househo	per syster	333 728	222 747	0.67
Water fee for com	$	1	1	0.82
Terrace rehabilitati	per ha	2 540 319	1 695 538	0.67
Dam and irrigation	per ha	11 580 000	9 495 600	0.82
Supervision of Dam	$	1	1	0.82
Contribution from I	per ha	231 600	231 600	1.00
Supervision of irrig	per ha	1 231 340	1 009 699	0.82
Grants equipment				
Small farming equi	per ha	4 825 000	3 077 319	0.64
HHs contribution to	$	1	1	0.82
Cooperative investments				
Drying and storage	lumpsum	29 000 000	23 780 000	0.82
Transport	ton.km	200	169	0.85
Electricity	lumpsum	260 000	219 814	0.85
Miscellaneous	lumpsum	150 000	126 816	0.85
O&M of building an	$	1	1	0.82
Joint venture investment				
Storage unit raw m	unit	120 000 000	101 452 521	0.85
Storage unit finishe	uni	40 000 000	33 817 507	0.85
Pre-cleaner (3tons/	unit	4 000 000	3 381 751	0.85
Grain separator	unit	3 600 000	3 043 576	0.85
Husker	unit	6 000 000	5 072 626	0.85
Adhesive whitener	Unit	4 800 000	4 058 101	0.85
Polishing belt	Unit	4 000 000	3 381 751	0.85
Rotary shifter	unit	3 000 000	2 536 313	0.85
Grading machine	unit	3 600 000	3 043 576	0.85
Sorting and weight	unit	23 000 000	19 445 067	0.85
Dryer	Unit	20 000 000	16 908 754	0.85
Office furniture	lumpsum	600 000	507 263	0.85
Office vehicles	lumpsum	6 000 000	5 072 626	0.85
Office equipment	lumpsum	360 000	304 358	0.85
Equipment spare p	lumpsum	380 000	321 266	0.85
Wheat raw	kg	718	607	0.85
Maize raw	kg	350	296	0.85
Water	lumpsum	3 000 000	2 536 313	0.85
Electicity	Lumpsum	25 000 000	21 135 942	0.85
Fuel	Lumpsum	8 000 000	6 763 501	0.85
O&M main investm	$	145 000 000	118 900 000	0.82
Miscellaneous	Lumpsum	11 422 000	9 656 589	0.85
Labor				
Manual Labour				
Unskilled agricultu	pers.day	800	664	0.83
Unskilled agricultu	pers.day	1 000	830	0.83
Land preparation	pers.day	800	664	0.83
Planting	pers.day	800	664	0.83
Irrigation	pers.day	800	664	0.83
Fertilizer applicatio	pers.day	800	664	0.83
Weeding	pers.day	800	664	0.83
Harvesting	pers.day	800	664	0.83
Post harvesting and	pers.day	800	664	0.83
Pesticides applicati	pers.day	800	664	0.83
Manager	pers.mont	27 000	22 410	0.83
labour	pers.mont	22 000	18 260	0.83
Guard	pers.mont	18 000	14 940	0.83
Plant operator	pers.mont	23 000	19 090	0.83
Driver	pers.mont	22 000	18 260	0.83
Technician	pers.mont	25 000	20 750	0.83
Administrative staf	pers.mont	24 000	19 920	0.83

Table A 2: HHs farming (cat 1a – Ubudehe 1) model (physical budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
HHs farming model (cat.1a - Ubudehe 1)/Farm Area Model

		Without Project		With Project																			
	Unit	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																							
Maize	kg	135	124	135	182	229	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Maize stalks	kg	14	14	14	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Beans	kg	60	60	60	86	120	163	190	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Irish Potato	kg	152	140	152	461	639	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
Chicken eggs	no.	250	250	250	250	266	289	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
On-Farm Consumption																							
Maize	kg	30	30	30	30	40	50	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Maize stalks	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans	kg	10	10	10	15	20	25	30	50	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Irish Potato	kg	130	130	130	140	150	160	170	180	190	200	200	200	200	200	200	200	200	200	200	200	200	200
Chicken eggs	no.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sales																							
M kg		105	94	105	152	189	200	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
M kg		14	14	14	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
B kg		50	50	50	71	100	138	160	150	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Ir kg		22	10	22	321	489	560	550	540	530	520	520	520	520	520	520	520	520	520	520	520	520	520
C no.		250	250	250	250	266	289	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Investment																							
Purchased Inputs																							
Small farming equipment	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	head	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	no	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	kg	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Manure	kg	1 390	1 390	1 390	2 338	2 973	3 342	3 501	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530	3 530
TSP	kg	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Ammonium sulphate	kg	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Urea	kg	7	7	7	13	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Pesticides	lt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tools	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bags	sack of 50	8	7	8	14	16	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Transport to local market (20 km	ton.km	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans seeds	kg	3	3	3	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Basal Fertilizers (NPK, DAP, CAN	kg	9	9	9	11	12	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
water fee	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato seeds	kg	32	32	32	77	90	104	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
O&M investment	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tools for water and feed	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicken feed	kg	54	54	54	54	58	65	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
Vaccination	cycles	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Labor																							
Land preparation	pers.day	20	20	20	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Planting	pers.day	7	7	7	11	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Irrigation	pers.day	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Fertilizer application	pers.day	2	2	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weeding	pers.day	6	6	6	8	9	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Harvesting	pers.day	4	4	4	5	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Post harvesting and Marketing	pers.day	6	6	6	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Pesticides application	pers.day	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Unskilled agricultural labour (far	pers.day	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Table A 3: HHs farming (cat 1a – Ubudehe 1) model (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
HHs farming model (cat.1a - Ubudehe 1)/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
INCOMES																						
Main Production																						
Maize	47 250	43 470	47 250	63 525	79 975	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500
Maize stalks	270	270	270	320	340	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
Beans	34 673	34 673	34 673	49 181	68 809	93 587	109 392	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000
Irish Potato	34 960	32 163	34 960	106 046	146 908	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600	165 600
Chicken eggs	24 500	24 500	24 500	24 500	26 044	28 347	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400
Sub-Total Main Production	141 653	135 076	141 653	243 572	322 076	375 394	392 252	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860
On-Farm Consumption																						
Maize	10 500	10 500	10 500	10 500	14 000	17 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500
Maize stalks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans	5 750	5 750	5 750	8 625	11 500	14 375	17 250	28 750	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500
Irish Potato	29 900	29 900	29 900	32 200	34 500	36 800	39 100	41 400	43 700	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000
Chicken eggs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total Consumption	46 150	46 150	46 150	51 325	60 000	68 675	80 850	94 650	102 700	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000
Total Produccion	141 653	135 076	141 653	243 572	322 076	375 394	392 252	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860
TOTAL INCOMES	141 653	135 076	141 653	243 572	322 076	375 394	392 252	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860	397 860
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	965 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	6 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	1 080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	965 000	7 830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	576	576	576	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640
Manure	20 850	20 850	20 850	35 065	44 601	50 136	52 510	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950	52 950
TSP	0	0	0	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400	11 400
Ammonium sulphate	0	0	0	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632	17 632
Urea	3 285	3 285	3 285	5 940	6 795	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200
Pesticides	0	0	0	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520	1 520
Tools	1 800	1 800	1 800	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Bags	2 250	2 010	2 250	4 305	4 695	5 033	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130	5 130
Transport to local market (20 km	26	26	26	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Beans seeds	1 575	1 575	1 575	1 924	2 245	2 650	2 908	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000
Basal Fertilizers (NPK, DAP, CAN	6 300	6 300	6 300	7 488	8 386	9 520	10 243	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500
water fee	0	0	0	627	1 782	3 240	4 170	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500
Potato seeds	6 400	6 400	6 400	15 336	18 000	20 736	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600
O&M investment	0	0	0	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950
Tools for water and feed	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Chicken feed	6 450	6 450	6 450	6 450	6 970	7 745	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100
Vaccination	0	0	0	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Total Purchased Inputs	49 812	49 572	49 812	139 815	156 154	168 940	174 542	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660	175 660
Labor																						
Land preparation	16 240	16 240	16 240	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960	20 960
Planting	5 840	5 840	5 840	8 879	9 392	10 040	10 453	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600	10 600
Irrigation	0	0	0	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080	3 080
Fertilizer application	1 760	1 760	1 760	2 735	2 941	3 200	3 365	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424	3 424
Weeding	5 160	5 160	5 160	6 670	7 389	8 296	8 875	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080	9 080
Harvesting	2 800	2 800	2 800	4 205	4 837	5 450	5 701	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760	5 760
Post harvesting and Marketing	4 568	4 568	4 568	5 518	5 662	5 843	5 959	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Pesticides application	0	0	0	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Unskilled agricultural labour (far	2 400	2 400	2 400	2 400	2 652	3 028	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200
Total Labor	38 768	38 768	38 768	55 447	57 912	60 897	62 594	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104	63 104
TOTAL PRODUCTION COSTS	88 580	88 340	1 053 580	203 092	214 066	229 837	237 135	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764	238 764
NET BENEFIT BEFORE FINANCING	53 073	46 736	- 911 928	40 480	108 010	145 557	155 117	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096	159 096

Table A 4: HHs farming (cat 1b – Ubudehe 1) model (physical budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
HHs farming model (cat. 1b - Ubudehe 1)/Farm Area Model

		Without Project		With Project																			
	Unit	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																							
Maize	kg	135	124	135	182	229	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Maize stalks	kg	14	14	14	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Beans	kg	60	60	60	86	120	163	190	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Irish Potato	kg	152	140	152	512	710	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Chicken eggs	no.	250	250	250	250	266	289	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
On-Farm Consumption																							
Maize	kg	30	30	30	30	30	40	50	60	60	70	70	70	70	70	70	70	70	70	70	70	70	70
Maize stalks	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans	kg	10	10	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Irish Potato	kg	130	130	130	130	140	150	160	170	180	190	200	200	200	200	200	200	200	200	200	200	200	200
Chicken eggs	no.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sales																							
M kg		105	94	105	152	199	210	200	190	190	180	180	180	180	180	180	180	180	180	180	180	180	180
M kg		14	14	14	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
B kg		50	50	50	66	90	123	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Ir kg		22	10	22	382	570	650	640	630	620	610	600	600	600	600	600	600	600	600	600	600	600	600
C no.		250	250	250	250	266	289	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Investment																							
Purchased Inputs																							
Small farming equipment	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	head	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	no	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	kg	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Manure	kg	1 390	1 390	1 390	2 447	3 108	3 504	3 671	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700	3 700
TSP	kg	0	0	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ammonium sulphate	kg	0	0	0	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Urea	kg	7	7	7	14	16	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Pesticides	lt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tools	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bags	sack of 50	8	7	8	16	17	18	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Transport to local market (20 km	ton.km	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans seeds	kg	3	3	3	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Basal Fertilizers (NPK, DAP, CAN	kg	9	9	9	11	12	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
water fee	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato seeds	kg	32	32	32	85	100	115	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
O&M investment	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tools for water and feed	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicken feed	kg	54	54	54	54	58	65	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
Vaccination	cycles	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Labor																							
Land preparation	pers.day	20	20	20	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Planting	pers.day	7	7	7	11	12	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Irrigation	pers.day	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Fertilizer application	pers.day	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weeding	pers.day	6	6	6	8	9	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Harvesting	pers.day	4	4	4	5	6	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Post harvesting and Marketing	pers.day	6	6	6	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Pesticides application	pers.day	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Unskilled agricultural labour (far	pers.day	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Table A 5: HHs farming (cat 1b – Ubudehe 1) model (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
HHs farming model (cat. 1b - Ubudehe 1)/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
INCOMES																						
Main Production																						
Maize	47 250	43 470	47 250	63 525	79 975	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500	87 500
Maize stalks	270	270	270	320	340	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
Beans	34 673	34 673	34 673	49 181	68 809	93 587	109 392	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000	115 000
Irish Potato	34 960	32 163	34 960	117 829	163 231	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000
Chicken eggs	24 500	24 500	24 500	24 500	26 044	28 347	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400	29 400
Sub-Total Main Production	141 653	135 076	141 653	255 355	338 399	393 794	410 652	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260
On-Farm Consumption																						
Maize	10 500	10 500	10 500	10 500	10 500	14 000	17 500	21 000	21 000	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500	24 500
Maize stalks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans	5 750	5 750	5 750	11 500	17 250	23 000	28 750	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500	34 500
Irish Potato	29 900	29 900	29 900	29 900	32 200	34 500	36 800	39 100	41 400	43 700	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000	46 000
Chicken eggs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total Consumption	46 150	46 150	46 150	51 900	59 950	71 500	83 050	94 600	96 900	102 700	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000	105 000
Total Produccion	141 653	135 076	141 653	255 355	338 399	393 794	410 652	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260
TOTAL INCOMES	141 653	135 076	141 653	255 355	338 399	393 794	410 652	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260	416 260
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	965 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	6 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	1 080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	965 000	7 830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	576	576	576	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640	640
Manure	20 850	20 850	20 850	36 701	46 626	52 560	55 060	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500	55 500
TSP	0	0	0	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600	12 600
Ammonium sulphate	0	0	0	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488	19 488
Urea	3 285	3 285	3 285	6 300	7 200	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650	7 650
Pesticides	0	0	0	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600
Tools	1 800	1 800	1 800	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Bags	2 250	2 010	2 250	4 677	5 100	5 472	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580	5 580
Transport to local market (20 km	26	26	26	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Beans seeds	1 575	1 575	1 575	1 924	2 245	2 650	2 908	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000
Basal Fertilizers (NPK, DAP, CAN	6 300	6 300	6 300	7 488	8 386	9 520	10 243	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500	10 500
water fee	0	0	0	627	1 782	3 240	4 170	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500
Potato seeds	6 400	6 400	6 400	17 040	20 000	23 040	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000
O&M investment	0	0	0	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950	28 950
Tools for water and feed	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Chicken feed	6 450	6 450	6 450	6 450	6 970	7 745	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100	8 100
Vaccination	0	0	0	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Total Purchased Inputs	49 812	49 572	49 812	147 025	164 127	177 695	183 530	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648	184 648
Labor																						
Land preparation	16 240	16 240	16 240	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600	21 600
Planting	5 840	5 840	5 840	9 079	9 592	10 240	10 653	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800	10 800
Irrigation	0	0	0	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200
Fertilizer application	1 760	1 760	1 760	2 831	3 037	3 296	3 461	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520	3 520
Weeding	5 160	5 160	5 160	6 790	7 509	8 416	8 995	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200	9 200
Harvesting	2 800	2 800	2 800	4 375	5 037	5 680	5 941	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Post harvesting and Marketing	4 568	4 568	4 568	5 598	5 742	5 923	6 039	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080	6 080
Pesticides application	0	0	0	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040	1 040
Unskilled agricultural labour (far	2 400	2 400	2 400	2 400	2 652	3 028	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200
Total Labor	38 768	38 768	38 768	56 914	59 408	62 423	64 130	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640	64 640
TOTAL PRODUCTION COSTS	88 580	88 340	1 053 580	211 769	223 535	240 118	247 659	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288	249 288
NET BENEFIT BEFORE FINANCING	53 073	46 736	- 911 928	43 586	114 864	153 675	162 993	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972	166 972

Table A 6: HHs farming (cat 1a – Ubudehe 2) model (physical budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
HHs farming model (cat 1a - Ubudehe 2)/Farm Area Model

		Without Project		With Project																			
	Unit	**1**	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Main Production																							
Maize	kg	270	248	270	363	457	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Maize stalks	kg	27	27	27	32	34	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Beans	kg	121	121	121	171	239	326	380	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Irish Potato	kg	266	245	266	512	710	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Tomato	kg	1 920	1 920	1 920	2 504	2 800	3 104	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200
Goats (mature animals)	head	2	3	2	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3
Goat milk	lt	500	550	500	526	600	676	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
Chicken eggs	no.	500	500	500	500	532	579	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Investment																							
Purchased Inputs																							
Small farming equipment	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	$	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	head	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	no	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	kg	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Manure	kg	3 480	3 480	3 480	4 932	6 367	7 272	7 641	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700
TSP	kg	2	2	2	25	27	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Ammonium sulphate	kg	0	0	0	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Urea	kg	16	16	16	22	27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Pesticides	lt	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tools	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bags	sack of 50	14	12	14	19	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Transport to local market (20 km	ton.km	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans seeds	kg	6	6	6	8	9	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Basal Fertilizers (NPK, DAP, CAN	kg	21	21	21	37	44	47	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
water fee	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato seeds	kg	56	56	56	85	100	115	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Tomato seedlings	seedling	3 200	3 200	3 200	4 260	5 000	5 760	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Potassium chloride	kg	3	3	3	16	20	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
O&M investment	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small ruminants: Sorghum stove	ton	2	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Small ruminants: Straw	ton	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mineral blocks	unit	5	7	5	6	8	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Veterinary services	lumpsum	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Equipment	Lumpsum	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
Leguminose green leaves	kg	0	0	0	65	250	440	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Tools for water and feed	lumpsum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Chicken feed	kg	108	108	108	108	116	129	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
Vaccination	cycles	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Labor																							
Land preparation	pers.day	54	54	54	65	67	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Planting	pers.day	18	18	18	25	27	30	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Irrigation	pers.day	0	0	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Fertilizer application	pers.day	6	6	6	9	9	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Weeding	pers.day	22	22	22	28	31	35	37	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Harvesting	pers.day	31	31	31	40	45	50	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Post harvesting and Marketing	pers.day	13	13	13	16	17	18	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Pesticides application	pers.day	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Unskilled agricultural labour (far	pers.day	21	21	21	22	24	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28

Table A 7: HHs farming (cat 1a – Ubudehe 2) model (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
HHs farming model (cat 1a - Ubudehe 2)/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
INCOMES																						
Main Production																						
Maize	94 500	86 940	94 500	127 050	159 950	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000
Maize stalks	540	540	540	640	680	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
Beans	69 345	69 345	69 345	98 361	137 618	187 174	218 784	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000
Irish Potato	61 180	56 286	61 180	117 829	163 231	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000
Tomato	460 800	460 800	460 800	600 960	672 000	744 960	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000
Goats (mature animals)	140 000	210 000	140 000	210 000	280 000	280 000	280 000	280 000	280 000	280 000	280 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000
Goat milk	156 000	171 600	156 000	164 112	187 200	210 912	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400
Chicken eggs	49 000	49 000	49 000	49 000	52 087	56 693	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800
Sub-Total Main Production	1 031 365	1 104 511	1 031 365	1 367 952	1 652 766	1 839 459	1 903 704	1 914 920	1 914 920	1 914 920	1 914 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920
Total Produccion	1 031 365	1 104 511	1 031 365	1 367 952	1 652 766	1 839 459	1 903 704	1 914 920	1 914 920	1 914 920	1 914 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920
TOTAL INCOMES	1 031 365	1 104 511	1 031 365	1 367 952	1 652 766	1 839 459	1 903 704	1 914 920	1 914 920	1 914 920	1 914 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	1 930 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	12 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	1 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	2 160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	1 930 000	15 660	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	1 152	1 152	1 152	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280
Manure	52 200	52 200	52 200	73 987	95 502	109 080	114 620	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500
TSP	960	960	960	14 868	16 200	17 568	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000
Ammonium sulphate	0	0	0	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416
Urea	6 975	6 975	6 975	10 076	11 925	12 888	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050
Pesticides	0	0	0	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000
Tools	3 600	3 600	3 600	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000
Bags	4 140	3 720	4 140	5 637	6 150	6 552	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660
Transport to local market (20 km	50	50	50	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Beans seeds	3 150	3 150	3 150	3 848	4 490	5 300	5 817	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Basal Fertilizers (NPK, DAP, CAN	14 840	14 840	14 840	26 175	30 772	33 040	34 487	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000
water fee	0	0	0	1 254	3 564	6 480	8 340	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Potato seeds	11 200	11 200	11 200	17 040	20 000	23 040	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000
Tomato seedlings	23 488	23 488	23 488	31 268	36 700	42 278	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040
Potassium chloride	1 664	1 664	1 664	8 320	10 400	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480
O&M investment	0	0	0	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900
Small ruminants: Sorghum stove	6 600	7 500	6 600	6 912	7 800	8 712	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Small ruminants: Straw	1 000	1 400	1 000	1 130	1 500	1 880	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Mineral blocks	33 205	46 487	33 205	37 522	49 808	62 425	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410
Veterinary services	0	0	0	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664
Equipment	0	0	0	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0
Leguminose green leaves	0	0	0	6 500	25 000	44 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000
Tools for water and feed	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Chicken feed	12 900	12 900	12 900	12 900	13 940	15 491	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200
Vaccination	0	0	0	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Total Purchased Inputs	177 724	191 886	177 724	346 757	423 070	490 534	515 923	516 660	516 660	516 660	518 160	516 660	516 660	516 660	518 160	516 660	516 660	516 660	518 160	516 660	516 660	516 660
Labor																						
Land preparation	43 360	43 360	43 360	51 824	53 600	55 424	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000
Planting	14 040	14 040	14 040	19 669	21 584	23 792	24 907	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200
Irrigation	0	0	0	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800
Fertilizer application	4 720	4 720	4 720	7 103	7 514	8 032	8 363	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480
Weeding	17 880	17 880	17 880	22 396	25 018	28 048	29 589	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000
Harvesting	24 640	24 640	24 640	32 087	36 074	40 096	41 483	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600
Post harvesting and Marketing	10 592	10 592	10 592	12 586	13 644	14 797	15 278	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360
Pesticides application	0	0	0	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280
Unskilled agricultural labour (far	16 800	16 800	16 800	17 320	19 304	21 576	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400
Total Labor	132 032	132 032	132 032	173 066	186 816	201 845	208 099	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120
TOTAL PRODUCTION COSTS	309 756	323 918	2 239 756	535 483	609 886	692 379	724 023	725 780	725 780	725 780	727 280	725 780	725 780	725 780	727 280	725 780	725 780	725 780	727 280	725 780	725 780	725 780
NET BENEFIT BEFORE FINANCING	721 609	780 593	-1 208 391	832 469	1 042 880	1 147 080	1 179 681	1 189 140	1 189 140	1 189 140	1 187 640	1 119 140	1 119 140	1 119 140	1 117 640	1 119 140	1 119 140	1 119 140	1 117 640	1 119 140	1 119 140	1 119 140

Table A 8: HHs farming (cat 1B – Ubudehe 2) model (physical budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
HHs farming model (cat 1b - Ubudehe 2)/Farm Area Model

		Without Project		With Project																			
	Unit	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																							
Maize	kg	270	248	270	363	457	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Maize stalks	kg	27	27	27	32	34	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Beans	kg	121	121	121	171	239	326	380	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Irish Potato	kg	266	245	266	512	710	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Tomato	kg	1 920	1 920	1 920	2 504	2 800	3 104	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200
Goats (mature animals)	head	2	3	2	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3
Goat milk	lt	500	550	500	526	600	676	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
Chicken eggs	no.	500	500	500	500	532	579	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Investment																							
Purchased Inputs																							
Small farming equipment	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	$	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	head	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	no	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	kg	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Manure	kg	3 480	3 480	3 480	4 932	6 367	7 272	7 641	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700	7 700
TSP	kg	2	2	2	25	27	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Ammonium sulphate	kg	0	0	0	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Urea	kg	16	16	16	22	27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Pesticides	lt	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tools	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bags	sack of 50	14	12	14	19	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Transport to local market (20 km	ton.km	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans seeds	kg	6	6	6	8	9	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Basal Fertilizers (NPK, DAP, CAN	kg	21	21	21	37	44	47	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
water fee	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato seeds	kg	56	56	56	85	100	115	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Tomato seedlings	seedling	3 200	3 200	3 200	4 260	5 000	5 760	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Potassium chloride	kg	3	3	3	16	20	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
O&M investment	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small ruminants: Sorghum stove	ton	2	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Small ruminants: Straw	ton	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mineral blocks	unit	5	7	5	6	8	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Veterinary services	lumpsum	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Equipment	Lumpsum	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
Leguminose green leaves	kg	0	0	0	65	250	440	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Tools for water and feed	lumpsum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Chicken feed	kg	108	108	108	108	116	129	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
Vaccination	cycles	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Labor																							
Land preparation	pers.day	54	54	54	65	67	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Planting	pers.day	18	18	18	25	27	30	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Irrigation	pers.day	0	0	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Fertilizer application	pers.day	6	6	6	9	9	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Weeding	pers.day	22	22	22	28	31	35	37	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Harvesting	pers.day	31	31	31	40	45	50	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Post harvesting and Marketing	pers.day	13	13	13	16	17	18	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
Pesticides application	pers.day	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Unskilled agricultural labour (far	pers.day	21	21	21	22	24	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28

Table A 9: HHs farming (cat 1B – Ubudehe 2) model (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
HHs farming model (cat 1b - Ubudehe 2)/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
INCOMES																						
Main Production																						
Maize	94 500	86 940	94 500	127 050	159 950	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000	175 000
Maize stalks	540	540	540	640	680	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720	720
Beans	69 345	69 345	69 345	98 361	137 618	187 174	218 784	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000	230 000
Irish Potato	61 180	56 286	61 180	117 829	163 231	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000	184 000
Tomato	460 800	460 800	460 800	600 960	672 000	744 960	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000	768 000
Goats (mature animals)	140 000	210 000	140 000	210 000	280 000	280 000	280 000	280 000	280 000	280 000	280 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000
Goat milk	156 000	171 600	156 000	164 112	187 200	210 912	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400
Chicken eggs	49 000	49 000	49 000	49 000	52 087	56 693	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800	58 800
Sub-Total Main Production	1 031 365	1 104 511	1 031 365	1 367 952	1 652 766	1 839 459	1 903 704	1 914 920	1 914 920	1 914 920	1 914 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920
Total Produccion	1 031 365	1 104 511	1 031 365	1 367 952	1 652 766	1 839 459	1 903 704	1 914 920	1 914 920	1 914 920	1 914 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920
TOTAL INCOMES	1 031 365	1 104 511	1 031 365	1 367 952	1 652 766	1 839 459	1 903 704	1 914 920	1 914 920	1 914 920	1 914 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920	1 844 920
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	1 930 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	12 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	1 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	2 160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	1 930 000	15 660	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	1 152	1 152	1 152	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280	1 280
Manure	52 200	52 200	52 200	73 987	95 502	109 080	114 620	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500	115 500
TSP	960	960	960	14 868	16 200	17 568	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000
Ammonium sulphate	0	0	0	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416	20 416
Urea	6 975	6 975	6 975	10 076	11 925	12 888	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050	13 050
Pesticides	0	0	0	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000
Tools	3 600	3 600	3 600	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000
Bags	4 140	3 720	4 140	5 637	6 150	6 552	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660	6 660
Transport to local market (20 km	50	50	50	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Beans seeds	3 150	3 150	3 150	3 848	4 490	5 300	5 817	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Basal Fertilizers (NPK, DAP, CAN	14 840	14 840	14 840	26 175	30 772	33 040	34 487	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000	35 000
water fee	0	0	0	1 254	3 564	6 480	8 340	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Potato seeds	11 200	11 200	11 200	17 040	20 000	23 040	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000	24 000
Tomato seedlings	23 488	23 488	23 488	31 268	36 700	42 278	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040	44 040
Potassium chloride	1 664	1 664	1 664	8 320	10 400	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480	12 480
O&M investment	0	0	0	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900	57 900
Small ruminants: Sorghum stove	6 600	7 500	6 600	6 912	7 800	8 712	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Small ruminants: Straw	1 000	1 400	1 000	1 130	1 500	1 880	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Mineral blocks	33 205	46 487	33 205	37 522	49 808	62 425	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410
Veterinary services	0	0	0	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664
Equipment	0	0	0	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0
Leguminose green leaves	0	0	0	6 500	25 000	44 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000
Tools for water and feed	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Chicken feed	12 900	12 900	12 900	12 900	13 940	15 491	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200	16 200
Vaccination	0	0	0	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Total Purchased Inputs	177 724	191 886	177 724	346 757	423 070	490 534	515 923	516 660	516 660	516 660	518 160	516 660	516 660	516 660	518 160	516 660	516 660	516 660	518 160	516 660	516 660	516 660
Labor																						
Land preparation	43 360	43 360	43 360	51 824	53 600	55 424	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000	56 000
Planting	14 040	14 040	14 040	19 669	21 584	23 792	24 907	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200	25 200
Irrigation	0	0	0	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800	6 800
Fertilizer application	4 720	4 720	4 720	7 103	7 514	8 032	8 363	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480	8 480
Weeding	17 880	17 880	17 880	22 396	25 018	28 048	29 589	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000
Harvesting	24 640	24 640	24 640	32 087	36 074	40 096	41 483	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600	41 600
Post harvesting and Marketing	10 592	10 592	10 592	12 586	13 644	14 797	15 278	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360	15 360
Pesticides application	0	0	0	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280	3 280
Unskilled agricultural labour (far	16 800	16 800	16 800	17 320	19 304	21 576	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400	22 400
Total Labor	132 032	132 032	132 032	173 066	186 816	201 845	208 099	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120	209 120
TOTAL PRODUCTION COSTS	309 756	323 918	2 239 756	535 483	609 886	692 379	724 023	725 780	725 780	725 780	727 280	725 780	725 780	725 780	727 280	725 780	725 780	725 780	727 280	725 780	725 780	725 780
NET BENEFIT BEFORE FINANCING	721 609	780 593	-1 208 391	832 469	1 042 880	1 147 080	1 179 681	1 189 140	1 189 140	1 189 140	1 187 640	1 119 140	1 119 140	1 119 140	1 117 640	1 119 140	1 119 140	1 119 140	1 117 640	1 119 140	1 119 140	1 119 140

Table A 10: HHs farming (cat 1a – Ubudehe 3) model (physical budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Hhs farming model (cat 1a - Ubudehe 3)/Farm Area Model

		Without Project		With Project																			
	Unit	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																							
Maize	kg	375	345	375	545	686	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Maize stalks	kg	38	38	38	48	51	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Beans	kg	168	168	168	257	359	488	571	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Irish Potato	kg	380	350	380	615	852	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
Tomato	kg	2 400	2 400	2 400	3 506	3 920	4 346	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480
Banana	Kg	2 600	2 730	2 600	2 600	2 852	3 228	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400
Goats (mature animals)	head	2	3	2	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3
Goat milk	lt	500	550	500	526	600	676	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
Chicken eggs	no.	1 000	1 000	1 000	1 000	1 063	1 157	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200
Investment																							
Purchased Inputs																							
Small farming equipment	per ha	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	$	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	head	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	no	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	kg	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Manure	kg	5 750	5 750	5 750	7 958	10 083	11 507	12 297	12 636	12 784	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840
TSP	kg	2	2	2	31	34	37	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Ammonium sulphate	kg	0	0	0	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Urea	kg	22	22	22	31	37	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Pesticides	lt	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tools	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bags	sack of 50	80	78	80	84	89	95	102	108	111	113	113	113	113	113	113	113	113	113	113	113	113	113
Transport to local market (20 km	ton.km	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beans seeds	kg	9	9	9	12	13	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Basal Fertilizers (NPK, DAP, CAN	kg	69	69	69	94	111	131	155	177	189	193	193	193	193	193	193	193	193	193	193	193	193	193
water fee	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato seeds	kg	80	80	80	102	120	138	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
Tomato seedlings	seedling	4 000	4 000	4 000	5 964	7 000	8 064	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400
Potassium chloride	kg	4	4	4	22	28	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
O&M investment	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small ruminants: Sorghum stove	ton	2	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Small ruminants: Straw	ton	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mineral blocks	unit	5	7	5	6	8	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Veterinary services	lumpsum	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Equipment	Lumpsum	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
Leguminose green leaves	kg	0	0	0	65	250	440	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Tools for water and feed	lumpsum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Chicken feed	kg	215	215	215	215	232	258	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
Vaccination	cycles	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Labor																							
Land preparation	pers.day	92	92	92	111	115	119	121	123	124	124	124	124	124	124	124	124	124	124	124	124	124	124
Planting	pers.day	24	24	24	36	39	43	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Irrigation	pers.day	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Fertilizer application	pers.day	10	10	10	15	16	17	19	20	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Weeding	pers.day	36	36	36	46	51	58	62	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64
Harvesting	pers.day	50	50	50	66	75	84	91	94	96	97	97	97	97	97	97	97	97	97	97	97	97	97
Post harvesting and Marketing	pers.day	20	20	20	25	27	30	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Pesticides application	pers.day	1	1	1	7	7	8	8	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Unskilled agricultural labour (far	pers.day	27	27	27	28	31	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

Table A 11: HHs farming (cat 1a – Ubudehe 3) model (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Hhs farming model (cat 1a - Ubudehe 3)/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Maize	131 250	120 750	131 250	190 575	239 925	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500
Maize stalks	750	750	750	960	1 020	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080
Beans	96 313	96 313	96 313	147 542	206 427	280 761	328 176	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000
Irish Potato	87 400	80 408	87 400	141 395	195 877	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800
Tomato	576 000	576 000	576 000	841 344	940 800	1 042 944	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200
Banana	533 000	559 650	533 000	533 000	584 660	661 740	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000
Goats (mature animals)	140 000	210 000	140 000	210 000	280 000	280 000	280 000	280 000	280 000	280 000	280 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000
Goat milk	156 000	171 600	156 000	164 112	187 200	210 912	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400
Chicken eggs	98 000	98 000	98 000	98 000	104 174	113 386	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600
Sub-Total Main Production	1 818 713	1 913 471	1 818 713	2 326 927	2 740 084	3 074 123	3 200 756	3 217 580	3 217 580	3 217 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580
Total Produccion	1 818 713	1 913 471	1 818 713	2 326 927	2 740 084	3 074 123	3 200 756	3 217 580	3 217 580	3 217 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580
TOTAL INCOMES	1 818 713	1 913 471	1 818 713	2 326 927	2 740 084	3 074 123	3 200 756	3 217 580	3 217 580	3 217 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	2 895 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	25 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	2 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	4 320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	2 895 000	31 320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	1 600	1 600	1 600	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920
Manure	86 250	86 250	86 250	119 376	151 239	172 604	184 449	189 536	191 764	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600
TSP	1 200	1 200	1 200	18 535	20 400	22 315	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920
Ammonium sulphate	0	0	0	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056
Urea	9 675	9 675	9 675	13 926	16 515	17 773	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000
Pesticides	0	0	0	5 600	5 740	6 035	6 471	6 873	7 111	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200
Tools	5 000	5 000	5 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Bags	23 850	23 250	23 850	25 340	26 639	28 467	30 561	32 369	33 439	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840
Transport to local market (20 km	110	110	110	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
Beans seeds	4 375	4 375	4 375	5 772	6 735	7 950	8 725	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Basal Fertilizers (NPK, DAP, CAN	48 300	48 300	48 300	66 143	77 654	91 376	108 826	123 660	131 980	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100
water fee	0	0	0	1 881	5 346	9 720	12 510	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500
Potato seeds	16 000	16 000	16 000	20 448	24 000	27 648	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800
Tomato seedlings	29 360	29 360	29 360	43 776	51 380	59 190	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656
Potassium chloride	2 080	2 080	2 080	11 648	14 560	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472
O&M investment	0	0	0	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850
Small ruminants: Sorghum stove	6 600	7 500	6 600	6 912	7 800	8 712	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Small ruminants: Straw	1 000	1 400	1 000	1 130	1 500	1 880	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Mineral blocks	33 205	46 487	33 205	37 522	49 808	62 425	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410
Veterinary services	0	0	0	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664
Equipment	0	0	0	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0
Leguminose green leaves	0	0	0	6 500	25 000	44 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000
Tools for water and feed	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200
Chicken feed	25 800	25 800	25 800	25 800	27 879	30 981	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400
Vaccination	0	0	0	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Total Purchased Inputs	295 605	309 587	295 605	532 923	634 809	731 162	784 314	806 210	818 066	822 512	824 012	822 512	822 512	822 512	824 012	822 512	822 512	822 512	824 012	822 512	822 512	822 512
Labor																						
Land preparation	73 200	73 200	73 200	88 714	91 620	95 058	97 174	98 379	99 093	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360
Planting	19 200	19 200	19 200	28 553	31 336	34 557	36 200	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640
Irrigation	0	0	0	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080
Fertilizer application	8 000	8 000	8 000	11 726	12 622	13 989	15 359	16 338	16 814	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992
Weeding	28 600	28 600	28 600	37 033	41 126	46 140	49 287	50 706	51 182	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360
Harvesting	39 600	39 600	39 600	53 115	59 690	67 392	72 403	75 392	77 056	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680
Post harvesting and Marketing	16 120	16 120	16 120	20 021	21 669	23 615	24 748	25 273	25 511	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600
Pesticides application	800	800	800	5 440	5 650	6 092	6 747	7 350	7 706	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840
Unskilled agricultural labour (far	21 600	21 600	21 600	22 120	24 608	27 632	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800
Total Labor	207 120	207 120	207 120	278 801	300 401	326 555	342 797	350 959	354 881	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352
TOTAL PRODUCTION COSTS	502 725	516 707	3 397 725	843 045	935 210	1 057 717	1 127 111	1 157 169	1 172 947	1 178 864	1 180 364	1 178 864	1 178 864	1 178 864	1 180 364	1 178 864	1 178 864	1 178 864	1 180 364	1 178 864	1 178 864	1 178 864
NET BENEFIT BEFORE FINANCING	1 315 988	1 396 764	-1 579 013	1 483 883	1 804 874	2 016 406	2 073 644	2 060 411	2 044 633	2 038 716	2 037 216	1 968 716	1 968 716	1 968 716	1 967 216	1 968 716	1 968 716	1 968 716	1 967 216	1 968 716	1 968 716	1 968 716

Table A 12: HHs farming (cat 1b – Ubudehe 3) model (physical budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
HHs farming model (cat 1b - Ubudehe 3)/Farm Area Model

		Without Project		With Project																			
	Unit	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																							
Maize	kg	375	345	375	545	686	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Maize stalks	kg	38	38	38	48	51	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Beans	kg	168	168	168	257	359	488	571	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Irish Potato	kg	380	350	380	615	852	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
Tomato	kg	2 400	2 400	2 400	3 506	3 920	4 346	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480	4 480
Banana	Kg	2 600	2 730	2 600	2 600	2 852	3 228	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400	3 400
Goats (mature animals)	head	2	3	2	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3
Goat milk	lt	500	550	500	526	600	676	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
Chicken eggs	no.	1 000	1 000	1 000	1 000	1 063	1 157	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200
Investment																							
Purchased Inputs																							
Small farming equipment	per ha	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	$	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	head	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	no	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	kg	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Manure	kg	5 750	5 750	5 750	7 958	10 083	11 507	12 297	12 636	12 784	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840	12 840
TSP	kg	2	2	2	31	34	37	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Ammonium sulphate	kg	0	0	0	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Urea	kg	22	22	22	31	37	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Pesticides	lt	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tools	lumpsum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bags	sack of 50	80	78	80	84	89	95	102	108	111	113	113	113	113	113	113	113	113	113	113	113	113	113
Transport to local market (20 km	ton.km	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beans seeds	kg	9	9	9	12	13	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Basal Fertilizers (NPK, DAP, CAN	kg	69	69	69	94	111	131	155	177	189	193	193	193	193	193	193	193	193	193	193	193	193	193
water fee	per ha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potato seeds	kg	80	80	80	102	120	138	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
Tomato seedlings	seedling	4 000	4 000	4 000	5 964	7 000	8 064	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400	8 400
Potassium chloride	kg	4	4	4	22	28	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
O&M investment	$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small ruminants: Sorghum stove	ton	2	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Small ruminants: Straw	ton	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mineral blocks	unit	5	7	5	6	8	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Veterinary services	lumpsum	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Equipment	Lumpsum	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
Leguminose green leaves	kg	0	0	0	65	250	440	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Tools for water and feed	lumpsum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Chicken feed	kg	215	215	215	215	232	258	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270
Vaccination	cycles	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Labor																							
Land preparation	pers.day	92	92	92	111	115	119	121	123	124	124	124	124	124	124	124	124	124	124	124	124	124	124
Planting	pers.day	24	24	24	36	39	43	45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Irrigation	pers.day	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Fertilizer application	pers.day	10	10	10	15	16	17	19	20	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Weeding	pers.day	36	36	36	46	51	58	62	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64
Harvesting	pers.day	50	50	50	66	75	84	91	94	96	97	97	97	97	97	97	97	97	97	97	97	97	97
Post harvesting and Marketing	pers.day	20	20	20	25	27	30	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Pesticides application	pers.day	1	1	1	7	7	8	8	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Unskilled agricultural labour (far	pers.day	27	27	27	28	31	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

Table A 13: HHs farming (cat 1b – Ubudehe 3) model (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
HHs farming model (cat 1b - Ubudehe 3)/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Maize	131 250	120 750	131 250	190 575	239 925	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500	262 500
Maize stalks	750	750	750	960	1 020	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080
Beans	96 313	96 313	96 313	147 542	206 427	280 761	328 176	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000	345 000
Irish Potato	87 400	80 408	87 400	141 395	195 877	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800	220 800
Tomato	576 000	576 000	576 000	841 344	940 800	1 042 944	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200	1 075 200
Banana	533 000	559 650	533 000	533 000	584 660	661 740	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000	697 000
Goats (mature animals)	140 000	210 000	140 000	210 000	280 000	280 000	280 000	280 000	280 000	280 000	280 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000	210 000
Goat milk	156 000	171 600	156 000	164 112	187 200	210 912	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400	218 400
Chicken eggs	98 000	98 000	98 000	98 000	104 174	113 386	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600	117 600
Sub-Total Main Production	1 818 713	1 913 471	1 818 713	2 326 927	2 740 084	3 074 123	3 200 756	3 217 580	3 217 580	3 217 580	3 217 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580
Total Produccion	1 818 713	1 913 471	1 818 713	2 326 927	2 740 084	3 074 123	3 200 756	3 217 580	3 217 580	3 217 580	3 217 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580
TOTAL INCOMES	1 818 713	1 913 471	1 818 713	2 326 927	2 740 084	3 074 123	3 200 756	3 217 580	3 217 580	3 217 580	3 217 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580	3 147 580
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	2 895 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	25 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	2 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	4 320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	2 895 000	31 320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	1 600	1 600	1 600	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920	1 920
Manure	86 250	86 250	86 250	119 376	151 239	172 604	184 449	189 536	191 764	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600	192 600
TSP	1 200	1 200	1 200	18 535	20 400	22 315	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920	22 920
Ammonium sulphate	0	0	0	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056	25 056
Urea	9 675	9 675	9 675	13 926	16 515	17 773	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000	18 000
Pesticides	0	0	0	5 600	5 740	6 035	6 471	6 873	7 111	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200
Tools	5 000	5 000	5 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000	6 000
Bags	23 850	23 250	23 850	25 340	26 639	28 467	30 561	32 369	33 439	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840	33 840
Transport to local market (20 km	110	110	110	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
Beans seeds	4 375	4 375	4 375	5 772	6 735	7 950	8 725	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Basal Fertilizers (NPK, DAP, CAN	48 300	48 300	48 300	66 143	77 654	91 376	108 826	123 660	131 980	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100	135 100
water fee	0	0	0	1 881	5 346	9 720	12 510	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500	13 500
Potato seeds	16 000	16 000	16 000	20 448	24 000	27 648	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800
Tomato seedlings	29 360	29 360	29 360	43 776	51 380	59 190	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656	61 656
Potassium chloride	2 080	2 080	2 080	11 648	14 560	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472	17 472
O&M investment	0	0	0	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850	86 850
Small ruminants: Sorghum stove	6 600	7 500	6 600	6 912	7 800	8 712	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Small ruminants: Straw	1 000	1 400	1 000	1 130	1 500	1 880	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Mineral blocks	33 205	46 487	33 205	37 522	49 808	62 425	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410	66 410
Veterinary services	0	0	0	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664	664
Equipment	0	0	0	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0	1 500	0	0	0
Leguminose green leaves	0	0	0	6 500	25 000	44 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000	50 000
Tools for water and feed	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200
Chicken feed	25 800	25 800	25 800	25 800	27 879	30 981	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400	32 400
Vaccination	0	0	0	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Total Purchased Inputs	295 605	309 587	295 605	532 923	634 809	731 162	784 314	806 210	818 066	822 512	824 012	822 512	822 512	822 512	824 012	822 512	822 512	822 512	824 012	822 512	822 512	822 512
Labor																						
Land preparation	73 200	73 200	73 200	88 714	91 620	95 058	97 174	98 379	99 093	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360	99 360
Planting	19 200	19 200	19 200	28 553	31 336	34 557	36 200	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640	36 640
Irrigation	0	0	0	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080	12 080
Fertilizer application	8 000	8 000	8 000	11 726	12 622	13 989	15 359	16 338	16 814	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992	16 992
Weeding	28 600	28 600	28 600	37 033	41 126	46 140	49 287	50 706	51 182	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360	51 360
Harvesting	39 600	39 600	39 600	53 115	59 690	67 392	72 403	75 392	77 056	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680	77 680
Post harvesting and Marketing	16 120	16 120	16 120	20 021	21 669	23 615	24 748	25 273	25 511	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600	25 600
Pesticides application	800	800	800	5 440	5 650	6 092	6 747	7 350	7 706	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840	7 840
Unskilled agricultural labour (far	21 600	21 600	21 600	22 120	24 608	27 632	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800	28 800
Total Labor	207 120	207 120	207 120	278 801	300 401	326 555	342 797	350 959	354 881	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352	356 352
TOTAL PRODUCTION COSTS	502 725	516 707	3 397 725	843 045	935 210	1 057 717	1 127 111	1 157 169	1 172 947	1 178 864	1 180 364	1 178 864	1 178 864	1 180 364	1 178 864	1 178 864	1 178 864	1 180 364	1 178 864	1 178 864	1 178 864	1 178 864
NET BENEFIT BEFORE FINANCING	1 315 988	1 396 764	-1 579 013	1 483 883	1 804 874	2 016 406	2 073 644	2 060 411	2 044 633	2 038 716	2 037 216	1 968 716	1 968 716	1 968 716	1 967 216	1 968 716	1 968 716	1 968 716	1 967 216	1 968 716	1 968 716	1 968 716

Table A 14: Cooperative storage facility model (Financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Cooperative Storage facility/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
INCOMES																						
Main Production																						
Other Benefits																						
Fee for strorage rent	0	0	1 750 000	3 500 000	5 250 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000
Foregone opportunity income	576 000	576 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total Other Benefits	576 000	576 000	1 750 000	3 500 000	5 250 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000
TOTAL INCOMES	576 000	576 000	1 750 000	3 500 000	5 250 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000	7 000 000
EXPENSES																						
Investment																						
Purchased Inputs																						
Drying and storage facility	0	0	29 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
O&M of building and machinery	0	0	0	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000	290 000
Transport	0	0	20 000	24 000	30 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000
Electricity	0	0	65 000	130 000	195 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000	260 000
Miscellaneous	0	0	37 500	75 000	112 500	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000
Total Purchased Inputs	0	0	122 500	519 000	627 500	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000	740 000
Labor																						
Manager	0	0	162 000	243 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000	324 000
labour	0	0	132 000	198 000	264 000	330 000	330 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000
Total Labor	0	0	294 000	441 000	588 000	654 000	654 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000	720 000
TOTAL PRODUCTION COSTS	0	0	29 416 500	960 000	1 215 500	1 394 000	1 394 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000	1 460 000
NET BENEFIT BEFORE FINANCING	576 000	576 000	-27 666 500	2 540 000	4 034 500	5 606 000	5 606 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000	5 540 000

Table A 15: Joint venture – maize flour mill Model (Financial Budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Joint venture between cooperative and private sector/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Other Benefits																						
Maize flour	0	0	795 000 000	930 000 000	1125 000 000	1200 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000
Foregone opportunity income	6 912 000	6 912 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total Other Benefits	6 912 000	6 912 000	795 000 000	930 000 000	1125 000 000	1200 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000
TOTAL INCOMES	6 912 000	6 912 000	795 000 000	930 000 000	1125 000 000	1200 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000	1545 000 000
EXPENSES																						
Investment																						
Purchased Inputs																						
Storage unit raw material	0	0	120 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage unit finished product	0	0	40 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-cleaner (3tons/hour)	0	0	4 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain separator	0	0	3 600 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Husker	0	0	6 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adhesive whitener	0	0	4 800 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polishing belt	0	0	4 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotary shifter	0	0	3 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grading machine	0	0	3 600 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorting and weighting section	0	0	23 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dryer	0	0	60 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office furniture	0	0	600 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office vehicles	0	0	12 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office equipment	0	0	360 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment spare part inventory	0	0	380 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	285 340 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize raw	0	0	296 100 000	378 000 000	441 000 000	504 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000	630 000 000
Water	0	0	990 000	1 980 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000	3 000 000
Electicity	0	0	8 250 000	16 500 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000	25 000 000
Fuel	0	0	2 640 000	5 280 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000	8 000 000
O&M main investment	0	0	47 850 000	95 700 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000	145 000 000
Miscellaneous	0	0	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000	11 422 000
Total Purchased Inputs	0	0	367 252 000	508 882 000	633 422 000	696 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000	822 422 000
Labor																						
Manager	0	0	324 000	486 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000
Plant operator	0	0	1 380 000	1 380 000	1 656 000	1 932 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000	2 208 000
Driver	0	0	528 000	528 000	528 000	792 000	792 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000	1 056 000
Guard	0	0	432 000	432 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000	648 000
Administrative staff	0	0	1 152 000	1 152 000	1 200 000	1 200 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000	1 488 000
Technician	0	0	1 200 000	1 200 000	1 200 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000
Total Labor	0	0	5 016 000	5 178 000	5 880 000	6 470 000	7 034 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000	7 298 000
TOTAL PRODUCTION COSTS	0	0	657 608 000	514 060 000	639 302 000	702 892 000	829 456 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000	829 720 000
NET BENEFIT BEFORE FINANCING	6 912 000	6 912 000	137 392 000	415 940 000	485 698 000	497 108 000	715 544 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000	715 280 000

Table A 16: Kanyeganyege dam and irrigation infrastructure model – 150 ha (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
Kanyeganyege Dam and irrigation infrastructure (150ha)/Farm Area Model

RWF/ha	Without Project		With Project																				
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																							
Main Production																							
Maize	22 893 562	21 062 077	22 893 562	81 619 638	102 755 302	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744	112 423 744
Maize stalks	137 760	137 760	137 760	432 960	460 020	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080	487 080
Beans	35 398 976	35 398 976	35 398 976	9 957 091	13 931 096	18 947 631	22 147 479	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909	23 282 909
Soybean	5 606 587	5 101 994	5 606 587	6 879 749	10 173 619	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389	11 680 389
Irish Potato	10 208 660	9 391 967	10 208 660	27 525 771	38 132 031	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831	42 983 831
Tomato	9 611 291	9 611 291	9 611 291	36 100 011	40 367 424	44 750 173	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199	46 134 199
Banana	10 376 079	10 894 883	10 376 079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghum grain	2 009 027	1 928 666	2 009 027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	1 832 208	1 526 840	1 832 208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassava	44 718 369	44 269 375	44 718 369	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans	0	0	7 568 892	10 293 693	14 359 269	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054	16 219 054
Avocado	0	0	116 007 131	120 676 274	130 518 095	145 090 094	158 502 436	166 436 927	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361	169 412 361
Onion	0	0	24 604 906	26 903 927	33 447 294	40 167 509	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682	42 289 682
Sweet pepper	0	0	21 024 700	21 943 780	23 881 056	26 749 426	29 389 527	30 951 362	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050	31 537 050
Watermelon	0	0	3 114 770	4 360 679	6 229 541	8 721 357	11 213 173	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082	12 459 082
Sub-Total Main Production	142 792 519	139 323 829	315 112 919	346 693 572	414 254 747	468 220 288	493 470 595	505 348 259	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381
Total Produccion	142 792 519	139 323 829	315 112 919	346 693 572	414 254 747	468 220 288	493 470 595	505 348 259	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381
TOTAL INCOMES	142 792 519	139 323 829	315 112 919	346 693 572	414 254 747	468 220 288	493 470 595	505 348 259	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381	508 909 381
EXPENSES																							
Investment																							
Purchased Inputs																							
Dam and irrigation infrastructure	0	0	1424 340 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supervision of Dam constuction	0	0	142 434 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	1566 774 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	279 083	279 083	279 083	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299	822 299
Manure	17 357 058	17 357 058	21 188 226	26 452 545	35 380 322	38 926 291	41 143 208	41 670 672	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792	41 815 792
TSP	21 136	21 136	325 494	3 758 055	3 956 648	4 157 524	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051	4 299 051
Ammonium sulphate	0	0	520 291	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386	6 048 386
Urea	1 458 380	1 458 380	5 370 643	8 092 320	9 114 490	9 641 169	9 779 638	9 814 965	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213	9 828 213
Pesticides	0	0	594 921	2 057 729	2 309 621	2 630 224	2 839 767	2 918 010	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655	2 921 655
Tools	1 190 830	1 190 830	2 570 680	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691	4 498 691
Bags	1 186 260	1 116 178	4 565 163	5 729 581	6 410 400	7 234 315	7 911 555	8 277 371	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552	8 414 552
Transport to local market (20 km)	13 612	13 612	28 208	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576	46 576
Beans seeds	1 684 572	1 684 572	1 684 572	408 118	476 167	562 068	616 860	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303	636 303
Basal Fertilizers (NPK, DAP, CAN)	18 996 206	18 996 206	22 770 373	7 669 463	9 684 927	12 338 820	14 716 641	16 088 646	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660	16 583 660
water fee	0	0	0	210 797	599 108	1 089 288	1 401 954	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900	1 512 900
Soybeans seeds	256 969	256 969	256 969	226 928	250 483	280 218	299 185	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915	305 915
Mechanized land preparation	0	0	1 305 237	1 441 634	1 692 893	2 010 065	2 212 377	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165	2 284 165
Risobium	0	0	0	1 627	4 625	8 410	10 824	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680	11 680
Potato seeds	1 868 862	1 868 862	1 868 862	3 980 677	4 672 156	5 382 323	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587	5 606 587
Tomato seedlings	571 560	571 560	571 560	2 191 362	2 572 022	2 962 969	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426	3 086 426
Potassium chloride	40 492	40 492	40 492	583 085	728 856	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628	874 628
Sorghum seeds	88 713	88 713	88 713	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087	216 087
Cassava seed	14 181 939	14 181 939	14 181 939	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans seeds	0	0	252 296	315 371	378 445	441 519	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593	504 593
Calcium carbide	0	0	3 009 246	3 097 496	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329	3 156 329
Onion seeds	0	0	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434	4 625 434
Herbicide	0	0	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964	2 522 964
Superphosphate 18% P2O5	0	0	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350	1 149 350
Sweet pepper seeds	0	0	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175	5 256 175
Watermelon seeds	0	0	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392	1 468 392
Insecticides	0	0	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627	722 627
Fungicides	0	0	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037	788 037
O&M investment	0	0	0	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000	71 217 000
Total Purchased Inputs	59 195 672	59 125 589	98 222 034	165 598 805	180 769 510	191 078 178	197 841 639	200 430 258	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467	201 224 467
Labor																							
Land preparation	15 079 440	15 079 440	21 055 440	21 262 506	21 452 248	21 648 574	21 728 233	21 764 696	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760	21 805 760
Planting	4 657 960	4 657 960	6 507 200	9 988 862	10 308 998	10 681 901	10 875 877	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440	10 929 440
Irrigation	0	0	466 128	3 788 215	4 192 875	4 691 729	5 013 579	5 161 557	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048	5 217 048
Fertilizer application	1 540 480	1 540 480	2 751 616	3 198 069	3 385 890	3 614 190	3 753 595	3 810 649	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296	3 827 296
Weeding	5 046 400	5 046 400	8 791 360	9 214 727	9 665 376	10 219 055	10 559 058	10 688 123	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320	10 710 320
Harvesting	3 691 840	3 691 840	6 115 440	7 312 522	8 283 459	9 335 005	9 715 556	9 798 363	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560	9 820 560
Post harvesting and Marketing	4 411 616	4 411 616	5 487 296	5 587 093	5 794 745	6 035 343	6 159 774	6 195 775	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104	6 199 104
Pesticides application	109 560	109 560	1 262 264	2 273 489	2 332 309	2 409 371	2 466 570	2 496 166	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264	2 507 264
Total Labor	34 537 296	34 537 296	52 436 744	62 625 482	65 415 901	68 635 168	70 272 243	70 844 769	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792	71 016 792
TOTAL PRODUCTION COSTS	93 732 968	93 662 885	1717 432 778	228 224 287	246 185 411	259 713 346	268 113 883	271 275 027	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259	272 241 259
NET BENEFIT BEFORE FINANCING	49 059 552	45 660 944	-1402 319 859	118 469 286	168 069 336	208 506 942	225 356 712	234 073 232	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123	236 668 123

Table A 17: Ghyshianda dam and irrigation infrastructure model – 125 ha (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Gishyanda Dam and irrigation infrastructure (125 ha)/Farm Area Model

RWF/ha	Without Project		With Project																				
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																							
Main Production																							
Maize	24 675 000	22 701 000	24 675 000	87 664 500	110 365 500	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000	120 750 000
Maize stalks	141 000	141 000	141 000	441 600	469 200	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800	496 800
Beans	38 139 750	38 139 750	38 139 750	10 819 714	15 138 002	20 589 140	24 066 203	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000	25 300 000
Soybean	6 000 000	5 460 000	6 000 000	7 657 000	11 323 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000	13 000 000
Irish Potato	11 362 000	10 453 040	11 362 000	29 457 250	40 807 750	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000	46 000 000
Tomato	11 520 000	11 520 000	11 520 000	48 076 800	53 760 000	59 596 800	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000	61 440 000
Banana	10 660 000	11 193 000	10 660 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghum grain	2 580 000	2 476 800	2 580 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	1 915 200	1 596 000	1 915 200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassava	44 460 000	44 013 600	44 460 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans	0	0	6 930 000	9 424 800	13 147 200	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000	14 850 000
Avocado	0	0	124 818 400	129 842 186	140 431 538	156 110 346	170 541 416	179 078 568	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000	182 280 000
Onion	0	0	32 768 000	35 829 760	44 544 000	53 493 760	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000	56 320 000
Sweet pepper	0	0	21 600 000	22 544 229	24 534 514	27 481 371	30 193 714	31 798 286	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000	32 400 000
Watermelon	0	0	3 000 000	4 200 000	6 000 000	8 400 000	10 800 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000	12 000 000
Sub-Total Main Production	151 452 950	147 694 190	340 569 350	385 957 838	460 520 704	520 768 217	548 458 134	561 033 654	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800
Total Produccion	151 452 950	147 694 190	340 569 350	385 957 838	460 520 704	520 768 217	548 458 134	561 033 654	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800
TOTAL INCOMES	151 452 950	147 694 190	340 569 350	385 957 838	460 520 704	520 768 217	548 458 134	561 033 654	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800	564 836 800
EXPENSES																							
Investment																							
Purchased Inputs																							
Dam and irrigation infrastructure	0	0	1447 500 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supervision of Dam constuction	0	0	144 750 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	1592 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	300 800	300 800	300 800	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200	883 200
Manure	18 585 000	18 585 000	22 305 000	27 955 403	37 386 531	41 037 767	43 232 171	43 796 229	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000	43 950 000
TSP	24 000	24 000	288 000	4 324 440	4 530 000	4 738 440	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000
Ammonium sulphate	0	0	408 320	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960	6 328 960
Urea	1 755 000	1 755 000	6 376 500	9 590 246	10 819 363	11 459 674	11 626 843	11 666 957	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000	11 682 000
Pesticides	0	0	580 800	2 163 582	2 442 899	2 798 195	3 030 005	3 116 256	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000	3 120 000
Tools	1 060 000	1 060 000	2 120 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000	3 820 000
Bags	1 276 200	1 198 200	4 836 600	6 070 088	6 787 135	7 655 866	8 367 763	8 757 317	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400	8 903 400
Transport to local market (20 km	14 000	14 000	28 800	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400	47 400
Beans seeds	1 732 500	1 732 500	1 732 500	423 317	493 900	583 000	639 833	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000	660 000
Basal Fertilizers (NPK, DAP, CAN	19 516 000	19 516 000	23 462 600	8 232 207	10 408 240	13 255 320	15 805 333	17 276 200	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600	17 806 600
water fee	0	0	0	219 450	623 700	1 134 000	1 459 500	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000	1 575 000
Soybeans seeds	262 500	262 500	262 500	241 085	266 110	297 700	317 850	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000	325 000
Mechanized land preparation	0	0	1 200 000	1 344 907	1 611 840	1 948 800	2 163 733	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000	2 240 000
Risobium	0	0	0	1 811	5 148	9 360	12 047	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000	13 000
Potato seeds	2 080 000	2 080 000	2 080 000	4 260 000	5 000 000	5 760 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000
Tomato seedlings	587 200	587 200	587 200	2 501 472	2 936 000	3 382 272	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200	3 523 200
Potassium chloride	41 600	41 600	41 600	665 600	832 000	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400	998 400
Sorghum seeds	97 650	97 650	97 650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500	232 500
Cassava seed	14 100 000	14 100 000	14 100 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans seeds	0	0	198 000	247 500	297 000	346 500	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000	396 000
Calcium carbide	0	0	3 425 455	3 520 408	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710	3 583 710
Onion seeds	0	0	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000	5 280 000
Herbicide	0	0	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000	2 880 000
Superphosphate 18% P2O5	0	0	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000	1 312 000
Sweet pepper seeds	0	0	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000	5 400 000
Watermelon seeds	0	0	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000	1 350 000
Insecticides	0	0	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000	696 000
Fungicides	0	0	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000	759 000
O&M investment	0	0	0	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000	72 375 000
Total Purchased Inputs	61 432 450	61 354 450	102 341 825	173 125 574	189 387 636	200 353 065	207 392 449	210 163 329	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370	211 012 370
Labor																							
Land preparation	15 160 000	15 160 000	20 588 000	20 952 620	21 154 315	21 360 841	21 440 278	21 474 549	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000	21 516 000
Planting	4 680 000	4 680 000	6 372 000	9 926 699	10 261 792	10 651 360	10 852 853	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000	10 908 000
Irrigation	0	0	396 800	3 751 931	4 165 646	4 670 789	4 988 686	5 131 314	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800	5 184 800
Fertilizer application	1 552 000	1 552 000	2 702 400	3 166 182	3 359 150	3 592 037	3 731 459	3 787 154	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200	3 803 200
Weeding	5 076 000	5 076 000	8 500 000	9 004 039	9 468 418	10 036 635	10 381 688	10 510 606	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000	10 532 000
Harvesting	3 644 000	3 644 000	5 988 000	7 373 111	8 345 410	9 398 635	9 761 208	9 842 606	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000	9 864 000
Post harvesting and Marketing	4 427 200	4 427 200	5 388 800	5 535 900	5 753 798	6 005 543	6 134 532	6 171 191	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400	6 174 400
Pesticides application	112 000	112 000	1 233 600	2 257 906	2 316 969	2 393 678	2 449 577	2 478 103	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800	2 488 800
Total Labor	34 651 200	34 651 200	51 169 600	61 968 390	64 825 499	68 109 518	69 740 280	70 303 522	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200	70 471 200
TOTAL PRODUCTION COSTS	96 083 650	96 005 650	1745 761 425	235 093 964	254 213 135	268 462 583	277 132 730	280 466 851	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570	281 483 570
NET BENEFIT BEFORE FINANCING	55 369 300	51 688 540	-1405 192 075	150 863 874	206 307 569	252 305 634	271 325 404	280 566 803	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230	283 353 230

Table A 18: Kibare irrigation scheme (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Kibare Irrigation scheme/Farm Area Model

RWF/ha	Without Project		With Project																				
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																							
Main Production																							
Maize	72 450 000	66 654 000	72 450 000	72 144 947	255 120 250	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000	279 125 000
Maize stalks	414 000	414 000	414 000	414 000	1 084 600	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400	1 148 400
Beans	143 313 000	143 313 000	143 313 000	143 313 000	125 232 562	170 328 340	199 093 137	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000	209 300 000
Irish Potato	64 676 000	59 501 920	64 676 000	64 624 259	138 746 350	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000	156 400 000
Tomato	92 160 000	92 160 000	92 160 000	92 160 000	268 800 000	297 984 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000	307 200 000
Banana	26 650 000	27 982 500	26 650 000	26 663 325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghum grain	86 860 000	83 385 600	86 860 000	86 825 256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	64 478 400	53 732 000	64 478 400	63 081 368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassava	111 150 000	110 034 000	111 150 000	111 138 840	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Onion	0	0	163 840 000	179 148 800	222 720 000	267 468 800	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000	281 600 000
Sweet pepper	0	0	266 400 000	278 045 486	302 592 343	338 936 914	372 389 143	392 178 857	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000	399 600 000
Avocado	0	0	825 412 000	858 633 808	928 660 168	1032 342 608	1127 773 880	1184 229 240	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000	1205 400 000
Soybean	38 000 000	34 580 000	38 000 000	37 965 800	118 456 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000	136 000 000
Watermelon	0	0	17 000 000	23 800 000	34 000 000	47 600 000	61 200 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000	68 000 000
French beans	0	0	53 865 000	73 256 400	102 189 600	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000	115 425 000
Sub-Total Main Production	700 151 400	671 757 020	2026 668 400	2111 215 289	2497 601 873	2842 759 062	3037 354 560	3130 606 497	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400
Total Produccion	700 151 400	671 757 020	2026 668 400	2111 215 289	2497 601 873	2842 759 062	3037 354 560	3130 606 497	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400
TOTAL INCOMES	700 151 400	671 757 020	2026 668 400	2111 215 289	2497 601 873	2842 759 062	3037 354 560	3130 606 497	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400	3159 198 400
EXPENSES																							
Investment																							
Purchased Inputs																							
Irrigation infrastructure (pivot &	0	0	7044 127 260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
In-kind contribution to infrastruc	0	0	1056 619 089	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	8100 746 349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
Maize seeds	883 200	883 200	883 200	883 200	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600	2 041 600
Manure	86 280 000	86 280 000	115 432 500	122 036 454	155 585 044	179 131 446	195 270 514	200 146 286	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000	201 450 000
TSP	192 000	192 000	2 244 000	3 013 500	16 905 000	18 221 700	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000	19 164 000
Ammonium sulphate	0	0	3 173 760	3 173 760	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080	21 910 080
Urea	14 670 000	14 670 000	42 705 000	44 386 637	46 705 809	50 492 623	51 825 729	52 320 471	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000	52 506 000
Pesticides	0	0	4 003 200	4 075 661	12 408 877	16 160 141	18 616 821	19 537 824	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000	19 584 000
Tools	6 800 000	6 800 000	14 320 000	14 320 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000	13 900 000
Bags	5 654 400	5 210 400	34 248 600	36 200 081	41 403 153	47 624 887	53 103 969	56 169 591	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200	57 319 200
Transport to local market (20 km	84 800	84 800	196 400	196 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400	192 400
Beans seeds	6 510 000	6 510 000	6 510 000	6 510 000	4 085 900	4 823 000	5 293 167	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000	5 460 000
Basal Fertilizers (NPK, DAP, CAN	61 838 000	61 838 000	91 721 000	97 645 160	78 676 880	99 229 560	117 563 467	128 097 800	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000	131 873 000
water fee	0	0	0	0	5 666 760	10 303 200	13 260 600	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000	14 310 000
Potato seeds	11 840 000	11 840 000	11 840 000	11 840 000	17 000 000	19 584 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000	20 400 000
Tomato seedlings	4 697 600	4 697 600	4 697 600	4 697 600	14 680 000	16 911 360	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000	17 616 000
Potassium chloride	332 800	332 800	332 800	332 800	4 160 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000	4 992 000
Sorghum seeds	3 287 550	3 287 550	3 287 550	3 287 550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500	1 537 500
Cassava seed	35 250 000	35 250 000	35 250 000	35 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Onion seeds	0	0	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000	26 400 000
Herbicide	0	0	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000	14 400 000
Calcium carbide	0	0	17 382 525	18 010 440	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050	18 429 050
Superphosphate 18% P2O5	0	0	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000	6 560 000
Sweet pepper seeds	0	0	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000	66 600 000
Soybeans seeds	1 662 500	1 662 500	1 662 500	1 662 500	2 783 920	3 114 400	3 325 200	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000	3 400 000
Mechanized land preparation	0	0	6 800 000	6 800 000	11 108 480	14 633 600	16 882 133	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000	17 680 000
Risobium	0	0	0	0	53 856	97 920	126 027	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000	136 000
Watermelon seeds	0	0	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000	7 650 000
Insecticides	0	0	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000	3 944 000
Fungicides	0	0	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000	4 301 000
O&M investment	0	0	0	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363	352 206 363
French beans seeds	0	0	1 539 000	1 923 750	2 308 500	2 693 250	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000	3 078 000
Total Purchased Inputs	239 982 850	239 538 850	529 622 135	899 844 356	953 604 171	1028 085 080	1080 589 619	1102 579 966	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193	1109 040 193
Labor																							
Land preparation	67 152 000	67 152 000	109 652 000	110 414 949	101 376 354	100 896 091	100 420 781	100 353 886	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000	100 628 000
Planting	17 260 000	17 260 000	29 688 000	29 812 800	40 773 984	43 740 480	45 397 707	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000	45 904 000
Irrigation	0	0	2 760 000	4 211 154	15 617 097	20 063 726	23 421 257	25 180 343	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000	25 840 000
Fertilizer application	9 288 000	9 288 000	18 150 400	18 627 346	17 338 505	19 265 838	20 612 404	21 246 903	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800	21 444 800
Weeding	23 572 000	23 572 000	48 540 000	49 037 262	52 160 823	57 067 570	60 327 543	61 684 137	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000	61 948 000
Harvesting	17 836 000	17 836 000	34 832 000	36 745 462	44 376 487	51 038 250	53 998 050	54 928 137	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000	55 192 000
Post harvesting and Marketing	19 317 600	19 317 600	25 956 000	26 101 309	25 529 749	27 494 448	28 622 267	29 002 021	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600	29 041 600
Pesticides application	3 272 000	3 272 000	11 754 400	12 003 031	12 307 419	13 075 145	13 708 251	14 060 069	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000	14 192 000
Total Labor	157 697 600	157 697 600	281 332 800	286 953 313	309 480 419	332 641 548	346 508 260	352 359 495	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400	354 190 400
TOTAL PRODUCTION COSTS	397 680 450	397 236 450	8911 701 284	1186 797 668	1263 084 590	1360 726 628	1427 097 879	1454 939 460	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593	1463 230 593
NET BENEFIT BEFORE FINANCING	302 470 950	274 520 570	-6885 032 884	924 417 621	1234 517 283	1482 032 434	1610 256 681	1675 667 037	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807	1695 967 807

Table A 19: Ihema irrigation scheme (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Ihema Irrigation system/Farm Area Model

RWF/ha	Without Project		With Project																				
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Maize	89 250 000	82 110 000	89 250 000	88 874 211	205 800 000	249 018 000	313 502 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000	343 000 000
Maize stalks	510 000	510 000	510 000	510 000	1 176 000	1 254 400	1 332 800	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200	1 411 200
Beans	169 124 750	169 124 750	169 124 750	169 124 750	154 132 384	209 634 880	245 037 707	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000	257 600 000
Soybean	46 800 000	42 588 000	46 800 000	46 757 880	146 328 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000	168 000 000
Irish Potato	79 534 000	73 171 280	79 534 000	79 470 373	171 392 550	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000	193 200 000
Tomato	115 200 000	115 200 000	115 200 000	115 200 000	329 280 000	365 030 400	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000	376 320 000
Banana	31 980 000	33 579 000	31 980 000	31 995 990	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghum grain	114 810 000	110 217 600	114 810 000	114 764 076	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	85 226 400	71 022 000	85 226 400	83 379 828	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassava	137 085 000	135 708 600	137 085 000	137 071 236	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans	0	0	66 150 000	89 964 000	125 496 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000	141 750 000
Onion	0	0	200 704 000	219 457 280	272 832 000	327 649 280	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000	344 960 000
Sweet pepper	0	0	327 600 000	341 920 800	372 106 800	416 800 800	457 938 000	482 274 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000	491 400 000
Watermelon	0	0	21 000 000	29 400 000	42 000 000	58 800 000	75 600 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000	84 000 000
Avocado	0	0	1014 652 800	1055 491 315	1141 572 499	1269 026 035	1386 336 672	1455 735 456	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000	1481 760 000
Sub-Total Main Production	869 520 150	833 231 230	2499 626 950	2603 381 739	2962 116 233	3400 163 795	3703 977 179	3848 250 656	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200
Total Produccion	869 520 150	833 231 230	2499 626 950	2603 381 739	2962 116 233	3400 163 795	3703 977 179	3848 250 656	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200
TOTAL INCOMES	869 520 150	833 231 230	2499 626 950	2603 381 739	2962 116 233	3400 163 795	3703 977 179	3848 250 656	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200	3883 401 200
EXPENSES																						
Investment																						
Purchased Inputs																						
Irrigation infrastructure (pivot &	0	0	8650 682 600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
In-kind contribution to infrastruc	0	0	1297 602 390	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	9948 284 990	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	1 088 000	1 088 000	1 088 000	1 088 000	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800	2 508 800
Manure	105 915 000	105 915 000	141 720 000	149 831 820	161 978 640	202 706 970	240 197 900	246 197 100	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000	247 800 000
TSP	240 000	240 000	2 760 000	3 705 000	20 832 000	22 447 320	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000	23 604 000
Ammonium sulphate	0	0	3 897 600	3 897 600	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360	27 023 360
Urea	18 886 500	18 886 500	53 284 500	55 349 820	53 827 920	60 242 940	63 643 950	64 252 350	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500	64 480 500
Pesticides	0	0	4 916 800	5 005 907	15 275 971	19 908 627	22 942 192	24 079 216	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000	24 136 000
Tools	8 740 000	8 740 000	17 980 000	17 980 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000	17 080 000
Bags	7 007 400	6 461 400	42 161 400	44 560 308	50 331 348	58 099 488	65 188 680	69 075 240	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600	70 488 600
Transport to local market (20 km	108 000	108 000	245 200	245 200	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600	236 600
Beans seeds	7 682 500	7 682 500	7 682 500	7 682 500	5 028 800	5 936 000	6 514 667	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000	6 720 000
Basal Fertilizers (NPK, DAP, CAN	74 830 000	74 830 000	111 589 800	118 872 600	96 798 240	122 067 400	144 607 867	157 558 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800	162 199 800
water fee	0	0	0	0	6 985 440	12 700 800	16 346 400	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000
Soybeans seeds	2 047 500	2 047 500	2 047 500	2 047 500	3 438 960	3 847 200	4 107 600	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000	4 200 000
Mechanized land preparation	0	0	8 400 000	8 400 000	13 722 240	18 076 800	20 854 400	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000	21 840 000
Risobium	0	0	0	0	66 528	120 960	155 680	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000	168 000
Potato seeds	14 560 000	14 560 000	14 560 000	14 560 000	21 000 000	24 192 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000	25 200 000
Tomato seedlings	5 872 000	5 872 000	5 872 000	5 872 000	17 983 000	20 716 416	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600	21 579 600
Potassium chloride	416 000	416 000	416 000	416 000	5 096 000	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200	6 115 200
Sorghum seeds	4 345 425	4 345 425	4 345 425	4 345 425	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000	1 890 000
Cassava seed	43 475 000	43 475 000	43 475 000	43 475 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans seeds	0	0	1 890 000	2 362 500	2 835 000	3 307 500	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000	3 780 000
Onion seeds	0	0	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000	32 340 000
Herbicide	0	0	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000	17 640 000
Calcium carbide	0	0	21 298 060	22 069 936	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520	22 584 520
Superphosphate 18% P2O5	0	0	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000	8 036 000
Sweet pepper seeds	0	0	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000	81 900 000
Watermelon seeds	0	0	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000	9 450 000
Insecticides	0	0	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000	4 872 000
Fungicides	0	0	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000	5 313 000
O&M on main investment	0	0	0	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130	432 534 130
Total Purchased Inputs	295 213 325	294 667 325	651 070 785	1105 742 246	1138 608 497	1243 894 031	1328 246 545	1355 417 916	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110	1363 360 110
Labor																						
Land preparation	82 064 000	82 064 000	134 284 000	135 220 448	124 645 088	124 026 208	123 426 080	123 339 040	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000	123 676 000
Planting	20 884 000	20 884 000	36 144 000	36 296 880	50 130 752	53 782 400	55 823 787	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000	56 448 000
Irrigation	0	0	3 393 600	5 176 160	19 193 760	24 656 160	28 783 200	30 946 400	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600	31 757 600
Fertilizer application	11 652 000	11 652 000	22 538 400	23 124 128	20 678 880	23 674 368	25 329 867	26 110 240	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600	26 353 600
Weeding	28 880 000	28 880 000	59 568 000	60 179 104	64 140 960	70 180 064	74 193 333	75 863 520	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000	76 188 000
Harvesting	22 088 000	22 088 000	42 976 000	45 327 024	53 266 432	61 767 184	66 033 387	67 491 520	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000	67 816 000
Post harvesting and Marketing	23 643 200	23 643 200	31 796 800	31 975 098	31 403 072	33 821 722	35 211 147	35 679 328	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000	35 728 000
Pesticides application	4 320 000	4 320 000	14 747 200	15 052 752	15 127 232	16 070 752	16 849 120	17 281 760	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000	17 444 000
Total Labor	193 531 200	193 531 200	345 448 000	352 351 594	378 586 176	407 978 858	425 649 920	433 159 808	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200	435 411 200
TOTAL PRODUCTION COSTS	488 744 525	488 198 525	10944 803 775	1458 093 840	1517 194 673	1651 872 889	1753 896 465	1788 577 724	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310	1798 771 310
NET BENEFIT BEFORE FINANCING	380 775 625	345 032 705	-8445 176 825	1145 287 899	1444 921 560	1748 290 906	1950 080 713	2059 672 932	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890	2084 629 890

Table A 20: Nasho irrigation scheme (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
Nasho irrigation scheme/Farm Area Model

RWF/ha	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Maize	93 975 000	86 457 000	93 975 000	93 579 316	331 096 500	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000	362 250 000
Maize stalks	537 000	537 000	537 000	537 000	1 407 600	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400	1 490 400
Beans	178 756 000	178 756 000	178 756 000	178 756 000	162 389 476	220 865 320	258 164 727	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000	271 400 000
Soybean	49 600 000	45 136 000	49 600 000	49 555 360	154 167 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000	177 000 000
Irish Potato	83 904 000	77 191 680	83 904 000	83 836 877	181 186 410	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000	204 240 000
Tomato	120 960 000	120 960 000	120 960 000	120 960 000	346 080 000	383 654 400	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000	395 520 000
Banana	34 645 000	36 377 250	34 645 000	34 662 323	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghum grain	121 260 000	116 409 600	121 260 000	121 211 496	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	90 014 400	75 012 000	90 014 400	88 064 088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cassava	144 495 000	143 044 200	144 495 000	144 480 492	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans	0	0	69 930 000	95 104 800	132 667 200	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000	149 850 000
Sweet pepper	0	0	345 600 000	360 707 657	392 552 229	439 701 943	483 099 429	508 772 571	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000	518 400 000
Watermelon	0	0	22 000 000	30 800 000	44 000 000	61 600 000	79 200 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000	88 000 000
Avocado	0	0	1071 022 400	1114 129 722	1204 993 194	1339 527 482	1463 355 376	1536 609 648	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000	1564 080 000
Sub-Total Main Production	918 146 400	879 880 730	2426 698 800	2516 385 130	2950 539 608	3340 179 544	3574 169 931	3695 132 619	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400
Total Produccion	918 146 400	879 880 730	2426 698 800	2516 385 130	2950 539 608	3340 179 544	3574 169 931	3695 132 619	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400
TOTAL INCOMES	918 146 400	879 880 730	2426 698 800	2516 385 130	2950 539 608	3340 179 544	3574 169 931	3695 132 619	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400	3732 230 400
EXPENSES																						
Investment																						
Purchased Inputs																						
Irrigation infrastructure (pivot &	0	0	9268 588 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
In-kind contribution to infrastru	0	0	1390 288 275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	10658 876 775	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	1 145 600	1 145 600	1 145 600	1 145 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600	2 649 600
Manure	111 870 000	111 870 000	141 915 000	149 980 581	192 264 626	221 352 939	241 835 686	248 163 514	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000	249 855 000
TSP	252 000	252 000	2 916 000	3 915 000	22 011 000	23 714 520	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000	24 936 000
Ammonium sulphate	0	0	4 120 320	4 120 320	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840	28 563 840
Urea	19 930 500	19 930 500	37 624 500	39 199 191	39 609 431	42 748 869	43 917 236	44 559 064	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750	44 799 750
Pesticides	0	0	4 364 800	4 458 803	15 288 307	20 169 523	23 365 952	24 564 096	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000	24 624 000
Tools	9 220 000	9 220 000	18 980 000	18 980 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000	18 040 000
Bags	7 421 400	6 845 400	44 521 800	47 053 958	53 750 035	61 825 186	68 935 063	72 912 617	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200	74 404 200
Transport to local market (20 km	114 000	114 000	258 800	258 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800	249 800
Beans seeds	8 120 000	8 120 000	8 120 000	8 120 000	5 298 200	6 254 000	6 863 667	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000	7 080 000
Basal Fertilizers (NPK, DAP, CAN	79 058 000	79 058 000	116 508 000	124 194 720	100 730 080	127 395 920	151 183 467	164 851 600	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000	169 750 000
water fee	0	0	0	0	7 359 660	13 381 200	17 222 100	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000	18 585 000
Soybeans seeds	2 170 000	2 170 000	2 170 000	2 170 000	3 623 190	4 053 300	4 327 650	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000	4 425 000
Mechanized land preparation	0	0	8 800 000	8 800 000	14 407 360	18 995 200	21 921 600	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000	22 960 000
Risobium	0	0	0	0	70 092	127 440	164 020	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000	177 000
Potato seeds	15 360 000	15 360 000	15 360 000	15 360 000	22 200 000	25 574 400	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000	26 640 000
Tomato seedlings	6 165 600	6 165 600	6 165 600	6 165 600	18 900 500	21 773 376	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600	22 680 600
Potassium chloride	436 800	436 800	436 800	436 800	5 356 000	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200	6 427 200
Sorghum seeds	4 589 550	4 589 550	4 589 550	4 589 550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000	1 995 000
Cassava seed	45 825 000	45 825 000	45 825 000	45 825 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French beans seeds	0	0	1 998 000	2 497 500	2 997 000	3 496 500	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000	3 996 000
Sweet pepper seeds	0	0	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000	86 400 000
Watermelon seeds	0	0	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000	9 900 000
Insecticides	0	0	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000	5 104 000
Fungicides	0	0	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000	5 566 000
Calcium carbide	0	0	1 357 930	2 172 688	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860	2 715 860
O&M investment	0	0	0	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425	463 429 425
Total Purchased Inputs	311 678 450	311 102 450	576 142 700	1061 838 537	1128 479 005	1221 903 098	1289 029 765	1317 571 217	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275	1325 953 275
Labor																						
Land preparation	86 688 000	86 688 000	135 192 000	135 750 144	123 235 264	121 328 704	120 302 240	120 212 320	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000	120 568 000
Planting	22 044 000	22 044 000	33 188 000	33 188 000	47 313 328	50 688 640	52 690 347	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000	53 348 000
Irrigation	0	0	3 580 800	4 923 703	18 190 331	22 381 417	26 238 971	28 521 029	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800	29 376 800
Fertilizer application	12 304 000	12 304 000	21 312 000	21 714 871	19 171 707	21 040 745	22 588 198	23 411 269	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000	23 668 000
Weeding	30 504 000	30 504 000	60 408 000	60 945 161	64 752 757	70 802 167	74 932 842	76 693 691	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000	77 036 000
Harvesting	23 308 000	23 308 000	43 700 000	45 967 161	54 998 965	63 003 527	66 642 655	67 849 691	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000	68 192 000
Post harvesting and Marketing	24 972 800	24 972 800	31 926 400	32 006 974	31 059 205	33 292 885	34 657 613	35 151 054	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400	35 202 400
Pesticides application	4 564 000	4 564 000	15 154 400	15 422 981	15 342 706	16 180 923	16 952 434	17 408 846	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000	17 580 000
Total Labor	204 384 800	204 384 800	344 461 600	349 918 995	374 064 264	398 719 008	415 005 301	422 595 899	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200	424 971 200
TOTAL PRODUCTION COSTS	516 063 250	515 487 250	11579 481 075	1411 757 532	1502 543 269	1620 622 106	1704 035 065	1740 167 116	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475	1750 924 475
NET BENEFIT BEFORE FINANCING	402 083 150	364 393 480	-9152 782 275	1104 627 598	1447 996 339	1719 557 438	1870 134 866	1954 965 503	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925	1981 305 925

Table A 21: Ndego area irrigation scheme (financial budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWP2
Ndego Irrigation system/Farm Area Model

RWF/ha	Without Project		With Project																				
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																							
Main Production																							
Maize	255 675 000	235 221 000	255 675 000	254 598 474	899 718 750	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000	984 375 000
Maize stalks	1 461 000	1 461 000	1 461 000	1 461 000	3 825 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000	4 050 000
Sorghum grain	322 930 000	310 012 800	322 930 000	322 800 828	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	239 719 200	199 766 000	239 719 200	234 525 284	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Irish Potato	228 114 000	209 864 880	228 114 000	227 931 509	491 325 310	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000	553 840 000
Sweet potato	408 800 000	408 800 000	408 800 000	408 800 000	532 900 000	627 216 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000	657 000 000
Cassava	394 582 500	390 620 700	394 582 500	394 542 882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tomato	328 320 000	328 320 000	328 320 000	328 320 000	947 520 000	1050 393 600	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000	1082 880 000
Onion	0	0	0	0	782 304 000	939 484 160	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000	989 120 000
French beans	0	0	0	0	360 352 800	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000	407 025 000
Avocado	104 686 400	104 686 400	104 686 400	104 686 400	3019 987 098	3146 036 134	3406 157 118	3783 930 861	4127 660 856	4329 454 344	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000	4404 120 000
Banana	95 940 000	100 737 000	95 940 000	95 987 970	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweet pepper	0	0	0	0	1067 251 371	1195 439 657	1313 426 571	1383 225 429	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000	1409 400 000
Beans	491 579 000	491 579 000	491 579 000	491 579 000	442 442 513	601 764 410	703 389 488	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000	739 450 000
Soybean	134 400 000	122 304 000	134 400 000	134 279 040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Watermelon	0	0	60 000 000	84 000 000	120 000 000	168 000 000	216 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000	240 000 000
Sub-Total Main Production	3006 207 100	2903 372 780	3066 207 100	3083 512 386	8667 626 842	9677 623 962	10317 263 178	10824 896 289	11194 800 856	11396 594 344	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000
Total Produccion	3006 207 100	2903 372 780	3066 207 100	3083 512 386	8667 626 842	9677 623 962	10317 263 178	10824 896 289	11194 800 856	11396 594 344	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000
TOTAL INCOMES	3006 207 100	2903 372 780	3066 207 100	3083 512 386	8667 626 842	9677 623 962	10317 263 178	10824 896 289	11194 800 856	11396 594 344	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000	11471 260 000
EXPENSES																							
Investment																							
Purchased Inputs																							
Irrigation infrastructure (pivot &	0	0	0	6179 059 000	6179 059 000	6179 059 000	6302 640 180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contribution from beneficiaries	0	0	0	115 800 000	115 800 000	115 800 000	118 116 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supervision of irrigation infrastr	0	0	0	615 670 000	615 670 000	615 670 000	627 983 400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	0	6910 529 000	6910 529 000	6910 529 000	7048 739 580	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
O&M investment	0	0	0	308 952 950	617 905 900	926 858 850	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859	1241 990 859
Maize seeds	3 116 800	3 116 800	3 116 800	3 116 800	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000	7 200 000
Manure	359 445 000	359 445 000	359 445 000	359 445 000	537 881 683	603 893 372	652 412 011	673 286 109	686 593 671	693 125 614	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500	695 542 500
TSP	684 000	684 000	684 000	684 000	103 563 000	108 205 380	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000	111 528 000
Ammonium sulphate	0	0	0	0	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280	145 241 280
Urea	64 984 500	64 984 500	64 984 500	65 803 500	173 748 034	188 848 671	196 914 664	201 913 136	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500	202 567 500
Pesticides	0	0	0	208 000	31 695 075	32 492 691	33 226 832	33 661 136	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000	33 824 000
Tools	25 280 000	25 280 000	25 280 000	25 280 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000	49 540 000
Bags	33 307 200	31 741 200	33 307 200	33 103 620	151 865 901	167 471 280	184 074 564	201 248 328	214 883 289	222 068 426	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000	224 727 000
Transport to local market (20 km	390 400	390 400	390 400	390 400	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200	762 200
Sorghum seeds	12 222 525	12 222 525	12 222 525	12 222 525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	0	195 000	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500	5 617 500
Potato seeds	41 760 000	41 760 000	41 760 000	41 760 000	60 200 000	69 350 400	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000	72 240 000
Sweet potato seeds	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000	125 560 000
Cassava seed	125 137 500	125 137 500	125 137 500	125 137 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basal Fertilizers (NPK, DAP, CAN	218 211 000	218 211 000	232 911 000	232 911 000	191 437 500	227 739 960	280 860 953	345 005 640	398 964 400	429 446 800	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600	440 725 600
Tomato seedlings	16 735 200	16 735 200	16 735 200	16 735 200	51 747 000	59 612 544	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400	62 096 400
Potassium chloride	1 185 600	1 185 600	1 185 600	1 185 600	14 664 000	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800	17 596 800
Onion seeds	0	0	0	0	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000	92 730 000
Herbicide	0	0	0	0	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000	50 580 000
Calcium carbide	0	0	0	132 730	61 283 483	63 551 124	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490	65 027 490
Superphosphate 18% P2O5	0	0	0	0	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000	23 042 000
French beans seeds	0	0	0	0	8 140 500	9 497 250	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000	10 854 000
Sweet pepper seeds	0	0	0	0	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000	234 900 000
Beans seeds	22 330 000	22 330 000	22 330 000	22 330 000	14 435 350	17 039 500	18 700 583	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000	19 290 000
water fee	0	0	0	0	11 458 260	20 833 200	26 813 100	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000	28 935 000
Soybeans seeds	5 880 000	5 880 000	5 880 000	5 880 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mechanized land preparation	0	0	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000	24 000 000
Risobium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Watermelon seeds	0	0	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000	27 000 000
Insecticides	0	0	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000	13 920 000
Fungicides	0	0	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000	15 180 000
Total Purchased Inputs	1056 229 725	1054 663 725	1151 029 725	1461 133 825	2845 298 666	3328 264 003	3789 609 237	3899 945 877	3981 664 389	4025 863 869	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129	4042 218 129
Labor																							
Land preparation	260 704 000	260 704 000	264 304 000	264 304 000	354 366 555	361 987 410	367 246 599	372 137 929	376 588 469	379 201 246	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000	380 168 000
Planting	67 524 000	67 524 000	68 724 000	68 724 000	136 938 560	143 672 480	147 140 933	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000	148 084 000
Irrigation	0	0	1 440 000	1 564 800	59 573 989	75 239 703	87 076 229	93 280 571	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200	95 607 200
Fertilizer application	36 288 000	36 288 000	36 672 000	36 776 000	64 847 461	71 640 951	76 389 882	78 628 411	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400	79 326 400
Weeding	88 228 000	88 228 000	93 988 000	94 404 000	170 860 299	183 820 201	192 547 318	196 349 349	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000	197 280 000
Harvesting	70 404 000	70 404 000	71 364 000	71 364 000	152 793 739	171 633 121	183 982 385	192 625 349	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000	193 556 000
Post harvesting and Marketing	71 108 800	71 108 800	72 068 800	72 068 800	78 251 524	82 070 558	84 065 683	84 702 002	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600	84 841 600
Pesticides application	12 160 000	12 160 000	12 832 000	13 456 000	45 487 358	48 193 381	50 425 806	51 666 674	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000	52 132 000
Total Labor	606 416 800	606 416 800	621 392 800	622 661 600	1063 119 485	1138 257 805	1188 874 834	1217 474 286	1227 415 669	1230 028 446	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200	1230 995 200
TOTAL PRODUCTION COSTS	1662 646 525	1661 080 525	1772 422 525	8994 324 425	10818 947 151	11377 050 808	12027 223 652	5117 420 163	5209 080 058	5255 892 315	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329	5273 213 329
NET BENEFIT BEFORE FINANCING	1343 560 575	1242 292 255	1293 784 575	-5910 812 039	-2151 320 309	-1699 426 846	-1709 960 474	5707 476 126	5985 720 798	6140 702 029	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671	6198 046 671

Table A 22: Subcomponent A.2: Irrigation development subproject (Economic budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Sub-component A.2: Irrigation Development/Subproject

RWF/ha	Without Project		With Project																				
	1	**20**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
INCOMES																							
Main Production																							
Maize	241 200 032	221 904 029	241 200 032	240 273 101	796 599 898	935 815 241	964 099 011	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399	972 976 399
Maize stalks	1 451 400	1 451 400	1 451 400	1 451 400	3 660 726	4 140 918	4 190 610	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456	4 215 456
Sorghum grain	219 270 936	210 500 098	219 270 936	219 183 974	1 865 525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	199 972 416	166 643 680	199 972 416	195 676 543	1 701 336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Irish Potato	196 686 848	180 951 900	196 686 848	196 537 121	417 351 420	491 457 426	505 627 315	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798	510 074 798
Sweet potato	318 329 533	318 329 533	318 329 533	318 329 533	414 965 284	488 408 455	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036	511 601 036
Cassava	386 597 513	382 715 886	386 597 513	386 562 680	39 669 521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tomato	236 437 770	236 437 770	236 437 770	236 437 770	675 167 596	773 305 289	803 157 961	808 604 359	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495	809 911 495
Onion	0	0	0	23 237 967	570 796 659	684 057 827	729 714 024	738 065 169	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443	740 069 443
French beans	0	0	0	6 097 163	254 907 068	291 528 491	296 301 699	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859	297 799 859
Avocado	81 518 525	81 518 525	81 518 525	188 119 672	2569 134 452	2680 622 303	2905 610 908	3225 495 864	3512 771 875	3679 932 307	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084	3740 808 084
Banana	93 384 710	98 053 945	93 384 710	93 426 733	9 338 471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweet pepper	0	0	0	18 922 230	869 732 373	972 122 362	1068 322 980	1127 632 457	1151 796 145	1153 728 916	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035	1154 256 035
Beans	447 887 045	447 887 045	447 887 045	447 887 045	386 266 929	490 640 124	578 073 780	613 738 188	617 739 982	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071	618 788 071
Soybean	114 935 027	104 590 875	114 935 027	114 836 211	11 560 470	15 916 477	20 397 074	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393	21 803 393
Watermelon	0	0	46 721 556	68 135 602	99 984 129	140 086 798	181 279 636	204 328 937	207 599 446	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616	208 689 616
Sub-Total Main Production	2537 671 754	2450 984 686	2584 393 310	2755 114 744	7122 701 858	7968 101 713	8568 376 034	9036 335 914	9358 359 327	9529 590 789	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684
Total Produccion	2537 671 754	2450 984 686	2584 393 310	2755 114 744	7122 701 858	7968 101 713	8568 376 034	9036 335 914	9358 359 327	9529 590 789	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684
TOTAL INCOMES	2537 671 754	2450 984 686	2584 393 310	2755 114 744	7122 701 858	7968 101 713	8568 376 034	9036 335 914	9358 359 327	9529 590 789	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684	9590 993 684
EXPENSES																							
Investment																							
Purchased Inputs																							
Irrigation infrastructure (pivot &	0	0	0	4124 217 852	4124 217 852	4124 217 852	4206 702 209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contribution from beneficiaries	0	0	0	115 800 000	115 800 000	115 800 000	118 116 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supervision of irrigation infrastru	0	0	0	504 849 400	504 849 400	504 849 400	514 946 388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dam and irrigation infrastructure	0	0	0	1305 645 000	1305 645 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supervision of Dam constuction	0	0	0	130 564 500	130 564 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	0	6181 076 752	6181 076 752	4744 867 252	4839 764 597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																							
Operating																							
Purchased Inputs																							
O&M investment	0	0	0	206 210 893	477 704 035	749 197 178	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288	959 532 288
Maize seeds	2 940 343	2 940 343	2 940 343	2 940 343	6 618 264	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627	7 116 627
Manure	311 726 220	311 726 220	311 726 220	315 090 172	462 233 571	526 604 371	575 715 920	597 127 846	609 936 534	615 638 685	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127	617 653 127
TSP	519 944	519 944	519 944	765 121	76 629 964	83 210 555	85 897 017	86 188 693	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505	86 306 505
Ammonium sulphate	0	0	0	419 124	119 005 783	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009	124 075 009
Urea	48 478 453	48 478 453	48 478 453	52 639 592	134 766 963	148 842 828	155 958 533	160 097 135	160 718 072	160 761 789	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712	160 773 712
Pesticides	0	0	0	685 561	27 075 561	29 279 010	30 384 011	31 215 861	31 610 411	31 686 394	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674	31 689 674
Tools	26 084 845	26 084 845	26 084 845	27 275 675	53 162 049	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392	54 929 392
Bags	28 116 098	26 765 845	28 116 098	31 024 748	127 650 703	141 484 548	155 783 187	170 522 258	182 090 075	188 145 135	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815	190 340 815
Transport to local market (20 km)	345 220	345 220	345 220	358 586	693 638	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448	710 448
Sorghum seeds	9 682 342	9 682 342	9 682 342	9 682 342	82 376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	0	350 412	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439	4 771 439
Potato seeds	36 006 746	36 006 746	36 006 746	36 006 746	52 270 519	61 934 406	65 469 359	66 325 921	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495	66 531 495
Sweet potato seeds	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642	97 772 642
Cassava seed	122 605 149	122 605 149	122 605 149	122 605 149	12 580 752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basal Fertilizers (NPK, DAP, CAN)	204 112 461	204 112 461	215 559 242	218 982 920	176 631 137	193 274 204	238 929 538	293 495 726	338 953 440	364 402 555	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290	373 639 290
Tomato seedlings	14 060 385	14 060 385	14 060 385	14 060 385	42 879 030	50 918 598	53 581 498	54 067 324	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923	54 183 923
Potassium chloride	996 104	996 104	996 104	996 104	12 005 882	14 941 554	15 216 899	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572	15 354 572
Onion seeds	0	0	0	4 368 465	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095	80 945 095
Herbicide	0	0	0	2 382 799	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870	44 151 870
Calcium carbide	0	0	0	2 941 667	53 478 711	55 379 664	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363	56 583 363
Superphosphate 18% P2O5	0	0	0	1 085 497	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630	20 113 630
French beans seeds	0	0	0	203 239	6 796 234	7 954 345	9 112 455	9 214 075	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885	9 264 885
Sweet pepper seeds	0	0	0	4 730 558	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006	192 376 006
Beans seeds	21 314 114	21 314 114	21 314 114	21 314 114	13 701 645	14 716 630	16 213 805	16 824 506	16 893 031	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978	16 910 978
water fee	0	0	0	0	9 591 146	17 833 868	23 551 597	26 035 656	26 428 272	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100	26 531 100
Soybeans seeds	5 267 855	5 267 855	5 267 855	5 267 855	447 354	445 583	495 321	540 776	564 760	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041	571 041
Mechanized land preparation	0	0	19 578 557	20 720 639	21 990 026	22 351 838	22 882 373	23 367 225	23 623 051	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054	23 690 054
Risobium	0	0	0	0	1 519	5 836	12 166	17 951	21 004	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803	21 803
Watermelon seeds	0	0	22 025 876	23 310 719	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562	24 595 562
Insecticides	0	0	10 839 401	11 471 699	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998	12 103 998
Fungicides	0	0	11 820 554	12 510 086	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618	13 199 618
Total Purchased Inputs	930 028 921	928 678 668	1005 740 090	1248 173 852	2378 026 723	2795 236 353	3142 180 668	3243 372 514	3315 457 018	3352 977 903	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962	3366 439 962
Labor																							
Land preparation	244 046 560	244 046 560	247 034 560	252 275 180	332 522 571	339 281 306	344 008 878	348 325 349	352 124 547	354 363 340	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480	355 203 480
Planting	64 587 280	64 587 280	65 583 280	67 210 080	128 670 996	137 775 312	141 301 382	142 612 858	142 843 133	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800	142 892 800
Irrigation	0	0	1 195 200	1 696 520	53 295 305	69 725 293	80 382 692	86 284 210	88 641 344	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408	88 874 408
Fertilizer application	32 947 680	32 947 680	33 266 400	34 435 704	59 233 697	65 461 981	69 788 384	71 984 725	72 743 258	72 809 881	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864	72 824 864
Weeding	82 488 720	82 488 720	87 269 520	90 908 240	158 081 268	169 676 888	177 851 087	181 832 620	183 036 292	183 174 303	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280	183 194 280
Harvesting	65 151 680	65 151 680	65 948 480	68 133 040	139 077 646	156 776 667	168 878 390	177 355 655	178 544 022	178 639 183	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160	178 659 160
Post harvesting and Marketing	67 106 496	67 106 496	67 903 296	68 840 200	75 019 710	78 494 708	80 569 688	81 438 351	81 703 177	81 739 387	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384	81 742 384
Pesticides application	10 295 320	10 295 320	10 853 080	12 412 816	40 971 358	44 201 978	46 179 178	47 331 261	47 795 915	47 832 540	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528	47 842 528
Total Labor	566 623 736	566 623 736	579 053 816	595 911 780	986 872 551	1061 394 133	1108 959 679	1137 165 029	1147 431 689	1150 275 900	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904	1151 233 904
TOTAL PRODUCTION COSTS	1496 652 657	1495 302 404	1584 793 906	8025 162 384	9545 976 027	8601 497 738	9090 904 944	4380 537 544	4462 888 707	4503 253 803	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866	4517 673 866
NET BENEFIT BEFORE FINANCING	1041 019 097	955 682 282	999 599 404	-5270 047 640	-2423 274 169	-633 396 025	-522 528 910	4655 798 371	4895 470 620	5026 336 986	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819	5073 319 819

Table A 23: Subcomponent B.2 Promotion of mechanization, post-harvest storage and irrigation technologies/Subproject (Economic budget)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
Sub-component B.2: Promotion of mechanization, post-harvest storage and irrigation technologies/Subproject

RWF/ha	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Maize	37 283 801	34 301 097	37 283 801	37 139 899	38 346 717	44 641 356	58 388 395	68 341 644	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196	71 951 196
Maize stalks	224 352	224 352	224 352	224 352	228 747	247 771	285 754	301 629	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731	311 731
Beans	27 359 209	27 359 209	27 359 209	27 359 209	28 449 367	34 155 048	48 864 251	66 154 227	82 755 958	91 874 334	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429	94 564 429
Irish Potato	24 827 461	22 841 264	24 827 461	24 809 254	26 662 344	35 630 895	55 382 109	68 742 988	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319	73 588 319
Chicken eggs	25 072 320	25 072 320	25 072 320	25 072 320	25 072 320	25 203 950	25 926 868	27 723 718	29 457 887	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784	30 086 784
Tomato	132 866 493	132 866 493	132 866 493	132 866 493	137 196 957	156 339 574	195 805 843	216 621 594	232 073 475	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099	236 207 099
Goats (mature animals)	41 862 514	62 793 771	41 862 514	61 049 500	43 606 785	52 328 142	71 515 128	83 725 028	83 725 028	83 725 028	83 725 028	83 725 028	81 980 757	75 003 671	62 793 771	62 793 771	62 793 771	62 793 771	62 793 771	62 793 771	62 793 771	62 793 771
Goat milk	49 121 280	54 033 408	49 121 280	49 706 642	50 766 843	50 791 404	55 326 935	62 253 036	67 394 396	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792	68 769 792
Banana	79 688 286	83 672 700	79 688 286	79 724 809	79 734 770	80 331 922	83 866 812	92 652 957	101 132 607	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758	104 207 758
Sub-Total Main Production	418 305 716	443 164 614	418 305 716	437 952 478	430 064 850	479 670 062	595 362 096	686 516 820	742 390 598	760 722 041	763 412 136	763 412 136	761 667 865	754 690 779	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879
On-Farm Consumption																						
Maize	784 922	784 922	784 922	784 922	784 922	795 824	861 234	1 057 465	1 351 810	1 624 353	1 711 566	1 755 173	1 831 485	1 831 485	1 831 485	1 831 485	1 831 485	1 831 485	1 831 485	1 831 485	1 831 485	1 831 485
Maize stalks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beans	429 838	429 838	429 838	429 838	456 703	591 028	913 406	1 235 785	1 585 029	2 005 912	2 453 660	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030	2 579 030
Irish Potato	2 235 159	2 235 159	2 235 159	2 235 159	2 242 323	2 285 307	2 407 095	2 579 030	2 750 965	2 922 901	3 094 836	3 259 607	3 388 559	3 438 707	3 438 707	3 438 707	3 438 707	3 438 707	3 438 707	3 438 707	3 438 707	3 438 707
Chicken eggs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tomato	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goats (mature animals)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goat milk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Banana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total Consumption	3 449 920	3 449 920	3 449 920	3 449 920	3 483 949	3 672 159	4 181 735	4 872 280	5 687 804	6 553 165	7 260 063	7 593 810	7 799 074	7 849 221	7 849 221	7 849 221	7 849 221	7 849 221	7 849 221	7 849 221	7 849 221	7 849 221
Total Produccion	418 305 716	443 164 614	418 305 716	437 952 478	430 064 850	479 670 062	595 362 096	686 516 820	742 390 598	760 722 041	763 412 136	763 412 136	761 667 865	754 690 779	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879	742 480 879
Other Benefits																						
Fee for storage rent	0	0	0	0	12 978 210	45 423 735	77 869 260	110 314 784	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099	129 782 099
Foregone opportunity income	33 379 200	33 379 200	33 379 200	33 379 200	21 340 800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maize flour	0	0	0	0	589 581 537	1868 862 231	2213 711 809	2558 561 387	2925 659 325	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603	3437 371 603
Sub-Total Other Benefits	33 379 200	33 379 200	33 379 200	33 379 200	623 900 547	1914 285 965	2291 581 068	2668 876 172	3055 441 425	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702	3567 153 702
TOTAL INCOMES	451 684 916	476 543 814	451 684 916	471 331 678	1053 965 397	2393 956 027	2886 943 164	3355 392 992	3797 832 022	4327 875 743	4330 565 838	4330 565 838	4328 821 567	4321 844 481	4309 634 581	4309 634 581	4309 634 581	4309 634 581	4309 634 581	4309 634 581	4309 634 581	4309 634 581
EXPENSES																						
Investment																						
Purchased Inputs																						
Small farming equipment	0	0	0	54 160 814	216 643 256	379 125 698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	0	506 150	2 024 601	3 543 051	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	0	40 492	161 968	283 444	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	0	87 463	349 851	612 239	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drying and storage facility	0	0	0	0	237 800 000	356 700 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage unit raw material	0	0	0	0	101 452 521	202 905 042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage unit finished product	0	0	0	0	33 817 507	67 635 014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-cleaner (3tons/hour)	0	0	0	0	3 381 751	6 763 501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain separator	0	0	0	0	3 043 576	6 087 151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Husker	0	0	0	0	5 072 626	10 145 252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adhesive whitener	0	0	0	0	4 058 101	8 116 202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polishing belt	0	0	0	0	3 381 751	6 763 501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotary shifter	0	0	0	0	2 536 313	5 072 626	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grading machine	0	0	0	0	3 043 576	6 087 151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorting and weighting section	0	0	0	0	19 445 067	38 890 133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dryer	0	0	0	0	50 726 261	101 452 521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office furniture	0	0	0	0	507 263	1 014 525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office vehicles	0	0	0	0	10 145 252	20 290 504	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office equipment	0	0	0	0	304 358	608 715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment spare part inventory	0	0	0	0	321 266	642 533	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	0	54 160 814	696 314 547	1220 836 491	4 438 735	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Labor																						
Operating																						
Purchased Inputs																						
Maize seeds	454 507	454 507	454 507	454 507	460 488	484 409	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272	526 272
Manure	22 258 149	22 258 149	22 258 149	22 258 149	23 035 962	26 872 877	35 691 295	42 887 014	47 188 728	49 147 303	49 808 382	50 044 393	50 117 278	50 117 278	50 117 278	50 117 278	50 117 278	50 117 278	50 117 278	50 117 278	50 117 278	50 117 278
TSP	292 183	292 183	292 183	292 183	712 007	2 427 339	5 547 262	5 959 240	6 265 058	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870	6 346 870
Ammonium sulphate	0	0	0	0	682 160	3 410 798	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916	8 185 916
Urea	2 474 427	2 474 427	2 474 427	2 474 427	2 573 272	3 023 635	3 962 928	4 461 978	4 671 645	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324	4 702 324
Pesticides	0	0	0	0	129 325	648 369	1 564 291	1 596 625	1 649 104	1 710 166	1 758 169	1 783 343	1 791 118	1 791 118	1 791 118	1 791 118	1 791 118	1 791 118	1 791 118	1 791 118	1 791 118	1 791 118
Tools	1 723 868	1 723 868	1 723 868	1 723 868	1 746 551	1 837 280	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058	1 996 058
Bags	4 352 954	4 182 514	4 352 954	4 332 643	4 354 424	4 633 970	5 122 660	5 446 436	5 791 167	6 091 143	6 307 154	6 420 439	6 455 424	6 455 424	6 455 424	6 455 424	6 455 424	6 455 424	6 455 424	6 455 424	6 455 424	6 455 424
Transport to local market (20 km	27 237	27 237	27 237	27 237	27 637	29 238	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039	32 039
Beans seeds	1 301 974	1 301 974	1 301 974	1 301 974	1 331 608	1 473 178	1 801 820	2 097 886	2 382 167	2 538 305	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369	2 584 369
Basal Fertilizers (NPK, DAP, CAN	9 910 950	9 910 950	9 910 950	9 910 950	10 281 884	11 971 902	15 599 856	18 108 918	20 705 490	23 259 988	25 063 187	25 944 293	26 216 399	26 216 399	26 216 399	26 216 399	26 216 399	26 216 399	26 216 399	26 216 399	26 216 399	26 216 399
water fee	0	0	0	0	45 244	309 566	1 064 865	2 136 225	3 164 938	3 729 950	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640	3 896 640
Potato seeds	4 545 073	4 545 073	4 545 073	4 545 073	4 734 227	5 589 493	7 409 491	8 537 312	9 374 512	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476	9 598 476
O&M investment	0	0	0	0	1 624 824	8 124 122	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893	19 497 893
Tools for water and feed	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008	307 008
Chicken feed	6 268 164	6 268 164	6 268 164	6 268 164	6 268 164	6 310 255	6 541 424	7 116 006	7 670 544	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648	7 871 648
Vaccination	0	0	0	0	16 197	80 984	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362	194 362
Tomato seedlings	7 901 250	7 901 250	7 901 250	7 901 250	8 177 794	9 446 384	12 198 653	14 055 447	15 433 776	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501	15 802 501
Potassium chloride	559 762	559 762	559 762	559 762	761 898	1 632 638	3 358 570	4 042 723	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093	4 478 093
Small ruminants: Sorghum stove	2 078 208	2 361 600	2 078 208	2 111 979	2 169 051	2 142 444	2 316 887	2 583 276	2 781 020	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920	2 833 920
Small ruminants: Straw	314 880	440 832	314 880	329 889	355 027	341 645	414 330	525 325	607 718	629 760	629 760	629 760	629 760	629 760	629 760	629 760	629 760	629 760	629 760	629 760	629 760	629 760
Mineral blocks	9 928 891	13 900 448	9 928 891	10 016 266	10 263 495	10 772 847	13 064 766	16 564 700	19 162 760	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783	19 857 783
Veterinary services	0	0	0	0	17 423	87 117	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080	209 080
Equipment	0	0	0	0	0	0	0	37 377	149 509	261 641	0	37 377	149 509	261 641	0	37 377	149 509	261 641	0	37 377	149 509	261 641
Leguminose green leaves	0	0	0	0	161 968	1 270 826	4 721 992	9 992 183	13 904 335	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898	14 950 898
O&M of building and machinery	0	0	0	0	0	2 378 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000	5 945 000
Transport	0	0	0	0	169 088	456 536	557 989	718 622	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438	845 438
Electricity	0	0	0	0	549 534	1 923 371	3 297 207	4 671 043	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345	5 495 345
Miscellaneous	0	0	0	0	317 039	1 109 637	1 902 235	2 694 833	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391	3 170 391
Maize raw	0	0	0	0	250 334 096	820 243 633	1011 988 898	1171 776 619	1384 826 913	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207	1597 877 207
Water	0	0	0	0	836 983	3 347 933	5 884 246	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939	7 608 939
Electicity	0	0	0	0	6 974 861	27 899 443	49 035 385	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826	63 407 826
Fuel	0	0	0	0	2 231 955	8 927 822	15 691 323	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504	20 290 504
O&M main investment	0	0	0	0	39 237 000	156 948 000	275 848 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000	356 700 000
Miscellaneous	0	0	0	0	9 656 589	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767	28 969 767
Total Purchased Inputs	74 699 486	78 909 946	74 699 486	74 815 330	390 544 784	1155 432 468	1550 449 766	1839 880 449	2073 589 314	2295 069 814	2297 749 218	2299 042 171	2299 542 055	2299 654 186	2299 392 546	2299 429 923	2299 542 055	2299 654 186	2299 392 546	2299 429 923	2299 542 055	2299 654 186
Labor																						
Land preparation	19 869 005	19 869 005	19 869 005	19 869 005	20 220 893	21 690 623	24 472 433	25 222 954	25 871 140	26 194 905	26 348 400	26 428 900	26 453 760	26 453 760	26 453 760	26 453 760	26 453 760	26 453 760	26 453 760	26 453 760	26 453 760	26 453 760
Planting	5 762 458	5 762 458	5 762 458	5 762 458	5 982 261	6 927 271	8 805 478	9 611 009	10 313 978	10 632 411	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398	10 707 398
Irrigation	0	0	0	0	271 576	1 357 880	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912	3 258 912
Fertilizer application	2 167 296	2 167 296	2 167 296	2 167 296	2 255 224	2 625 648	3 342 757	3 604 472	3 901 459	4 133 302	4 265 627	4 319 293	4 335 867	4 335 867	4 335 867	4 335 867	4 335 867	4 335 867	4 335 867	4 335 867	4 335 867	4 335 867
Weeding	7 818 202	7 818 202	7 818 202	7 818 202	8 000 591	8 824 091	10 589 439	11 764 540	12 844 558	13 416 252	13 623 565	13 677 231	13 693 805	13 693 805	13 693 805	13 693 805	13 693 805	13 693 805	13 693 805	13 693 805	13 693 805	13 693 805
Harvesting	10 460 390	10 460 390	10 460 390	10 460 390	10 748 663	12 046 297	14 802 255	16 540 231	18 047 665	18 842 988	19 231 140	19 418 972	19 476 979	19 476 979	19 476 979	19 476 979	19 476 979	19 476 979	19 476 979	19 476 979	19 476 979	19 476 979
Post harvesting and Marketing	4 620 803	4 620 803	4 620 803	4 620 803	4 705 663	5 081 990	5 865 913	6 315 750	6 709 429	6 901 371	6 973 533	7 000 366	7 008 653	7 008 653	7 008 653	7 008 653	7 008 653	7 008 653	7 008 653	7 008 653	7 008 653	7 008 653
Pesticides application	127 488	127 488	127 488	127 488	239 438	690 027	1 490 699	1 542 395	1 626 301	1 723 929	1 800 677	1 840 927	1 853 357	1 853 357	1 853 357	1 853 357	1 853 357	1 853 357	1 853 357	1 853 357	1 853 357	1 853 357
Unskilled agricultural labour (far	6 310 656	6 310 656	6 310 656	6 310 656	6 324 467	6 440 773	6 854 525	7 600 861	8 221 037	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208	8 414 208
Manager	0	0	0	0	1 613 520	4 975 020	7 059 150	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520	8 336 520
labour	0	0	0	0	1 095 600	3 286 800	4 656 300	6 025 800	6 847 500	7 395 300	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000	8 217 000
Plant operator	0	0	0	0	1 145 400	3 436 200	3 665 280	4 352 520	5 039 760	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920	5 497 920
Driver	0	0	0	0	438 240	1 314 720	1 314 720	1 533 840	1 972 080	2 191 200	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440	2 629 440
Guard	0	0	0	0	358 560	1 075 680	1 254 960	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520	1 613 520
Administrative staff	0	0	0	0	956 160	2 868 480	2 908 320	2 988 000	3 227 040	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120	3 705 120
Technician	0	0	0	0	996 000	2 988 000	2 988 000	3 029 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500	3 112 500
Total Labor	57 136 297	57 136 297	57 136 297	57 136 297	65 352 256	85 629 500	103 329 141	113 340 825	120 943 397	125 370 358	127 735 480	128 178 228	128 314 959	128 314 959	128 314 959	128 314 959	128 314 959	128 314 959	128 314 959	128 314 959	128 314 959	128 314 959
TOTAL PRODUCTION COSTS	131 835 783	136 046 243	131 835 783	186 112 441	1152 211 588	2461 898 460	1658 217 641	1953 221 274	2194 532 711	2420 440 172	2425 484 698	2427 220 399	2427 857 013	2427 969 145	2427 707 504	2427 744 882	2427 857 013	2427 969 145	2427 707 504	2427 744 882	2427 857 013	2427 969 145
NET BENEFIT BEFORE FINANCING	319 849 133	340 497 571	319 849 133	285 219 237	-98 246 191	-67 942 432	1228 725 523	1402 171 718	1603 299 311	1907 435 571	1905 081 140	1903 345 439	1900 964 553	1893 875 336	1881 927 077	1881 889 700	1881 777 568	1881 665 436	1881 927 077	1881 889 700	1881 777 568	1881 665 436

Table A 24: KIIWP2 economic budget (1/2)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Project - KIIWIP2
PROJECT

RWF/ha	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCOMES																						
Main Production																						
Maize	278,483,833	256,205,126	278,483,833	277,630,661	337,291,607	539,193,394	718,528,299	878,824,526	1,026,642,520	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595	1,044,927,595
Maize stalks	1,675,752	1,675,752	1,675,752	1,675,752	1,975,642	2,752,592	3,355,629	3,935,164	4,476,011	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187	4,527,187
Sorghum grain	219,270,936	210,500,098	219,270,936	219,205,596	217,125,438	161,633,360	107,748,389	53,863,417	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghun stovers	199,972,416	166,643,680	199,972,416	196,744,698	188,858,875	139,154,998	97,220,119	48,077,683	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Irish Potato	221,514,309	203,793,164	221,514,309	221,382,609	240,284,499	325,536,400	415,884,878	497,906,163	569,070,520	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117	583,663,117
Sweet potato	318,329,533	318,329,533	318,329,533	318,329,533	318,329,533	342,488,471	385,008,202	433,326,077	481,643,953	505,802,891	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036	511,601,036
Cassava	386,597,513	382,715,886	386,597,513	386,570,740	343,427,362	230,436,141	153,621,523	76,806,905	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tomato	369,304,263	369,304,263	369,304,263	369,304,263	401,519,006	551,396,972	704,373,619	865,061,085	1,007,432,761	1,038,631,013	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594	1,046,118,594
Onion	0	0	0	25,425,070	48,851,589	188,117,365	357,424,665	530,414,327	697,277,197	731,787,073	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443	740,069,443
French beans	0	0	0	6,559,706	14,555,820	80,237,224	152,792,923	222,094,720	290,012,010	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859	297,799,859
Avocado	81,518,525	81,518,525	81,518,525	197,839,189	299,402,582	880,701,135	1,495,600,898	2,163,926,778	2,899,333,938	3,124,578,125	3,357,442,764	3,551,719,341	3,672,453,513	3,726,272,685	3,740,808,084	3,740,808,084	3,740,808,084	3,740,808,084	3,740,808,084	3,740,808,084	3,740,808,084	3,740,808,084
Banana	173,072,995	181,726,645	173,072,995	173,141,788	162,997,615	136,372,086	121,230,035	109,086,510	97,771,396	102,670,183	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758	104,207,758
Sweet pepper	0	0	0	20,604,206	38,745,158	249,162,519	486,282,091	746,910,340	1,019,882,672	1,088,344,501	1,130,477,099	1,149,160,549	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035	1,154,256,035
Beans	475,246,253	475,246,253	475,246,253	475,246,253	450,851,123	429,765,317	470,496,281	535,558,593	603,006,267	673,048,115	704,987,439	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500	713,352,500
Soybean	114,935,027	104,590,875	114,935,027	114,860,179	116,228,046	94,670,611	72,832,255	47,943,916	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393	21,803,393
Watermelon	0	0	0	14,639,421	34,667,394	60,800,318	97,367,722	132,097,412	165,643,489	190,000,993	204,017,460	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616	208,689,616
Chicken eggs	25,072,320	25,072,320	25,072,320	25,072,320	25,072,320	25,203,950	25,926,868	27,263,014	28,770,487	29,772,335	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784	30,086,784
Goats (mature animals)	41,862,514	62,793,771	41,862,514	61,049,500	43,606,785	58,433,092	65,410,178	77,620,078	83,725,028	83,725,028	83,725,028	83,725,028	81,980,757	75,003,671	68,898,721	62,793,771	62,793,771	62,793,771	62,793,771	62,793,771	62,793,771	62,793,771
Goat milk	49,121,280	54,033,408	49,121,280	49,706,642	50,766,843	52,052,183	54,581,929	60,132,634	65,216,686	68,082,094	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792	68,769,792
CO2 - GHG sequestration	0	0	0	293,255,780	704,415,260	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785	1,020,341,785
Sub-Total Main Production	2,955,977,470	2,894,149,301	2,955,977,470	3,448,243,907	4,038,972,499	5,568,449,914	7,006,028,288	8,531,191,128	10,082,050,113	10,609,505,288	10,954,566,133	11,180,563,376	11,304,648,764	11,351,490,850	11,359,921,299	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349
Total Produccion	2,955,977,470	2,894,149,301	2,955,977,470	3,448,243,907	4,038,972,499	5,568,449,914	7,006,028,288	8,531,191,128	10,082,050,113	10,609,505,288	10,954,566,133	11,180,563,376	11,304,648,764	11,351,490,850	11,359,921,299	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349	11,353,816,349
Other Benefits																						
Fee for strorage rent	0	0	0	0	10,382,568	33,743,346	66,188,871	98,634,396	120,697,352	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099	129,782,099
Foregone opportunity income	33,379,200	33,379,200	33,379,200	33,379,200	22,435,200	3,830,400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maize flour	0	0	0	0	589,581,537	1,868,862,231	2,213,711,809	2,558,561,387	2,925,659,325	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603	3,437,371,603
Sub-Total Other Benefits	33,379,200	33,379,200	33,379,200	33,379,200	622,399,305	1,906,435,976	2,279,900,679	2,657,195,783	3,046,356,678	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702	3,567,153,702
TOTAL INCOMES	2,989,356,670	2,927,528,501	2,989,356,670	3,481,623,107	4,661,371,804	7,474,885,891	9,285,928,967	11,188,386,911	13,128,406,791	14,176,658,990	14,521,719,835	14,747,717,078	14,871,802,466	14,918,644,552	14,927,075,001	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051
EXPENSES																						
Investment																						
Purchased Inputs																						
Irrigation infrastructure (pivot &	0	0	0	0	1,031,054,463	2,062,108,926	3,093,163,389	4,144,838,941	3,113,784,478	2,082,730,015	1,051,675,552	0	0	0	0	0	0	0	0	0	0	0
Contribution from beneficiaries	0	0	0	0	28,950,000	57,900,000	86,850,000	116,379,000	87,429,000	58,479,000	29,529,000	0	0	0	0	0	0	0	0	0	0	0
Supervision of irrigation infrastr	0	0	0	0	126,212,350	252,424,700	378,637,050	507,373,647	381,161,297	254,948,947	128,736,597	0	0	0	0	0	0	0	0	0	0	0
Dam and irrigation infrastructure	0	0	0	1,424,340,000	1,186,950,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supervision of Dam constuction	0	0	0	142,434,000	118,695,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small farming equipment	0	0	0	54,160,814	216,643,256	189,562,849	189,562,849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen house	0	0	0	0	506,150	2,024,601	1,771,526	1,771,526	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fowl	0	0	0	0	40,492	161,968	141,722	141,722	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chicks	0	0	0	0	87,463	349,851	306,120	306,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drying and storage facility	0	0	0	0	190,240,000	237,800,000	166,460,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage unit raw material	0	0	0	0	101,452,521	202,905,042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage unit finished product	0	0	0	0	33,817,507	67,635,014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-cleaner (3tons/hour)	0	0	0	0	3,381,751	6,763,501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain separator	0	0	0	0	3,043,576	6,087,151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Husker	0	0	0	0	5,072,626	10,145,252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adhesive whitener	0	0	0	0	4,058,101	8,116,202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polishing belt	0	0	0	0	3,381,751	6,763,501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotary shifter	0	0	0	0	2,536,313	5,072,626	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grading machine	0	0	0	0	3,043,576	6,087,151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorting and weighting section	0	0	0	0	19,445,067	38,890,133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dryer	0	0	0	0	50,726,261	101,452,521	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office furniture	0	0	0	0	507,263	1,014,525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office vehicles	0	0	0	0	10,145,252	20,290,504	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Office equipment	0	0	0	0	304,358	608,715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment spare part inventory	0	0	0	0	321,266	642,533	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Purchased Inputs	0	0	0	1,620,934,814	3,140,616,360	3,284,807,268	3,916,892,655	4,770,810,956	3,582,374,775	2,396,157,962	1,209,941,149	0	0	0	0	0	0	0	0	0	0	0

Table A 25: KIIWP2 economic budget (2/2)

Purchased Inputs																							
O&M investment	0	0	0	0	124,394,548	293,346,792	453,691,846	666,620,679	822,309,903	926,446,404	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181	979,030,181
Maize seeds	3,394,851	3,394,851	3,394,851	3,394,851	3,944,545	5,216,368	6,032,189	6,848,010	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899	7,642,899
Manure	333,984,369	333,984,369	333,984,369	337,637,995	346,762,202	398,598,336	463,162,312	532,617,340	601,225,796	633,555,950	652,250,039	661,055,018	665,521,363	667,299,903	667,770,405	667,770,405	667,770,405	667,770,405	667,770,405	667,770,405	667,770,405	667,770,405	667,770,405
TSP	812,127	812,127	812,127	1,075,904	5,144,865	28,020,560	48,954,920	70,519,827	90,453,908	92,027,247	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375	92,653,375
Ammonium sulphate	0	0	0	450,919	7,050,669	42,662,076	73,324,212	103,986,348	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925	132,260,925
Urea	50,952,880	50,952,880	50,952,880	54,862,607	61,083,582	83,987,945	107,789,306	132,262,799	156,693,179	161,922,593	164,365,132	165,360,782	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037	165,476,037
Pesticides	0	0	0	568,819	2,687,908	10,857,983	18,185,969	25,617,259	32,431,801	32,970,686	33,282,362	33,430,946	33,476,904	33,480,791	33,480,791	33,480,791	33,480,791	33,480,791	33,480,791	33,480,791	33,480,791	33,480,791	33,480,791
Tools	27,808,713	27,808,713	27,808,713	29,099,724	32,141,066	39,570,521	45,381,960	51,193,399	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449	56,925,449
Bags	32,469,052	30,948,359	32,469,052	35,675,058	39,435,905	64,430,321	92,551,636	123,670,802	157,656,997	170,672,537	181,650,654	189,710,081	194,344,887	196,278,686	196,796,239	196,796,239	196,796,239	196,796,239	196,796,239	196,796,239	196,796,239	196,796,239	196,796,239
Transport to local market (20 km	372,457	372,457	372,457	387,037	417,924	511,029	588,648	666,268	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487	742,487
Sorghum seeds	9,682,342	9,682,342	9,682,342	9,682,342	9,592,362	7,138,192	4,758,795	2,379,397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KCL	0	0	0	216,671	435,094	1,528,671	2,622,247	3,715,824	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439	4,771,439
Potato seeds	40,551,819	40,551,819	40,551,819	40,551,819	42,815,409	49,686,855	57,502,324	65,696,612	72,645,005	75,455,462	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972	76,129,972
Sweet potato seeds	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642	97,772,642
Cassava seed	122,605,149	122,605,149	122,605,149	122,605,149	108,926,440	73,082,734	48,721,822	24,360,911	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basal Fertilizers (NPK, DAP, CAN	214,023,411	214,023,411	214,023,411	220,616,103	212,298,759	198,506,731	207,034,112	224,048,084	251,822,861	296,298,939	337,946,708	370,261,204	389,394,172	397,660,010	399,855,689	399,855,689	399,855,689	399,855,689	399,855,689	399,855,689	399,855,689	399,855,689	399,855,689
Tomato seedlings	21,961,635	21,961,635	21,961,635	21,961,635	23,942,458	33,826,406	44,687,493	56,236,396	66,535,594	69,318,521	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424	69,986,424
Potassium chloride	1,555,865	1,555,865	1,555,865	1,555,865	2,320,840	6,431,752	10,920,373	15,413,852	19,044,043	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665	19,832,665
Onion seeds	0	0	0	4,779,615	8,736,931	26,788,972	44,841,013	62,893,054	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095	80,945,095
Herbicide	0	0	0	2,607,063	4,765,599	14,612,167	24,458,734	34,305,302	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870	44,151,870
Calcium carbide	0	0	0	3,105,049	5,790,950	17,853,891	30,274,723	42,933,829	55,567,096	56,295,954	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363	56,583,363
Superphosphate 18% P2O5	0	0	0	1,187,662	2,170,995	6,656,654	11,142,312	15,627,971	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630	20,113,630
French beans seeds	0	0	0	218,657	461,142	2,147,498	4,097,977	6,312,579	8,472,516	9,000,762	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885	9,264,885
Sweet pepper seeds	0	0	0	5,151,052	9,461,115	55,189,838	100,918,560	146,647,283	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006	192,376,006
Beans seeds	22,616,088	22,616,088	22,616,088	22,616,088	21,366,698	18,901,353	18,190,931	17,897,149	17,605,828	18,805,194	19,352,108	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348	19,495,348
water fee	0	0	0	0	258,612	3,442,303	9,132,959	16,296,600	23,555,858	27,930,311	29,909,406	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740	30,427,740
Soybeans seeds	5,267,855	5,267,855	5,267,855	5,267,855	5,242,353	4,045,185	2,896,271	1,741,606	565,343	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041	571,041
Mechanized land preparation	0	0	0	6,134,614	12,212,569	17,478,974	22,909,861	23,384,759	23,629,273	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054	23,690,054
Risobium	0	0	0	0	1,660	6,096	12,494	18,161	21,078	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803	21,803
Watermelon seeds	0	0	0	6,901,441	13,582,624	19,089,093	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562	24,595,562
Insecticides	0	0	0	3,396,346	6,684,297	9,394,147	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998	12,103,998
Fungicides	0	0	0	3,703,773	7,289,341	10,244,480	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618	13,199,618
Tools for water and feed	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008	307,008
Chicken feed	6,268,164	6,268,164	6,268,164	6,268,164	6,268,164	6,310,255	6,541,424	6,968,686	7,450,733	7,771,096	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648	7,871,648
Vaccination	0	0	0	0	16,197	80,984	137,673	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362	194,362
Small ruminants: Sorghum stove	2,078,208	2,361,600	2,078,208	2,111,979	2,169,051	2,215,181	2,288,233	2,501,722	2,697,262	2,807,470	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920	2,833,920
Small ruminants: Straw	314,880	440,832	314,880	329,889	355,027	373,972	402,390	491,344	572,819	618,739	629,760	629,760	629,760	629,760	629,760	629,760	629,760	629,760	629,760	629,760	629,760	629,760	629,760
Mineral blocks	9,928,891	13,900,448	9,928,891	10,016,266	10,263,495	11,030,005	12,688,296	15,493,207	18,062,308	19,510,271	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783	19,857,783
Veterinary services	0	0	0	0	17,423	87,117	148,099	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080	209,080
Equipment	0	0	0	0	0	0	0	37,377	149,509	130,820	130,820	37,377	149,509	130,820	130,820	37,377	149,509	130,820	130,820	37,377	149,509	130,820	130,820
Leguminose green leaves	0	0	0	0	161,968	1,270,826	4,155,104	8,378,732	12,247,277	14,427,616	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898	14,950,898
O&M of building and machinery	0	0	0	0	0	1,902,400	4,280,400	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000	5,945,000
Transport	0	0	0	0	135,270	331,412	524,171	666,205	786,257	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438	845,438
Electricity	0	0	0	0	439,628	1,428,790	2,802,626	4,176,462	5,110,671	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345	5,495,345
Miscellaneous	0	0	0	0	253,631	824,302	1,616,900	2,409,497	2,948,464	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391	3,170,391
Maize raw	0	0	0	0	250,334,096	820,243,633	1,011,988,898	1,171,776,619	1,384,826,913	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207	1,597,877,207
Water	0	0	0	0	836,983	3,347,933	5,884,246	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939	7,608,939
Electicity	0	0	0	0	6,974,861	27,899,443	49,035,385	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826	63,407,826
Fuel	0	0	0	0	2,231,955	8,927,822	15,691,323	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504	20,290,504
O&M main investment	0	0	0	0	39,237,000	156,948,000	275,848,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000	356,700,000
Miscellaneous	0	0	0	0	9,656,589	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767	28,969,767
Total Purchased Inputs	1,004,728,408	1,007,588,615	1,004,728,408	1,062,217,661	1,548,850,451	2,713,525,413	3,525,767,767	4,318,116,258	5,006,322,400	5,438,704,624	5,571,417,487	5,622,308,753	5,650,816,218	5,662,779,592	5,665,963,328	5,665,869,885	5,665,982,016	5,665,963,328	5,665,963,328	5,665,869,885	5,665,982,016	5,665,963,328	
Labor																							
Land preparation	263,915,565	263,915,565	263,915,565	270,353,709	276,527,807	297,852,419	320,781,775	344,152,991	367,251,254	372,376,306	376,205,065	378,989,639	380,701,456	381,456,638	381,657,240	381,657,240	381,657,240	381,657,240	381,657,240	381,657,240	381,657,240	381,657,240	381,657,240
Planting	70,349,738	70,349,738	70,349,738	72,365,974	77,832,212	96,428,679	113,990,158	132,119,348	149,470,542	152,276,342	153,367,018	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198	153,600,198
Irrigation	0	0	0	729,470	5,022,443	21,653,657	39,057,082	58,513,488	77,955,995	85,608,609	89,880,368	91,650,545	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320	92,133,320
Fertilizer application	35,114,976	35,114,976	35,114,976	36,373,123	38,004,002	44,867,724	53,000,927	62,076,958	71,202,397	74,512,774	76,283,979	76,977,227	77,152,444	77,160,731	77,160,731	77,160,731	77,160,731	77,160,731	77,160,731	77,160,731	77,160,731	77,160,731	77,160,731
Weeding	90,306,922	90,306,922	90,306,922	95,079,754	100,015,606	118,820,918	140,722,595	163,465,641	186,046,439	192,392,931	195,552,858	196,656,303	196,879,798	196,888,085	196,888,085	196,888,085	196,888,085	196,888,085	196,888,085	196,888,085	196,888,085	196,888,085	196,888,085
Harvesting	75,612,070	75,612,070	75,612,070	78,190,382	81,956,189	102,377,765	126,988,364	153,843,985	180,852,078	190,451,980	195,564,928	197,807,679	198,107,136	198,136,139	198,136,139	198,136,139	198,136,139	198,136,139	198,136,139	198,136,139	198,136,139	198,136,139	198,136,139
Post harvesting and Marketing	71,727,299	71,727,299	71,727,299	72,943,215	74,207,522	76,377,039	79,560,350	82,997,787	86,134,988	87,798,343	88,496,772	88,702,735	88,746,893	88,751,037	88,751,037	88,751,037	88,751,037	88,751,037	88,751,037	88,751,037	88,751,037	88,751,037	88,751,037
Pesticides application	10,422,808	10,422,808	10,422,808	11,697,157	14,042,467	22,312,988	30,324,511	38,679,432	46,757,409	48,259,065	49,164,599	49,570,326	49,689,670	49,695,885	49,695,885	49,695,885	49,695,885	49,695,885	49,695,885	49,695,885	49,695,885	49,695,885	49,695,885
Unskilled agricultural labour (far	6,310,656	6,310,656	6,310,656	6,310,656	6,324,467	6,440,773	6,806,186	7,387,146	7,966,141	8,317,623	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208	8,414,208
Manager	0	0	0	0	1,344,600	3,899,340	6,454,080	7,865,910	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520	8,336,520
labour	0	0	0	0	876,480	2,410,320	4,163,280	5,532,780	6,464,040	7,285,740	7,833,540	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000	8,217,000
Plant operator	0	0	0	0	1,145,400	3,436,200	3,665,280	4,352,520	5,039,760	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920	5,497,920
Driver	0	0	0	0	438,240	1,314,720	1,314,720	1,533,840	1,972,080	2,191,200	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440	2,629,440
Guard	0	0	0	0	358,560	1,075,680	1,254,960	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520	1,613,520
Administrative staff	0	0	0	0	956,160	2,868,480	2,908,320	2,988,000	3,227,040	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120	3,705,120
Technician	0	0	0	0	996,000	2,988,000	2,988,000	3,029,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500	3,112,500
Total Labor	623,760,033	623,760,033	623,760,033	644,043,440	680,048,155	805,124,703	933,980,589	1,070,152,845	1,203,402,703	1,243,736,493	1,265,658,355	1,275,480,880	1,278,537,143	1,279,348,261	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863
Project Costs																							
PROJECT COMPONENT			5,155,923,035	3,219,150,409	2,962,986,016	2,366,158,432	1,365,038,289	972,817,465	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATION & MAINTENANCE COST			0	0	0	0	0	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049
Total Project Costs	0	0	5,155,923,035	3,219,150,409	2,962,986,016	2,366,158,432	1,365,038,289	1,085,489,514	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049
TOTAL PROJECT COSTS	1,628,488,441	1,631,348,648	6,784,411,476	6,546,346,324	8,332,500,982	9,169,615,816	9,741,679,300	11,244,569,573	9,904,771,926	9,191,271,128	8,159,689,040	7,010,461,683	7,042,025,410	7,054,799,903	7,058,184,240	7,058,184,240	7,058,202,928	7,058,184,240	7,058,184,240	7,058,090,797	7,058,202,928	7,058,184,240	
NET BENEFIT BEFORE FINANCING	1,360,868,229	1,296,179,853	-3,795,054,806	-3,064,723,217	-3,671,129,178	-1,694,729,925	-455,750,333	-56,182,662	3,223,634,864	4,985,387,862	6,362,030,795	7,737,255,396	7,829,777,056	7,863,844,649	7,868,890,761	7,862,879,254	7,862,767,122	7,862,785,811	7,862,785,811	7,862,879,254	7,862,767,122	7,862,785,811	

Table A 26: RDLP Economic budget and results (incremental)

NET INCREMENTAL BENEFIT

	Without Project		With Project																			
	1	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
INCREMENTAL PRODUCTION																						
Total Production	2,989,356,670	2,927,528,501	2,989,356,670	3,481,623,107	4,661,371,804	7,474,885,891	9,285,928,967	11,188,386,911	13,128,406,791	14,176,658,990	14,521,719,835	14,747,717,078	14,871,802,466	14,918,644,552	14,927,075,001	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051	14,920,970,051
Incremental Production			0	476,522,544	1,689,209,847	4,493,122,269	6,332,564,929	8,216,867,385	10,180,914,932	11,211,652,926	11,581,382,721	11,790,827,681	11,919,292,043	11,970,513,105	11,982,681,245	11,979,993,347	11,983,089,757	11,985,865,526	11,988,320,654	11,990,455,141	11,991,948,346	11,993,441,550
INCREMENTAL PROJECT COST																						
Investment Input Costs	0	0	0	1,620,934,814	3,140,616,360	3,284,807,268	3,916,892,655	4,770,810,956	3,582,374,775	2,396,157,962	1,209,941,149	0	0	0	0	0	0	0	0	0	0	0
Investment Labor Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating Input Costs	1,004,728,408	1,007,588,615	1,004,728,408	1,062,217,661	1,548,850,451	2,713,525,413	3,525,767,767	4,318,116,258	5,006,322,400	5,438,704,624	5,571,417,487	5,622,308,753	5,650,816,218	5,662,779,592	5,665,963,328	5,665,869,885	5,665,982,016	5,665,963,328	5,665,963,328	5,665,869,885	5,665,982,016	5,665,963,328
Operating Labor Costs	623,760,033	623,760,033	623,760,033	644,043,440	680,048,155	805,124,703	933,980,589	1,070,152,845	1,203,402,703	1,243,736,493	1,265,658,355	1,275,480,880	1,278,537,143	1,279,348,261	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863	1,279,548,863
Project Costs	0	0	5,155,923,035	3,219,150,409	2,962,986,016	2,366,158,432	1,365,038,289	1,085,489,514	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049	112,672,049
TOTAL PROJECT COST	1,628,488,441	1,631,348,648	6,784,411,476	6,546,346,324	8,332,500,982	9,169,615,816	9,741,679,300	11,244,569,573	9,904,771,926	9,191,271,128	8,159,689,040	7,010,461,683	7,042,025,410	7,054,799,903	7,058,184,240	7,058,090,797	7,058,202,928	7,058,184,240	7,058,184,240	7,058,090,797	7,058,202,928	7,058,184,240
Incremental PROJECT Cost			5,155,923,035	4,917,907,042	6,704,179,004	7,541,223,677	8,112,729,472	9,614,793,662	8,274,304,964	7,560,311,693	6,528,435,710	5,379,113,035	5,410,676,762	5,423,451,255	5,426,835,592	5,426,742,149	5,426,854,280	5,426,835,592	5,426,835,592	5,426,742,149	5,426,854,280	5,426,835,592
NET INCREMENTAL BENEFIT			-5,155,923,035	-4,441,384,498	-5,014,969,156	-3,048,101,407	-1,780,164,543	-1,397,926,276	1,906,609,968	3,651,341,233	5,052,947,011	6,411,714,647	6,508,615,281	6,547,061,850	6,555,845,654	6,553,251,198	6,556,235,477	6,559,029,934	6,561,485,062	6,563,712,992	6,565,094,065	6,566,605,958
EIRR	13.88%																					
ENPV	12,047,416,137																					
B/C Ratio	1.19																					

Table A 27: Project economic costs (RWF '000)

Rwanda
Kayonza Irrigation and Integrated Watershed Management Pro
Expenditure Accounts by Years -- Base Costs

Economic Costs	Base Cost (RWF '000)					
	2021	**2022**	**2023**	**2024**	**2025**	**2026**
I. Investment Costs						
A. Technical Assistance & Consultancies	790,347	1,362,217	1,158,942	845,501	314,270	151,693
B. Grants and Subsidies	0	203,615	1,455,847	1,751,089	997,714	-
C. Goods Services & Inputs	360,126	759,013	552,990	176,272	80,857	38,841
D. Training Workshops & Meetings	463,278	660,174	623,548	364,655	56,103	14,323
E. Civil Work	555,811	7,401,519	8,309,270	6,671,040	6,000,240	1,242,956
F. Unallocated	2,856,682	-	-	-	-	-
Total Investment Costs	5,026,244	10,386,537	12,100,597	9,808,557	7,449,183	1,447,813
II. Recurrent Costs						
A. Salaries and Allowances	899,644	780,457	745,717	745,717	745,717	745,717
B. Operating Costs /a	16,570	67,426	76,566	112,672	-	-
Total Recurrent Costs	916,214	847,883	822,283	858,389	745,717	745,717
Total BASELINE COSTS	5,942,458	11,234,421	12,922,880	10,666,946	8,194,901	2,193,530
Project costs accounted for in the EFA	786,535	8,015,270	9,959,894	8,300,788	6,829,862	1,220,713
Remaining balance	**5,155,923**	**3,219,150**	**2,962,986**	**2,366,158**	**1,365,038**	**972,817**
Project O&M expenses in the future (year 6 onwards)	**112,672**					

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

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

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

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

Introduction

The objective of the SECAP Review Note is to assess the social, environmental and climate change issues relevant for the Project, in order to identify how the Project might impact them and how IFAD's mainstreaming themes (gender, youth, nutrition, environment and climate change) could be addressed through an integrated approach.

Given the current COVID-19 pandemic, the assessment was conducted mostly remotely and was based on the findings of the Environmental and Social Impact Assessment (ESIA) conducted during the implementation of KIIWP1 in the three irrigation schemes in Ndego and Kabare sectors. This was complemented by stakeholder consultations during the remote design mission, including: Farmers Organizations, national authorities - Ministry of Environment, Rwanda Cooperative Agency (RCA), Rwanda Water Board, Rwanda Forest Authority-, local authorities at the district level, technical and development partners (FAO, WFP, SUN civil society network, SNV), the Rwanda Youth Agribusiness Forum, Kilimo Trust, Center of Excellence in Biodiversity and Natural Resources Management (CoEB) among others.

Situational analysis and potential project impacts

2.1 Socio-economic and nutritional assessment

Overall poverty situation

Kayonza is one of the seven districts constituting the Eastern Province of the Republic of Rwanda. The area has been identified on the basis of its high vulnerability to drought and the poverty and food insecurity level of its population. The District, in fact, has been one of the most affected by the severe drought that hit the Eastern Province in 2016, followed by two years of poor rains. Climate change affected agricultural production and led to the loss of more than 2,600 cattle, leaving about 47,000 households food insecure. Nevertheless, the Project area is home of important and untapped potential of water resources that, if fully and sustainably reached, would contribute to significantly increase agricultural production, food security and improve people's livelihoods.

In terms of poverty reduction, Kayonza District has known a positive evolution from 2010 (42.6 per cent) to 2017 (26.7 per cent), and today poverty rate is below the national average (38.2 per cent)[1]. Similarly, extreme poverty rate is estimated at 8.5 per cent, against the 16 per cent national rate. In spite of these achievements, the District still faces important food security challenges. Data show that, compared to 2015, food security highly deteriorated in Kayonza (+21.9% of food insecure households). After three consecutive years of drought, in 2018 the District registered the highest prevalence of food insecure households (32.8 per cent) of the Province (average 16.2 per cent) and the second highest rate of severely food insecure households (4.8 per cent) of the country[2].

The increased food insecurity, in spite of monetary poverty reduction, is linked to a set of inter-related underlying causes: small plot sizes, limited land availability, low productivity in subsistence agriculture and low farmers' purchasing power, exacerbated by erratic weather patterns and recurrent droughts. District data reveal that almost 40 per cent of the farms have less of 0.2 ha, while 62 per cent have less than 0.5 and almost all farms operate under 1 ha land[3].

Poverty is highest among households with little or no land, who obtain their income mainly from seasonal labour. Resource poor rural households who farm small plots are the most food insecure[4]. As the ESIA study reports, in the Project area almost the totality of the households (91

[1] EICV4 2013/2014 and EICV5 2016/2017. Poverty headcount ratio at USD 1.9 a day.
[2] WFP, 2018, Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda.
[3] EICV4,2014
[4] According to CFSVA (2018) 60% of food insecure households are vulnerable and 30% are extremely vulnerable.

per cent) own farmland. However, 35.7 per cent of the landowners claim that they have not completed the process of recognition for the land on which they live and derive their economic livelihood[5]. There are also various cases of land fragmentation, whereby households with mostly more than 1.0 ha have sold pieces of their land to households that have migrated into the area. Because the fragmentation process is illegal, they have not processed any land titles for the sold pieces of land.

Poverty also relates with households' vulnerability to shocks and with their ability to cope with these shocks. As most of the rural population is dependent on rain-fed agriculture and consumption of home-produced food, people's ability to adequately feed themselves is susceptible to shocks from farming and the domestic harvest, that arise as result of periodic droughts and floods. Households' low resilience and high vulnerability to shocks, therefore, constrain their ability to overcome poverty barriers and to improve food security[6].

Table 1. Socio-economic categorization of the target population (Project's area)

Source: District of Kayonza pupulation survey, Ubudhehe categorization (2016)										
Project area: nine drought prone sectors										
SECTORS	**HHs**	**POPULATION**	**CAT1**		**CAT2**		**CAT3**		**CAT4**	
			HHs	POPs	HHs	POPs	HHs	POPs	HHs	POPs
GAHINI	8319	38940	977	3839	4174	19228	3166	15863	3	10
KABARE	9135	39784	829	3029	2208	8429	6097	28322	1	6
KABARONDO	7450	33243	1057	4322	2840	12708	3549	16188	4	25
MURAMA	5155	22105	923	3544	2356	10052	1874	8504	2	5
MURUNDI	9057	43386	1400	6048	3362	15644	4292	21686	3	12
MWIRI	6289	29569	1001	4279	2620	11758	2663	13519	3	9
NDEGO	5422	23526	578	1975	1593	6071	3248	15471	0	0
RURAMIRA	4951	20403	554	1946	1078	3749	3317	14718	0	0
RWINKWAVU	7399	32414	940	3491	1829	7228	4625	21695	1	6
TOTAL	**63177**	**283370**	**8259**	**32473**	**22060**	**94867**	**32831**	**155966**	**17**	**73**
Percentage	*100%*	*100%*	*13%*	*12%*	*35%*	*34%*	*52%*	*55%*	*0,03%*	*0,03%*
Kayonza diistrict	**88081**	**392676**	**11029**	**42879**	**30680**	**130257**	**46334**	**219338**	**38**	**202**
Percentage	*100%*	*100%*	*13%*	*11%*	*35%*	*33%*	*53%*	*56%*	*0%*	*0%*

The Project intervention area comprises nine drought-prone sectors out of the twelve sectors in Kayonza District, namely Gahini, Kabare, Kabarondo, Murama, Murundi, Mwiri, Ndego, Ruramira and Rwinkwavu. The nine targeted sectors account for 63,177 households or 283,370 individuals (72 per cent of the overall district's population), of which 52 per cent are women[7]. In these sectors, 31 per cent of the households are headed by women. The population is mostly young. About 63 per cent[8] of the resident population is under 25 years old while youth (between 16 and 30 years old) represent more than 30 per cent of the population. Only 58 per cent of the population has primary level education, while only 10 per cent attained secondary education[9].

About 20 per cent of the population of Kayonza is covered by the Ubudehe[10] governmental social protection programme - safety nets. The Ubudehe Categories 1 and 2, the poorest ones and

[5] The majority of the households have purchased land but not gone through the title transfer (mutation) process for various reasons, with most attributing this to the seller not being available after receiving payment. In other cases, landowners have sold land and migrated to other districts or countries, without initiating or completing the land title transfer processes.

[6] Coping strategies during times of food and financial shortages are seeking casual labour and reducing the number of meals; some households migrate out of the area to neighbouring countries and districts to look for food while approximately 25% of the households interviewed for the ESIA study reported that they rely on the government to provide food relief during the shortages (ESIA study,2020).

[7] Data provided by the Government of Kayonza district and based on the latest survey of the district population as part of the Ubudehe programme system (2016). Compared with the latest national population and housing census (2012) the population of the district has increased of about 14 percent% (from 344,157 to 392.676 inhabitants).

[8] Population Census 2012

[9] NISR, 2015, Kayonza District Profile

[10] The national wealth ranking system (Ubudehe system) classifies Rwandan households into 4 categories. The first category (i) includes the very poor who do not have a house or cannot to pay rent; have a poor diet; and can hardly afford basic needs; (ii) the second one includes those who have a dwelling of their own or are able to rent one but rarely get full time jobs; (iii) the third category includes those who have a job and farmers who go beyond subsistence farming

eligible for the social protection programme, account for respectively 13 per cent and 35 per cent of the population in the Project's area.

Gender. A recent Women's Empowerment in Agriculture Index (WEAI) Study[11], carried out in Rwanda in 2020, revealed that the Eastern province has the lowest WEAI score. The major constraints to empowerment for women are the lack of access to credit (24 per cent), workload (21 per cent), and purchase, sale and transfer of assets (21 per cent). For the last two indicators, women in Eastern province are much more disempowered than women or men in other provinces.

Despite achievements at the policy level, gender disparities still persist, especially in rural areas, where traditional patriarchal attitudes continue to prevail. Women have equal access to and ownership of land than men[12], however, this doesn't necessarily translate into equal access to assets, decision making on agricultural choices (what to grow) and control over income resulting from the agricultural production. Men have more access and control over agriculture resources at household level compared with women and are more likely to serve as active members of agricultural producer groups, credit or microfinance groups [13.] In the Project's area, the number of women in agricultural cooperatives is lower than men (38 per cent)[14] and within those, their participation into leadership position is low.

The Agriculture Gender Strategy prepared by MINAGRI in 2010 sets clear steps to ensure that 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 Development Plan 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 utilization. However, women's participation into value chains is found mostly at the production stage. Gender disparities are also evident in the value addition and marketing of agricultural commodities where more economic commodities are controlled by men. In general, women are associated with marketing small quantities of production while larger quantities are marketed by men who also control the income from the sales.

With low education level and lack of financial literacy, women are less likely to receive government extension services and financial services which, in turn, limits their opportunity to engage into income-generating activities. Lack of assets challenges women to access financial services and products, as they are often not able to satisfy collateral requirements needed, for example, to receive a loan and start a new business. Being primarily responsible for household care work, women also face the double burden which challenges their participation into capacity building and trainings and therefore the opportunity to improve their skills. In male-headed households, women work for more hours (15.5 hours) than men (7 hours), spending over three hours more on farming activities than the seven hours worked by men, in addition to five hours on unpaid reproductive and household work[15]. Firewood is the main source of energy in the Project area (93 per cent) and women are the ones responsible for collecting the woods.

---

to produce a surplus, which can be sold; (iv) the fourth category includes people who own large-scale business. The current Ubudehe categories have been in places since 2016. In 2020, MINALOC has revised the categorization unveiling five new categories (A, B, C, D and special category E) re-distributing households into their socio-economic welfare status. The new categorization system is expected to become effective in 2021.

[11] Source: Women's Empowerment in Agriculture Index Study, 2020, Final baseline survey. The report has been prepared by IMC Worldwide with the assistance of the DFID and the Rwandan Ministry of Agriculture and Animal Resources (MINAGRI) at the national scale.

[12] In Rwanda, the land registration policy and the inheritance law favor equal access to and ownership of land. According to the State of gender equality in Rwanda Report, (2019) women had significant access to land in the country. According to that source, 58.3 percent of land was owned by spouses, 24 percent by only women and [14] by only men (2 percent by others).

[13] NpM, 2020, Financial services for women. Case studies on women's participation in the maize and bean value chains in Rwanda and; DFID, 2020, WEAI Study, Final baseline survey.

[14] In the 54 cooperatives pre-identified in the Project area in the main supported value chains (rice, maize and beans and horticulture).

[15] MINAGRI, Agriculture Gender Strategy, 2012

In Rwanda, the Gender Monitoring Office has defined four categories of gender-based violence (GBV)[16]: (i) economic violence through denial of economic rights to property, succession, employment or other economic benefits; (ii) physical violence as the intentional use of physical force with the potential to cause harm, injury, disability or death; (iii) sexual violence as an act of forcing another individual, through violence, threats, deception, cultural expectation, weapons or economic circumstances, to engage in sexual behaviour against her or his will; and (iv) psychological violence as a trauma to the victim caused by acts, threats of acts or coercive tactics; these threats are often related to sexual or physical violence. The District of Kayonza includes prevention and response strategies to fight GBV into the District Development Strategy's priorities (2017-2024). Yet, few data are available on the gender-based violence cases in the rural areas.

Youth. Rwanda is a young country, where youth (16 to 30 years old) make up 26.6 per cent of the total population, while half of the population is under 20 years. Youths are mostly rural, with 80 per cent of the young population living in rural areas. In the Project area, more than 60 per cent of the resident population is under 25 years old. Young people are amongst the most vulnerable sectors of the population: in Rwanda, almost 30 per cent of young people (16-30) live in households that are below poverty line. Gender disparities also exist, with more females extremely poor (12 per cent) compared to males (10,4 per cent) in 2016/2017[17].

Young rural people in rural areas are mostly literate (83 per cent, with no significant difference between males and females); however, the level of education is low and the percentage of young people attending tertiary education and technical or vocational schools is extremely limited (only 2.8 per cent of the rural youth population)[18] which challenges their involvement in the formal labour market. Indeed, precarious forms of employment with low level of earning is the main employment problem for the youth. It is estimated that in Kayonza District almost 30,000 youth are not in employment, education or training (NEET).

More than 60 per cent of young people work in agriculture and its sub-sectors and their main jobs, mostly engaged as independent farmers (45 per cent in total, of which more than 53 per cent are women) than wage farmers (16 per cent). As studies report[19], root causes of unemployment in agriculture for rural youth are mostly related to lack of access to productive assets and natural resources, goods and services; lack of knowledge and technical and business skills; a negative perception of agriculture among youth and a non-conducive environment for youth employment. These constraints limit rural youth's ability to develop successful businesses.

People with Disabilities (PWD). Kayonza District has a large number of vulnerable groups, including extremely poor households, marginalised persons and genocide survivors. There are 3,426 disabled people in Kayonza district in total, 1,198 of them are children. Amongst the population covered by the Ubudehe governmental social protection programme, 4.2 per cent of the targeted households are headed by disabled people. In the Project area, 20 per cent of the targeted households report having at least one household member living with a disability (mental or physical). The households tend to be more food insecure (27 per cent against 18 per for the heads of households without disability). Furthermore, disabled women and girls are also more vulnerable to sexual violence and abuse. In the Project area, most of the PWDs, especially among the younger population are cases of birth deformities such as the blind and deaf cases. KIIWP will channel specific services and activities to reach the most vulnerable households.

[16] Violence against women was defined in 1993 by the United Nations Declaration on the Elimination of Violence against Women as "any act of gender-based violence (GBV) that results in, or is likely to result in physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life." Declaration on the Elimination of Violence against Women, adopted by the United Nations General Assembly (A/RES/48/104), New York, 20 December 1993.

[17] EICV5, 2016/2017, Thematic Report, Youth.

[18] In the Eastern Province of Rwanda, 83% of the rural youth population is literate and more than 90% have attained schools, even from the poorest quintiles; however, only 1.7% attained tertiary education and 2.8 % has attained technical and vocational schools. Source: NISR, EICV5, 2016/2017. Education Thematic Report

[19] IFAD, 2019, Creating Employment Opportunities for Rural Youth in Africa: Support to integrated agribusiness hubs, Grant Design Report.

Food security and nutrition. About food security, the stability of food throughout the year and at all times remains an important constraint in the Project area. Findings from EICV4 (2014/2014) and EICV5 (2016/2017) show a correlation between poverty rates with the rise in the price of foods (especially staple vegetables and root crops) and the reduction of purchasing power of households. Household food security is strongly related to food prices with poorer households far more vulnerable to fluctuating prices. Food prices for staple commodities, such as maize and beans, are generally increasing at the end of the year, before the harvesting season. This is also the time of the year when household food stocks have run out and market dependency is highest. Food shortages are also attributed to lack of adequate post-harvest storage facilities which are extremely limited in the District.

In this context, COVID-19 containment measures that restrict movement and trade may aggravate food insecurity. Food prices have been showing an upward trend: in December 2020, the Rwanda Consumer Price Index (CPI) increased by 3.7 per cent on annual bases[20]. The prices of staple commodities such as beans, maize, and salt continue to surpass their respective 5-year averages.

Regarding the households' dietary diversity, it is observed that most of the households feed on legumes (60 per cent) and cereals (56 per cent) as their main food on a daily basis. Tubers (30 per cent), mostly as cassava, are also a main food with a few households reporting consumption of vegetables (17 per cent). There is very low consumption of fruits (0.7 per cent) and animal protein in the form of milk or beef. More specific to the dietary compositions, for many meals most households consume a mixture of beans and maize "imvungure", maize flour porridge, cassava and vegetables including cabbages, eggplants and amaranthus "dodo" mainly produced in home gardens. Findings from CFSVA (2018)[21] show a significant correlation between the mother's food consumption and the child's food consumption: women's knowledge and education on food diversity has been recognized as a significant factor impacting children's food consumption, especially for achieving the minimum acceptable diet.

In the Project area, the prevalence of stunting among children under five years was estimated at 42.4 per cent in 2018[22], higher than the national rate of 37 per cent. The major underlying causes of malnutrition include limited access to nutrient-rich foods, seasonal food unavailability and low agricultural productivity due to climatic conditions and declining soil fertility. In rural areas, households practicing subsistence farming on small plots of land are the most affected by malnutrition. Poor access to safe and clean water, health services and sanitation facilities (WASH), also compromise people's health and their capacity to retain nutrients. Water-borne diseases, such as malaria and intestine parasites, are the most prevalent forms of illness in Kayonza; more than 40 per cent of the population has no access to improved and safe sources of water for domestic use[23]

Finally, early childbearing also contributes to malnutrition in Rwanda. By age 19, 21 per cent of adolescent girls had begun childbearing (RDHS, 2015). This has serious consequences because, relative to older mothers, adolescent girls are more likely to be malnourished and have a low-birth-weight baby, who is more likely to become malnourished and be at increased risk of illness and death than those born to older mothers.

2.2 Environment and climate context, trends and implications

Environmental assessment

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.

[20] NISR, 2020, Consumer Price Index. https://www.statistics.gov.rw/publication/consumer-price-index-cpi-december-2020

[21] WFP, 2018, Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda

[22] Kayonza District, Second District Health Strategic Plan, 2018/19-2023/24.

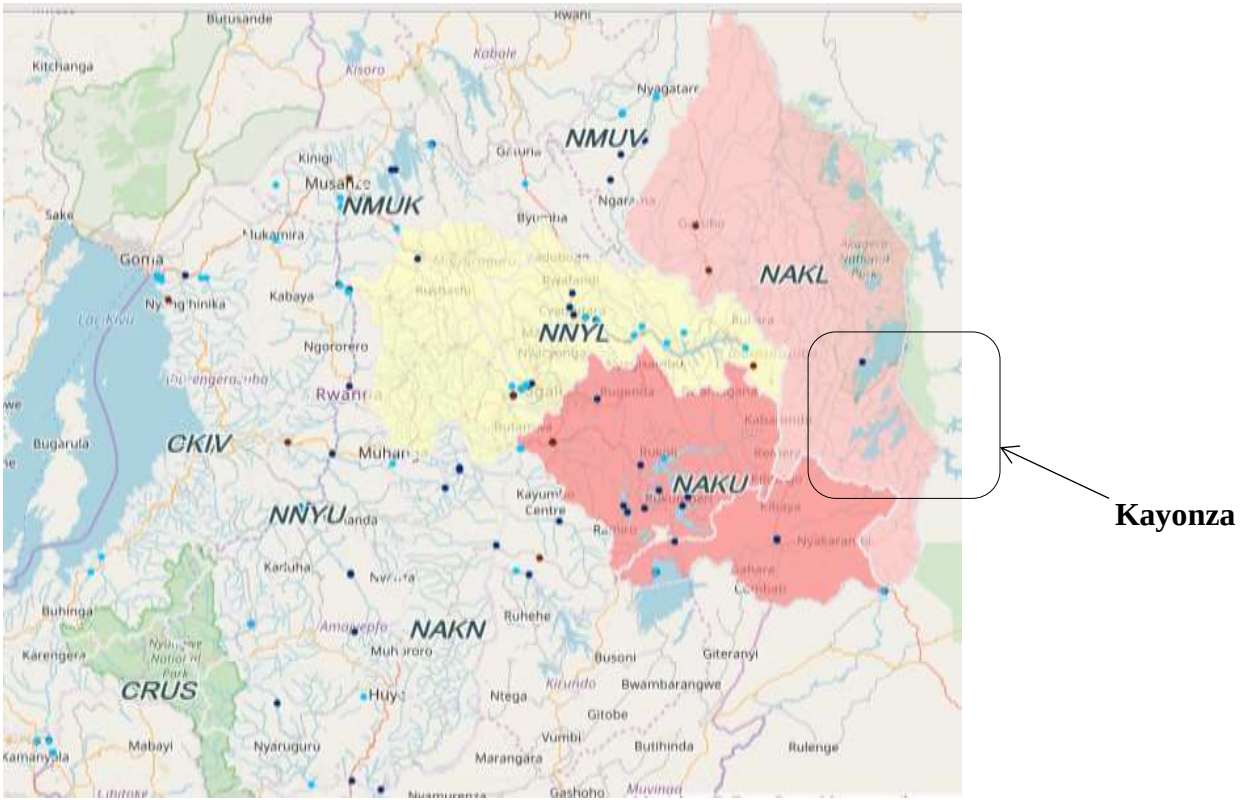
[23] NISR, 2012, Kayonza District Profile

All the lakes are interconnected with the Kagera River by means of creeks and barely accessible marshlands (RNRA, 2015)[24].

The wildlife in the Akagera National Park comprises more than 90 species of mammals, 530 bird species and 35 fish species (REMA, 2009[25]). It is reported that the most threatened species are rhinoceros and large carnivores, particularly lions.

Rwanda is located in two major basins, Nile and Congo basins, and its hydrological network is composed of 9 catchments. Kayonza district is embedded in three catchments: a surface area of 3,269 km^2 in the lower Nyabarongo (NNYL in the figure 1 below), a surface area of 2,939 km^2 the upper Akagera catchment (NAKU in the figure 1 below), and a surface area of 3,223 km^2 the lower Akagera catchment[26] (NAKL in the figure 1 below).

Figure 1: Localisation of Kayonza district in the lower Nyabarongo (NNYL), lower Akagera (NAKL) and the upper Akagera (NAKU) catchments in Rwanda (RNRA, 2015)[27]



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).

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

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

[25] REMA (2009): Rwanda State of Environment and Outlook Report".

[26] https://esri-rw.maps.arcgis.com/apps/opsdashboard/index.html#/a0d68c954ec142cda3554681489b3bc2.

[27] https://esri-rw.maps.arcgis.com/apps/opsdashboard/index.html#/a0d68c954ec142cda3554681489b3bc2.

design of the KIIWP. Hence, the National Water Resources Master Plan recommends closely monitoring all irrigation developments, selecting the best suitable land and promoting rational water use in respect of environmental flow, transboundary and international water resources management and downstream commitments.

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 1 in 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). The Project area lies within the natural drainage of lower Akagera Catchment characterized by high and sharp ridges on the west side and low slope catchments draining to the lakes of Kibare and Nasho.

The upgraded Seasonal Agricultural Survey[28] indicates that the total agricultural land cultivated in 2020 in Kayonza district was 93,300 ha. The main crops cultivated during season A were fodder crops (29% of cultivated land), beans (19%), cassava (13%), banana (12 %) and maize (12%). During season B, the main crop grown were beans (24.7%), sorghum (23.9%), cassava (16.5%) and banana (12.1%). During the short season C, only 349 ha are cultivated with sweet potatoes, Irish potatoes and vegetables. The use of organic fertilizer varies across the seasons with 37.4% of farmers using organic fertilizers during the season A, 27.3% during season B and 83.8% of farmers during season C. The use of inorganic fertilizer is steady within season A and B with respectively 21.6% and 20.4% farmers applying chemical fertilizers while during the season C, the use of inorganic fertilizers reaches a peak with 94.1 % of farmers applying inorganic fertilizers.

Since the growing population and associated pressure on agricultural lands, the grazing areas in Eastern Province are shrinking due to the encroachment for crop cultivation[29]. Therefore, the livestock sector suffers from lack of feeds due to shortage in pastureland, insufficient and/or non-controlled commercial feeds.

Climate trends and impacts

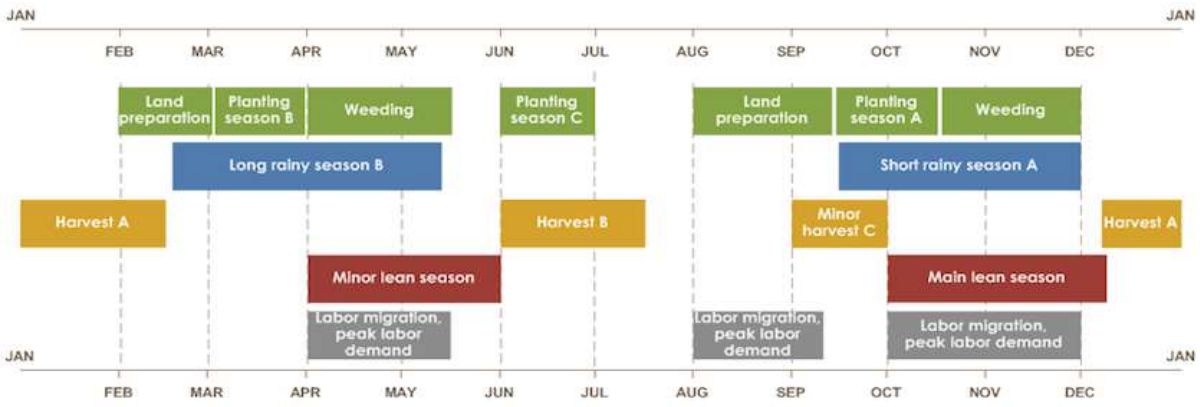
Climate trends

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 (ITCZ) 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, 1500-2000 m in the south and the centre of the country, 1800-3000 m in the highlands of the north and the west and 3000-4507 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 mmm to 1,200mm (MIDIMAR, 2015). The average rainfall in the Lower Akagera Catchment is 835 mm, of which 624 mm (75%) is lost through evaporation and plant transpiration processes.

Figure 2: Typical seasonal calendar

[28] National Institute of Statistics of Rwanda (NISR). Upgraded Seasonal Agricultural Survey. Annual report, December 2020.

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



Climate projections

Key projected climate trends[30] are summarized below:

Average maximum temperatures are projected to increase by 0.44°-0.6° C by 2020 and 1.3°-1.9° C by 2050.

Rainfall is highly variable in Rwanda but average annual rainfall may increase from baseline data from 1970 by up to 20% by the 2050s.

However, for the Eastern Province, RCP4.5 models reached consensus that monthly precipitation would decrease from April to July. There was consensus among the RCP4.5 and RCP8.5 models that monthly precipitation would increase in the period from November to January[31].

Climate change impacts

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 A[32]. 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).

According to the University of Cape Town Climate Risk Analysis (2020)[33] which assessed the potential impacts of climate change on several crops and commodities in Rwanda, the production of beans, one of the most important subsistence crops, is predicted to undergo a decrease in annual production ranging from 0.8% in the Western province, up to 8% in the Eastern province. In total, it is estimated that the annual production of beans across all provinces will be reduced by 30 000 tonnes, resulting in total annual costs of climate-related impacts of US$ 15.9 million. Production of maize is predicted to decrease in production ranges from 0 kg to 7 kg in the Kigali and Eastern provinces, respectively, equivalent to a total decrease in national maize production of 10 692 tonnes and an annual replacement cost of US$ 3.8 million.

Climate change mitigation

Potential GHG benefit estimates for mitigation may be generated by: a) reduced soil carbon loss through tree planting and soil and b) regeneration of degraded soils through increased

[30] https://climateknowledgeportal.worldbank.org/country/rwanda/climate-data-historical

[31] IUCN, Rwanda, GCF project on Transforming Eastern Province of Rwanda's capacity to adapt to climate change through forests and landscapes restoration. 2019.

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

[33] Hunter. R., Crespo. O., Coldrey, K, Cronin, K, New, M. 2020. Research Highlights – Climate Change and Future Crop Suitability in Rwanda. University of Cape Town, South Africa, undertaken in support of Adaptation for Smallholder Agriculture Programme' (ASAP) Phase 2. International Fund for Agricultural Development (IFAD), Rome

agroforestry practices. This will be further firmed up through the EXACT[34] assessment that will be integrated as part of the baseline survey.

2.3 Target group profiles

In line with the RB-COSOP targeting strategy, KIIWP will focus on poor and food-insecure rural households with economic potential. Consistent with the national wealth ranking system (Ubudehe), and on the basis of access to land and market, the Project will directly target 3 different categories of beneficiaries, applying complementary approaches aimed at enabling poor farmers to graduate from poverty.

Landless, near landless and extremely vulnerable households, who have very limited productive assets. Approximately 13 per cent of the population in the Project area fall under this category (Ubudehe category 1). Those engaged in agriculture have no land or land of small size (less than 0.25 ha), grow fewer crops, are less likely to have a vegetable garden. Households with people with disabilities (PWD) and those headed by women are amongst the most vulnerable ones.

Subsistence farmers and vulnerable poor who have limited land and access to resources and represent approximately 35 per cent of the population in the Project's area (Ubudehe category 2). Poor and food insecure households have an average land size of less than 0.5 ha, few active members, are more often headed by a person with low level of education, or a single? or a person with disabilities. They mainly depend on agriculture daily labour, on their own agricultural production, unskilled daily labour, or on external support for their livelihoods. In the area targeted by the development of large scheme irrigation infrastructure, approximately 28 per cent of the households have less than 0.25 ha and 38 per cent less than 0.5 ha (ESIA, 2020).

Market-oriented producers (category 3 Ubudehe), account for approximately 52 per cent of the target population, are less vulnerable and go beyond subsistence farming. These farmers usually have an average of 0.5 ha or more, are already engaged in a more entrepreneurial logic, will be supported through a combination of technical, business and financial capacity building combined with backward and forward market facilitation. This will be provided in the scope of innovative value chain arrangements that facilitate the participation of smallholders in commercial value chains. In the area targeted by the development of large scheme irrigation infrastructure, more than half of the population owns more than half a hectare with at least a quarter of the households owning more than 1.0 ha each (1.0 to 5.0 ha).

Amongst the target groups, special attention will be provided to women and among those, to adolescent girls and women heads of households; youth will be another priority target group, as well as vulnerable households (category 1 Ubudehe, and households with PWD)

Rural women. As described in the previous section, compared to men, women in agricultural production are more exposed to vulnerability. Pursuing gender equality, KIIWP will ensure that at least 50 per cent of Project's beneficiaries are women. Adolescent girls are even more vulnerable due to early pregnancy (teenage pregnancy in Kayonza reaches 10 per cent, over the national average)[35]. Women headed households are disproportionally faced with the challenges of poverty and small-sized land (<0.5 ha), compared to male-headed households, which limits their access to productive resources. They also own less or smaller livestock than male headed households and consume less of their animal products (only 15 per cent of female headed households consume animal products)[36]. This category will be directly targeted by the Project's interventions; women-headed households are expected to represent 30 per cent of households

[34] The Ex-Ante Carbon-balance Tool (EX-ACT) is an appraisal system developed by FAO providing estimates of the impact of agriculture and forestry development projects, programmes and policies on the carbon-balance. The tool helps project designers to estimate and prioritize project activities with high benefits in economic and climate change mitigation terms.

[35] Kayonza District, Second District Health Strategic Plan, 2018/19- 2023/24.

[36] WFP, 2018, Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda

reached. Through its Gender Strategy, KIIWP will promote gender equality and women's empowerment, channelling activities and services to women and strengthening their decision-making role at community and organization level.

Rural youth (50 per cent women) will represent 30 per cent of the KIIWP's beneficiaries. Youth are found in the above-described target groups, while the higher percentage of them is from the very poor and poor categories. Young people have low rate of education (only primary) and limited skills on financial services. Overall, this target group includes (i) young men and women who are engaged in agricultural activities at subsistence farm level, with an interest to further expand their activities to make it as a business, and (ii) young men and women employed under casual or seasonal work at minimum wage, who can be engaged in service provision (e.g., infrastructure development); (iii) young graduates, interested to apply their skills in the agriculture sectors as service providers. Youth will be targeted as both beneficiaries and service providers of the Project's supported interventions.

Child labour in Rwanda. The 2019 report on worst forms of child labor[37] highlights that Rwanda had made moderate advancement in its efforts to combat child labor in the country. Although Rwanda has a high degree of school attendance (89.4%), the report also highlights that children are performing dangerous tasks such as street vending, construction (e.g. brick-laying) and production (e.g. applying fertilizer, carrying heavy loads) in agriculture sector. It is therefore recommended that: i) the project liaise with relevant line ministries engaged in reducing child labour and assess potential cooperation between agriculture and labour stakeholders and ensure coherence of policies and programmes on child labour prevention and; ii) promote the adoption of safer agricultural practices and prevent children from carrying out hazardous work in agriculture. Specific measures are recommended in the ESMP.

Vulnerable households. KIIWP will ensure that at least 10 per cent of the targeted households are amongst the most vulnerable category. The poorest and most food insecure households are more likely to have women with low level of education and children suffering from undernutrition and stunting. Although KIIWP will not directly target children, it is expected that they will benefit from Project's initiatives aimed at improving the quality of women and households' diets. To tackle the multiple barriers that traditionally prevent very poor and vulnerable households from improving livelihoods (access to land and assets, lack of capacities, poor culture of saving, lower position and decision-making power in representing organization, etc.) and enable them to gradually improve their livelihoods, KIIWP will deploy a social inclusion strategy, directly targeting the poorest households with services and activities.

All targeted households will benefit from Project's services that cut across the needs of all types of target groups. These will be channelled through new and existing organisations that will be inclusive of all groups: (i) water infrastructure operation and maintenance and water resources protection and conservation, through Sector and District-level Steering Committees and Sub-Catchment Committees, Water User Organisations (WUOs) and Water for Livestock User Organisations (WLUOs) (ii) market linkages and extension services through commodities-based cooperatives and Farmers Field Schools groups; (iii) linkage with financial services, through the strengthening of Community Based Finance Institutions and their active support to the targeted cooperatives. Attention will be given to costs/beneficiary contributions, timing and administrative procedures required for effective participation of the various target groups.

Institutional analysis

Gender	**Ministry of Gender and Family Promotion (MIGEPROF)** plays a leading role in the implementation of the gender agenda in the country. The project, through its Gender Specialist, will coordinate with MIGEPROF on initiatives for gender equality

[37] Bureau of International Labor Affairs, 2019, Findings on the worst forms of child labor, U.S. Department of Labor. United States of America.

	and women empowerment at the district level (coordinating with the Gender and Family Promotion Officers) in particular. The **Gender Monitoring Office** (GMO) is mandated by the Constitution, along with the Ministry of Gender and Family Promotion, and the National Women's Council for executing several programs and policies to address these gender gaps and constraints. **Women's Council** at the district level will be key reference to align KIIWP's gender strategy with the priorities set by Kayonza district on gender mainstreaming and to articulate with women's associations and cooperatives. In the Ministry of Agriculture, a Gender Advisor supports capacity building of staff through development of performance contracts that address gender integration, including identification of key gender-responsive indicators.
Youth	**Kilimo Trust** is an East Africa-based not for profit organization that was established in 2005 to contribute to broad-based wealth creation through agriculture and agribusiness development. In Rwanda, the organization is coordinating a grant project, financed by IFAD, providing support to the establishment of agribusiness hubs to create employment opportunities for rural youth. The project (R-YES) is implemented by a consortium of institutions including the African Agribusiness Incubators Network (AAIN), Rwanda Youth in Agribusiness Forum (RYAF) and Rwanda Polytechnic, through its affiliated Integrated Polytechnic Regional Colleges (IPRCs). The grant intends to target 1,200 youth, of which 50 per cent women, identifying opportunities for youth employment along selected value chains, providing capacity building (through VTC and colleges) and linking youth graduated with agribusiness enterprises and BDFs. A network of sub-Hubs will be established at the provincial level to facilitate these linkages. KIIWP2 would liaise with the grant to identify job opportunities for young people for the supported value chains and the provision of capacity building and trainings and link to financial services. Graduate youth would be also employed by the Project as service providers.
	Rwanda Youth Agribusiness Forum (RYAF) is a platform established to bring together different youth organizations, individual youth farmers and entrepreneurs. RYAF already engaged in IFAD-supported projects PASP and RDDP in the delivery of training and extension services, and it could be further involved to engage youth in agriculture, as service providers as well as beneficiaries of capacity building, business and financial services.
	HoReCo is a business company of professionals in agriculture who were trained in matters of horticulture development and value chain, irrigation and agriculture mechanization as well as building capacity of youth in agriculture. They may be employed as service providers by KIIWP for the delivery of specific capacity building and trainings in areas where the company has recognized professional skills and comparative advantages.
Nutrition	**District Plans to Eliminate Malnutrition (DPEM).** At the district level, in accordance with the National Decentralization Policy, multi-sectoral committees are established to coordinate the implementation of the nutrition programmes. Under the leadership of the District Major, these committees are composed of district directors of health, nutritionists, women and youth' district representatives, agronomists and social protection, veterinary, and hygiene and sanitation officers. The district-level committees oversee the implementation of DPEMs. All 30 districts have developed DPEMs that will be key references for the development and delivery of nutrition-related activities in the districts targeted by the project.
	National Early Childhood Care and Development Programme (NECDP), which operates under the Ministry of Gender and Family Promotion, is a governmental programme already partnering with RDDP in the delivery of nutrition education. Collaboration will be established to deliver nutrition education to youth production groups and cooperatives.

	Food and Agriculture Organization (FAO). Potential partnership with FAO, particularly on technical assistance (TA) will be pursued due to FAO expertise on nutrition and social inclusion. FAO together with the World Bank is currently implementing the GASFP Sustainable Agricultural Intensification for Improved Livelihoods, Food Security and Nutrition Project (SAIP), covering also Kayonza District and addressing common areas with KIIWP. Furthermore, the **Nutrition-sensitive Water Productivity (NsWP)** IFAD funded grant, implemented by FAO, was launched in Rwanda on November 2020 and will be executed during the next three years in the frame of KIIWP. NsWP aims to improve dietary quality by strengthening the capacities of smallholders for the adoption of sustainable water management and nutrition sensitive agricultural practices. This will be achieved through an NsWP methodology that includes the selection of nutrition-smart crops, the delivery of nutrition trainings and the CSA practices through the FFS model. In this context, KIIWP will be able to rely upon and upscale the NsWP methodology and practices.
	WFP will be a key partner to link cooperatives supported by KIIWP with the Home-Grown School Feeding Programme (HGSFP). In this context, partnership would be established to further exchanges on nutrition-sensitive and climate-smart practices, promotion of nutritious foods and market linkages through the HGSFP, community mobilization and engagement approach and linking to finance support.
Environment and Climate	In early 2020, the former **Rwanda Water and Forest Authority (RWAFA)** was divided into **Rwanda Water Resources Board (RWB)** and **Rwanda Forest Authority** (**RFA**). Both institutions are agencies under the **Ministry of Environment**. The project will interact with RWB to request water permits and water abstractions. With support from the District authorities, SPIU will advocate for including KIIWP II project areas into the ongoing national reforestation programme. Unfortunately, due to limited budget, Kayonza district was not targeted by the RFA's pilot programme. Hence, KIIWP II has allocated budget for upstream catchment rehabilitation to ensure that the command areas will be protected against up-stream erosion and land degradation.
	Under supervision of the Ministry of Environment, **Rwanda Environment Management Authority (REMA)**, reserves the legal mandate for national environmental protection, conservation, promotion and overall management, including advisory to the government on all matters pertinent to the environment and climate change. REMA aims at closely monitor and assess development programs to ensure compliance with the laws on environment during their preparation and implementation.
	The project will explore potential partnership with the **Rwanda Center of Excellence in Biodiversity and Natural Resource Management (CoEB)** for monitoring the ecosystems and landscape restoration and rehabilitation measures. CoEB will provide technical backstopping to enhance the knowledge of biodiversity and natural resource management for sustainable development and community resilience. As per its mandate, the CoEB will support the project to implement all mitigations measures listed under the environment and social management plans.

National strategies, policies and regulatory frameworks relevant to the project from a safeguard and IFAD mainstreaming perspectives are the following:

Gender	**Agriculture Gender Strategy (2012), MINAGRI:** provides guidance to MINAGRI and development partners to be gender sensitive in their programming and interventions.
	National Gender Policy (2010) is the guiding framework to mainstreaming gender into the national development process and outcomes. The main objective of the policy is to integrate gender into critical areas such as poverty, health, agriculture and food security and education, among others.

	National Gender Coordination and Partnership Strategy (2016-2020), guides the coordination of gender promotion, establishing a framework for stakeholders' coordination and engagement and set strategic priorities for action.
	National Policy against Gender-Based Violence (2011) supports gender-based violence prevention and response and provides an opportunity for further advancements. Significant steps have been taken in the country to have dedicated staff and resources to provide services to victims and reduce impunity for GBV. The existing One-Stop Centers provide critical support to victims of GBV and can be used as a model for integrated care and support.
Youth	**National Youth Policy (2015)** focuses on youth economic empowerment by addressing issues related to unemployment and underemployment, limited skills, low rate of access to finance and markets, among others.
Nutrition	The **Strategic Plan for Agriculture Transformation 4 (PSTA IV), 2018-2023**, introduces improved nutrition amongst its priority areas and outcomes and nutrition-sensitive agriculture as one of the main interventions.
	The **National Food and Nutrition Policy (2013)** recognizes the link between adequate nutrition and household food security and focuses particularly on the "window of opportunity" for preventing malnutrition (from conception to the child's second year of life). The National Food and Nutrition Strategic Plan, orients Policy's implementation focusing on the prevention of child stunting. The **National Strategy for Transformation** (NST), 2017-2024, social transformation pillar focuses on promoting resilience and eradicating malnutrition.
Nutrition coordination mechanisms & multi-stakeholder platform	Rwanda joined the **Scaling Up Nutrition (SUN)** movement in 2011 and since then several multi-stakeholder platforms have been set up at central and local level to scale up nutrition. The Inter-Ministerial Coordination Committee is the highest-level convening body under the leadership of MOH and co-chaired by the Minister of Finance and the United Nations Resident Coordinator. The committee brings government and development partners together. Staff from MOH, MINAGRI and MINALOC, co-chair the Social Cluster Food and Nutrition Steering Committee (SCF&NSC). The **National Food and Nutrition Technical Working Group** (NF&NTWG) was set up in 2013 and is Rwanda's multi-sectoral nutrition coordination platform. The NF&NTWG includes representation from the SCF&NSC, donors, UN agencies, civil society, academia and the private sector. UN REACH is working as the convener for the UN Network, while the Donor Network is convened by USAID.
Environment and Climate	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. In 2020, Rwanda was the first country to update its **Nationally determined Contributions**. Within the agriculture and natural resource management sectors, KIIWP will contribute to the following adaptation interventions: i) Develop climate resilient crops and promote climate resilient livestock; ii) develop climate resilient post-harvest and value addition facilities and

	technologies; iii) strengthen crop management practices; iv) develop sustainable land use management practices; v) expand irrigation and improve water management; vi) expand crop and livestock insurance; vii) development of Agroforestry and sustainable agriculture and viii) promote afforestation / reforestation of designated areas. 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; 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 coordination elapses between the drought early warning message and the active response at the country level. **Forest Sector strategic plan (2018-2024)** provides Rwanda government's directions on how to achieve the medium to long-term policy actions presented in the 2018 National Forest Policy (NFP) for the development and management of forest sector. KIIWP II will contribute to the following objectives: Biodiversity and ecosystems services and values will be enhanced in accordance with national and international agenda; The adoption of Agroforestry and Trees Outside Forest (TOFo) techniques will be enhanced to contribute to overall forest resources and agriculture productivity

Environmental and social category (A)

The **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 >100ha) and marshland development. Despite the proximity to the Akagera national park, the area targeted by the project is already transformed to agriculture land.

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. Environmental and social safeguards 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 only 3 years. Water permits will be requested for each abstraction point and have a validity ranging from 5 to 10 years for irrigation interventions.

During KIIWP1, an ESIA and Feasibility Study (FS) were prepared for Ndego and Kabare sectors. In November 2020, the Government of Rwanda organized a validation workshop, gathering all relevant stakeholders, to formally review both documents. The final FS and ESIA were then shared with IFAD and approved for disclosure. In addition, the remaining FS and ESIAs for the Kanyeganyege and Gishanda schemes, hydro-geological surveys for boreholes drilling and valley ponds, water permit requests and ESIA procedures were initiated and will be finalized in July 2021. The additional ESIAs must be shared with IFAD for no-objection and disclosed 120 days prior to the construction of the irrigation infrastructures (*See below expected timeline for finalising the required studies/surveys*).

The already developed FS and ESIAs have identified that no physical involuntary resettlements are expected. An abbreviated RAP was included in the ESIA prepared for the Ndego and Kabare scheme and associated costs were integrated in the cost-table. The abbreviated RAP will be implemented and all compensation measures provided prior to the construction works or partial land take.

Table 1: Timeline for finalising remaining studies/survey implemented under KIIWP phase I

Area	*Activity*	*Timeline*
Gishanda	Feasibility study	- Contract will be signed in May 2021 - Final report to be submitted to the SPIU by April 2022
	ESIA	- will start after getting the pre-feasibility study - Final report will be finalized in January 2022
Kanyeganyege	Feasibility study	- Contract will be signed by July 2021 - Final report to be submitted by April 2022
	ESIA	- will start after getting the pre-feasibility study - Final report will be finalized in April 2022
Pipeline for 5000 ha in the Eastern Province	Feasibility study	Contract will be signed in July 2021 - Final report to be submitted by July 2022
	ESIA	- will start after getting the pre-feasibility study - Final report will be finalized in July 2022
Implementation of boreholes	Hydrological surveys	To be finalized by May 2021
	Construction phase	10 boreholes to be constructed by August 2021
Valley tanks	Construction	10 valley tanks to be rehabilitated by July 2021

Climate risk category (High)

Because of recent droughts events and the vulnerability of the Eastern Province to extreme events, the climate risk classification is **High**. Among the climate science community[38,] there is consensus that Rwanda's future climate will be substantially warmer, increasing between 1.3 °C and 1.9 °C by mid-century according to CMIP5 projections. Projections of future precipitation in Rwanda are more variable, with estimates of the change in annual average rainfall ranging from a 10% decrease to a 22% increase by mid-century.

Through financing support from ASAP II, in 2020, the University of Cape Town conducted a detailed climate risk analysis to assess climate change effects and future crop suitability in Rwanda. The assessment examined the impact of climate change on the main subsistence crops which are beans, cassava, maize, groundnuts and sweet potatoes. The findings for the targeted crops (beans and maize) are as follows. For maize, the projected decrease in production is expected to be 7 kg per household in Eastern province, amounting to a loss of 2.5 US$ per household. For beans, it is predicted that all provinces will experience decreased production. The Eastern Province is likely to be the most affected with an annual decrease in production up to 8%, representing an annual loss of 38 kg per household and 20 US$ per household. The report recommends: i) the promotion of fast-growing varieties, ii) increase technical support for climate resilience and management of climate risks and iii) adoption of alternative and climate resilient crops such as sorghum, millets or groundnuts. Hence, the project emphasis on risk management activities are likely to increase resilience and adaptive capacity of households, infrastructure, communities, and ecosystems. The project will promote adaptation and mitigation measures in terms of: (i) enhancement of agricultural productivity through climate-smart agriculture practices through Farmers Field School; (ii) restoration and management of pasture land; (iii) afforestation, reforestation and forest conservation through synergies and coordination with Rwanda Forest Authority; (iv) and promotion of appropriate and tested (e.g. under PASP project) 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.).

Recommendations for Project design and implementation

Component A: Targeting communities and organizations. The WFP is currently implementing an operation in Kayonza (SMART WFP/KOICA funded project) while other IFAD funded projects are

[38] https://climateknowledgeportal.worldbank.org/country/rwanda/climate-data-projections

also on-going (RDDP and PRICE) in the same district. Preliminary consultations have been carried out during the project design mission, and further assessments will have to be conducted before KIIWP2 starts its operations in order to avoid duplication and overlap of the interventions in the same areas/organizations and, in turn, seek to complement efforts.

For capacity building and vocational training to youth are able to reach young women and men from the most disadvantaged target groups, the Project should give priority to NEET youth to select participants for capacity building and training, thus increasing their employability potential.

Tailor services and products to women's needs. Services should be tailored to the needs of women and products that take into account their disadvantages. For example, loan provision in a context that is culturally easier for women such as informal groups (VSLAs) should be supported; integration of women in all segments of the value chain (not only at the production stage) should be also encouraged, for example through their promotion as input dealers.

Component B: Calibrate beneficiary's contribution based on farmers' socio-economic profile. Beneficiary's contribution to the operation and maintenance of the irrigation infrastructures will have to be tailored to the different productive, economic and financial capacities of the target groups. Furthermore, the type of financial support provided to target beneficiaries should be aligned to their different socio-economic categories.

Select NEET (not in employment, education or training) youth. To ensure that opportunities

Promote effective partnership strengthening and multi-stakeholder coordination for improved nutrition. Link up wit the National School Feeding Programme of the GoR. In Kayonza, there will be schools receiving WFP school feeding as well as schools under National School Feeding Programme. Coordination and alignment with FAO and WFP will be key to assess the selection of nutritious crops to be promoted. The assessment should take into account both the nutrition value of the selected varieties and the market opportunities, especially in the frame of public procurement (HGSFP). Through the partnership with WFP, it is recommended to strengthen linkages with the HGSFP, mapping the schools targeted by the Programme to whom KIIWP's beneficiaries may sell their production. Multi-stakeholder coordination, in turn, will need to be ensured to work on nutrition-sensitive interventions at the district level. Coordination and collaboration with DPEMs are envisaged. At the same time, it is recommended to coordinate with the Gender and Family promotion officers at the district level, in order to harmonize actions and complement efforts.

Entry points for mainstreaming gender, youth, nutrition and promoting social inclusion.

To foster rural poverty reduction, gender equality, youth empowerment, social inclusion, and improved nutrition of poor and food insecure rural farmers, KIIWP will adopt an integrated approach that will be deployed through a set of inter-related practices, activities and services mainstreamed throughout the Project's components.

Under Component A, KIIWP will: (i) create new alternative income generating activities on farm and off farm, suitable for near landless and the most vulnerable households, and targeting women and youth, in the frame of catchment rehabilitation and protection initiatives, such as afforestation and reforestation activities, agroforestry practices, beekeeping, among others; enhance access to clean and safe water for human consumption (constructing boreholes and valley tanks to supply water for domestic use) (ii) implement kitchen gardens and promote nutrition crops (iron rich beans, orange-flesh sweet potato, green leafy vegetables, moringa and other fruit trees) that will be managed by women, to improve access to nutritious food for own households' own consumption while creating new income generating activities for women; (iii) implement Climate and Nutrition Smart Technologies (such as storage facilities, dryers, climate resilient drying grounds and warehouses) to reduce post-harvest losses and improve year-round availability of nutritious food crops; strengthen farmers' knowledge on good nutrition practices and WASH in the frame of FFS; (iv) support the development of small-scale mechanisation (power tillers, manual drafted tools) directly targeting youth as main service providers, and promoting climate

smart workload-reducing tools adapted to the needs of women, thus reducing their labour burden while decreasing impact on natural resources.

Furthermore, the adoption of the GALS methodology will offer a framework to implement gender transformative approaches by addressing power inequalities between women and men and foster women's decision-making power at the household and community level. To implement GALS, the Project will rely upon the capacities installed at the district level under the on-going IFAD funded RDDP (GALS master trainers and facilitators already trained and able to provide services), where the methodology is being implemented in the frame of the Livestock Farmers Field Schools supported by the project[39].

Under Component B, the Project will: (i) channel capacity building and trainings to women and youth (targeting respectively 50 and 30 per cent of the overall beneficiaries), as members of Farmers Organizations, including financial literacy and business skills, leadership trainings, and enabling increases of women's savings through Village Savings and Loans Associations; (ii) provide specific window opportunities for women and youth to access to grants, with a lower beneficiary's contribution, to enhance the adoption of the climate smart agriculture and of small scale irrigation technologies; (iii) support youth vocational and business skills, linkages with markets, enterprises and financial institutions, by leveraging on existing partnership with the Rwanda Youth Agribusiness Forum (RYAF) and Kilimo Trust. To further the creation of new employment opportunities for young women and men, the Project will rely upon the Agribusiness Hubs established in the frame of the on-going R-YES[40] grant, financed by IFAD, coordinated by Kilimo Trust and implemented through a consortium of organizations.

Quotas will be established in the frame of Farmers Organizations and WUOs to ensure women and youth's representation and participation in decision making processes. It is expected that the water management committees will comprise 40 per cent women and 25 per cent youth. To ensure the participation of women, attention to the location and timing of various Project's activities may increase their opportunity to participate.

A Gender strategy has been drafted during KIIWP1. The strategy addresses gender disparities and the key constraints that limit women's participation in economic opportunities and provides general recommendations to ensure that women will benefit from equal access to assets, services and capacity building. The Project gender strategy will be revised to embed new initiatives that will be promoted during the second phase of the Project. The strategy will peruse the following objectives: (i) expand women's economic empowerment through access to and control over assets and resources; (ii) strengthen women's decision-making role in the community and their representation in membership and leadership of sub-catchment management committees, WUOs and Farmers Organizations; (iii) achieve a reduced workload and an improved equitable workload balance between women and men, girls and boys.

Entry points for mainstreaming environment management and climate change adaptation and mitigation

Sub-component A.1: Catchment Rehabilitation and Protection. The expected outputs would be investments integrated land and water resources management (ILWRM) interventions (in addition to those financed under KIIWP1) in order to enable stakeholders of upstream (rainfed areas) and downstream areas (irrigation schemes) to work together for the better utilization and management of their land and water resources. Catchment rehabilitation and protection measures including afforestation, reforestation, agro-forestry and grasses will be favourable to biodiversity and increases habitat to living organisms as well as tree cover in the area. In addition, the creation of balancing storages may also provide opportunity to aquatic biodiversity.

[39] Two civil society organizations have been identified and selected by RDDP to deliver GALS trainings; the same organizations might be recruited by KIIWP by extending their contract to cover additional groups in the same district. This will help reducing procurement time and costs and to speed up implementation.

[40] Rural Youth Employment Opportunities: Supported to Integrated Agribusiness Hubs in Rwanda (R-YES) Project.

The catchment rehabilitation and protection approach includes the following steps: i) community-based participatory sub-catchment planning; ii) land husbandry in rainfed areas[41]; iii) construction of boreholes and valley tanks to supply water for livestock and domestic use[42]; and iv) reforestation / afforestation with both fruit trees and native species. The WFP's community-based participatory planning methodology will be adopted as part of the sub-catchment planning and will be crucial to ensure that the needs of all communities' representatives are taken into account, including the most vulnerable households, avoiding elite capture, and that women have equal representation in decision making.

The **community competition** (*Inteko y'Imihigo*), successfully implemented under KWAMP, will be scaled up. The competitive system is a tool to mobilize the community for a better involvement in the sustainable development and management of watersheds. Under this intervention, the local community members (groups or villages) will submit Business Plans that aim at preserving natural resources in their respective sub-catchments. Potential projects to be financed could include beekeeping, provision of energy saving stoves, rainwater harvesting structures, sustainable production of charcoal as a youth business, eco-tourism, and biodiversity conservation through plantation of endemic trees species on their farm.

Environnemental Management Plan. Under this Sub-component[43], Environmental and Social Management Plans (ESMPs) identified by the ESIAs for Kibare, Nasho, Ihema, Kanyeganyenge and Gishanda command areas will be implemented.

Overall, the ESMP for the full project recommends to: i) conduct rapid site biodiversity survey prior to construction of irrigation infrastructure to ensure that the Project will not have any negative impact on ecosystems (flora and fauna); and ii) elaborate an Integrated Pest Management Plan for the entire Project as part of the detailed design of each irrigation scheme. Specific ESMPs were developed for each command areas to tackle the following key adverse impacts associated with design and management of irrigation system:

- 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);
- 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 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.

The already developed Feasibility Studies and ESIAs for Ihema, Kibare and Nasho command areas have identified that no physical involuntary resettlements are expected, but around 200 households will lose part of their land and another more than 1,200 households will lose income

[41] Farmland protection and rehabilitation techniques will allow to reduce runoff of rainwater and stimulate infiltration. This will be combined with land husbandry practices geared towards increasing vegetative cover and increasing soil fertility. The recommended technologies include drainage, land levelling (terracing), contour buffer strips, contour ditches, contour bunds, contour ploughing, silt traps and application of lime, mulching and compost. Where needed, slowing down runoff by construction of check dams, gabions, and side drains will be implemented. These will be complimented with agro-forestry, including planting of trees, shrubs and grasses as well as pastures.

[42] 20 solar-powered boreholes and 15 valley tanks in Ndego, Mwiri, Gahini and Murundi sectors.

[43] ESIAs and feasibility studies were prepared during KIIWP phase I.

during land husbandry work, as they may miss one or more agriculture seasons. The Resettlement Action Plans (RAPs) shall be prepared, implemented and all compensation measures provided prior to the construction works or land take. The final budget for resettlement compensation will be confirmed after detailed engineering design and detailed resettlement action Plan.

The Project shall implement the Free, Prior and Informed Consent (FPIC) Plan procedures developed in 2018, as Annex 5 of the PDR, within the Environmental and Social Management Framework (ESMF) to guide the various and required consultations processes (RAPs) and ensure proactive approach to identify development pathways with local communities and build ownership on project initiatives.

Grievance Redress Mechanism. Establishment of irrigation schemes could raise complaints among local communities mainly due to conflict among water users, resettlement, conflict between workers and local community, etc. In this situation, Grievance procedures are required to ensure that Project Affected Persons (PAPs) are able to lodge complaints or concerns, without cost, and with the assurance of a timely and satisfactory resolution of the issue. The procedures also ensure that the entitlements are effectively transferred to the intended beneficiaries. Stakeholders will be informed of the intention to implement the grievance mechanism, and the procedure will be communicated at the time that the RAPs are finalized. Grievances may arise from members of communities who are dissatisfied with eligibility criteria use, community planning and actual implementation or compensation. In the case an agreement was not reached through the project-level GRM, the Project Affected Persons may contact IFAD via the following email address (SECAPcomplaints@ifad.org) or send a complaint form to IFAD headquarters physical address. IFAD complaints mechanism are further explained on the IFAD website[44]. Specific procedures related to the project are detailed in the PIM.

7. Further studies needed

Minimum Dietary Diversity Score – Women (MDD-W): at inception phase (baseline study), and completion. This activity has been included in a separate budget line.
Rapid biodiversity survey for each irrigation command areas.

8. Monitoring and evaluation

SECAP procedures. During the preparatory phase, one ESIA was completed and resulted in three preliminary ESMPs (see appendix 1). These plans will be further refined during the design of irrigation schemes. The existing ESMPs include several interventions that aim at tackling the main environmental and social issues identified during the environmental and social impact assessment conducted in early 2020, such as: i) potential loss of native flora and fauna, ii) infestation by alien species, pollution and contamination from spillages and the use of agro-chemicals, iii) water loss; iv) sedimentation and erosion, v) loss of ecosystems services and vi) increased risk of water borne diseases. The monitoring of project interventions and their potential impact on natural resources bases will be crucial during the construction as well as operational phase of the irrigation schemes. The capacity building of local communities will be critical for achieving sustainability and household resilience.

Monitoring sustainability. With support from CoEB, the Project will mobilise several tools for evaluating and documenting progress in improving ecosystem services including a rapid biodiversity survey for each irrigation scheme and satellite imagery for assessing impacts of soil and water conservation measures.

9. References

Reference for Gender, nutrition and youth sections:

[44] https://www.ifad.org/en/accountability-and-complaints-procedures

Africa SDG Index and Dashboards Report, 2018
Agricultural Households Survey, Rwanda, 2017
Comprehensive Food Security and Vulnerability Analysis (CFSVA), 2018, Rwanda, WFP/NISR
Comprehensive Food Security and Vulnerability Analysis (CFSVA), 2015, Rwanda, WFP/NISR
Economic Development and Poverty Reduction Strategy (EDPRS2)
Fourth Rwanda Population and Housing Census, 2012
Global gender Gap Report, World Economic Forum, 2020
Government of Rwanda, 20120, National Gender Policy
National Institute of Statistics of Rwanda (NISR)
Rwanda Demographic and Health Survey (RDHS), 2014-2015
Integrated Household Living Conditions Survey (EICV5) 2016-17, Thematic Report, Education
Integrated Household Living Conditions Survey (EICV5) 2016-17, Thematic Report, Gender
Integrated Household Living Conditions Survey (EICV5) 2016-17, Thematic Report, Youth
Integrated Household Living Conditions Survey (EICV5) 2016-17, Poverty profile report
Integrated Household Living Conditions Survey (EICV4), 2013-2014, Poverty profile report
Kayonza District, District Profile, 2015
Kayonza District, Second District Health Strategic Plan, 2018/19- 2023/24
Kayonza District development Strategy, 2013-2018
Ministry of Agriculture and Animal Resources (MINAGRI)
2018, Strategic Plan for Agriculture Transformation 4 (PSTA 4) 2018- 2024
2012, Agriculture Gender Strategy
Ministry of Finance (MINECOFIN), 2013, Economic Development and Poverty Reduction Strategy (EDPRS2), 2013-2018
Ministry of Gender and Family Promotion (MIGEPROF)
2016, National Gender Coordination and Partnership Strategy, 2016-2020
2010, National Gender Policy
Ministry of Health (MOH)
National Food and Nutrition Strategic Plan, 2013-2018
National Food and Nutrition Policy, 2013
Ministry of Local Government (MINALOC), 2011, National Social Protection Strategy
Ministry of Youth, 2015, National Youth Policy
NpM, 2020, Financial services for women. Case studies on women's participation in the maize and bean value chains in Rwanda.
The cost of hunger in Rwanda, 3rd National Food and Nutrition Summit 2014, Kigali
Women's Empowerment Agriculture Index Study (WEAI), 2020, Baseline report, DFID

Environment and climate

Black, 2005, "The relationship between Indian Ocean sea surface temperature and East African rainfall", Phil. Trans. Roy. Soc., A.,N 363, 43-47.
Eugene M, 2017, Characterization of cattle production systems in Nyagatare district of Eastern Province, Rwanda, Rheol: open access 1:107.
https://esri-rw.maps.arcgis.com/apps/opsdashboard/index.html#/a0d68c954ec142cda3554681489b3bc2.
https://esri-rw.maps.arcgis.com/apps/opsdashboard/index.html#/a0d68c954ec142cda3554681489b3bc2.
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. Environment and Social Management Framework (ESMF)
Kayonza District. 2018. Second District Health Strategic Plan 2018/19 – 2023/24. 109p
MINAGRI (2010). Rwanda Irrigation Master Plan (RIMP). Ebony Enterprises Ltd and the World Agroforestry Centre (ICRAF).

MINAGRI. 2018. Strategic plans for agriculture transformation 2018-24
Ministry of Natural Resources (MINIRENA/RNRA), 2015, Rwanda National Water Resources Master Plan, Appendix 7: Upper Akagera Catchment.
RAB (2020). Kayonza Integrated Irrigation and Watershed Protection Project. Environment and Social Impact Assessment (ESIA)
REMA (2006). General Guideline and Procedure for Environmental Impact Assessment.
REMA (2009). State of the Environment Report 2009.
REMA (2009): Rwanda State of Environment and Outlook Report".
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 (2018). National Agriculture Policy.
Republic of Rwanda (2018). Strategic Plan Agriculture Transformation (PSTA 4).
Republic of Rwanda (2018). Third National Communication: Report to the United Nations Framework Convention on Climate Change. Republic of Rwanda, Kigali
SMEC, 2020. Feasibility Study and Detail Study of 2010 ha net Hillside Irrigation at Ndego in Kayonza District, Eastern Province, 336p.
WFP, 2018, Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda

Appendix 1: Environnent and Social Management Plan Matrix[45]

ESMP Matrix						
Environmental/Social and climate Impacts	***Recommended Mitigation/Enhancement measures***	***Public Consultation Activities***	***Responsible Institution in Implementation Phase***	***Means of Verification (Monitoring and reporting)***	***Frequency of Verification***	***Cost Estimate***
Loss of *native* flora and fauna Threats to aquatic and ***terrestrial*** biodiversity in lake systems and rivers, particularly in the dry seasons	Assess impacts of over-abstraction on biodiversity and ecosystem services in lakes and rivers, and propose necessary mitigation Maintain environmental flow.	Rapid biodiversity survey as part of design of the irrigation scheme	SPIU/ Rwanda water Board/ REMA	Survey	Baseline/mid-term review and completion	Included in each ESMP
Water Loss Over-abstraction of water from sources (rivers, lakes, groundwater	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	Awareness of farmers during the formation of WUOs	SPIU, RAB, District	Water permits, records of water use per scheme	Seasonally (3 times per year)	Included in each ESMP
Soil erosion due to excavation and clearing activities for roads, canals, workshops.	Control earthworks Install and maintain drainage structures to regulate storm water and runoff/run on Install and maintain erosion control measures Use zero-till/reduce till methods for land preparation	Contract of the contractor shall include all these conditions to be considered before, during and after construction	SPIU	Contract of contractor in charge of the construction works	Continuous	Included in the design

[45] This is a general ESMP to provide guidance on overall implementation of project's interventions. Specific ESMP were developed for each irrigation scheme.

Removal of vegetation (including riparian vegetation) for clearing land	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. Assess impacts of land inundated by dams on vegetation Conserve/maintain woodlands or forest areas within schemes to preserve biodiversity Implement catchment rehabilitation/ protection interventions as proposed under KIIWP Conservation of woodland patches, especially for native species	Training of farmers and local communities as part of implementation of catchment management plans	SPIU/ RAB/District	Contract of contractor in charge of the construction works	Start-up phase and continuous monitoring	Included in the project cost
Pollution due to leaching, seepage or transmission of agrochemicals through the soil into water sources	Minimise use of agrochemicals through adopting conservation agriculture techniques, explore organic/natural fertilizers, agrochemicals Manual removal of weeds Establish aquatic ecological baseline Monitor water quality in rivers, downstream of diversion weirs and abstraction points	Training of farmers as part of the FFS and climate smart agriculture practices	SPIU/RAB	Baseline data	annually	Included in each ESMP
Waste generated during construction operation, e.g. food waste, packaging, scrap metal, etc. may lead to a proliferation of pests and vermin (snakes, rats, mosquitoes) posing health risks to communities	Dispose of construction waste and solid waste as per REMA's Solid Waste Guidelines Sensitize farmers on waste management practices Recycle, reuse, recover and reduce waste Contract for the construction of irrigation scheme and dams shall include a section on waste management and recycling and reuse of materials when possible	Training on waste management as part of Climate Smart practices	SPIU/ RAB	contract	Continuous	Included in project costs

Soil degradation due to poor cultivation practices, eg. tilling, excessive use of chemical inputs, mono-cropping for long periods of time	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	Training of farmers through thematic FFS (e.g. CSA, conservation agriculture, etc.)	SPIU/RAB	Training modules	Continuous	Included in project costs
Chemical pollution of soils, groundwater and surface water	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 Train farmers in 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.	Training of farmers as part of the FFS/ WUOs Elaboration of an integrated Pest Management (IPM)	RCA/ SPIU/ RAB	Training modules IPM mitigation measures	Continuous	Included in project cost
Loss of biodiversity and ecosystem services due to the proximity of schemes to national park, woodlands/forests - leading to illegal felling of trees for charcoal production	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 Assess impacts of locating intake works in wetlands or lakes on biodiversity and ecosystem services, and propose necessary mitigation	Rapid biodiversity survey to be done as part of the design of irrigation schemes and construction of dams	SPIU/RAB	Survey	Continuous	Included in project cost

Grazing land being taken for agriculture, consequently less land available and large numbers of livestock. Access to water and pasture for livestock blocked (eg.by cultivated fields, canals, or dams).	Develop land use plans that provide land for livestock grazing and watering points Allow livestock access routes to water sources and grazing pastures. Alternatively provide watering points for livestock located along on existing livestock routes to water and pasture, and through consultations with the communities Sensitize communities on preventing livestock from drinking from canals and damaging irrigation infrastructure Establish local monitoring system to reduce conflicts and manage them at early stage	construction of boreholes and valley tanks to supply water for livestock and domestic use Training of FFS for Livestock	SPIU/RAB	Baseline data	Continuous	Included in project cost
Abstraction upstream of river source resulting in insufficient flow left in rivers downstream	Conflicts between upstream and downstream farmers 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	SPIU/ District Authority/ Rwanda Water Authority	Water permits	Continuous	Included in the project cost
In-migration due to potential job opportunities and spin off employment activities.	Growth of settlements due to induced in-migration Plan for population increase and consequent demand on public utilities Initiate educational campaigns for HIV/AIDS awareness, drug abuse prevention, security, etc	Dialogue between local leadership, farmers and immigrants Awareness campaign on employment preference to members of local communities	SPIU/ District Authority	District Reports	Construction phase	Included in the project cost
Setting up Workman's / Contractor's camp	Pressure on water sources, fuelwood /energy sources and other public services. Develop clear specifications for camps with regard to sanitation facilities, accommodation, provision of water, health and safety, etc.	Consult cell authorities to identify camp location.	SPIU/RAB	Contractor contracts	Construction phase	Included in project cost

Temporary acquisition of land for construction camps	Loss of land, (including agricultural land), structures, trees and crops 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	Public consultations as part of Free, Prior and Informed Consent (FPIC) Plan and Resettlement Action Plan	Government of Rwanda/ local authorities / Ministry of Environment(Land Department)	Reports	Construction phase with continuous monitoring during operation phase	Included in project cost
Cash crops grown in preference to food crops on irrigated schemes.	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	Promotion of nutrition-sensitive value chains as part of FFS modules	SPIU/RAB	reports	Continuous	Included in project cost
Climate change resulting in reduced rainfall, which may affect availability of water for irrigation and downstream use, particularly in the dry season	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.	Training of WUO and FFS groups on water use efficiency	SPIU/RAB	FFS modules/ reports	Continuous	Included in project cost
Elite capture in water management	Participatory processes and methods employed in the development of sub-catchment plans, will ensure that needs of all communities' representatives are taken into account including the poorest households. WUOs will be representatives of all socio-economic categories of beneficiaries.	Community-based participatory sub-catchment planning Quotas/selection criteria introduced in WUOs to ensure representation of all socio-economic categories of beneficiaries	SPIU/RAB	Reports	Continuous	Included in project cost
Lack of ownership and sustainability	Involve community members at all stages of the development of project's activities, including siting of water infrastructure. Consult beneficiaries on their capacity to contribute and the modalities of their	Public consultations involving community leaders and district's authorities	SPIU/RAB	Reports	Continuous	Included in project cost

	contributions (cash, in kind) and tailor their contribution to the productive, economic and financial capacities of the different target groups Focus on women, youth and vulnerable households as priority target groups	Project's activities targeting directly women, youth and vulnerable households				
Children may perform dangerous tasks in agriculture	Promote the adoption of safer agricultural practices and prevent children from carrying out hazardous work in agriculture. Promote cooperation between agriculture and labour stakeholders and ensure coherence of policies and programmes on child labour prevention. Promote youth employment opportunities in agriculture. Integrate child labour concerns in the project grievance Redress Mechanisms	Awareness campaign on worst type of agriculture practices through public consultations involving community leaders and district's authorities Include a session in FFS module to discuss about danger of child labour within the agricultural sector Update the Grievance Redress mechanisms and address any issues related to child labour	SPIU/RAB/ with support from Ministry of Public Service and Labour	FFS modules/ reports	Continuous	Included in project cost

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

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

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Kayonza Irrigation and Integrated Watershed Management Project (KIIWP
II) ACTION PLAN AND BUDGET
for 18 Months' Period from January 2022 to June 2023

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022- June 2023			
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2	Q3	Q4
C1	**COMPONENT I : Strengthening resilience to droughts**																					
C10	**I. Investment Costs**																					
C11	**S/Comp 1 :Catchment Rehabilitation and Protection**																					
C110	**Awareness compain and capacity building**																					
C11001	Mobilization of local authorities, opinion leaders, farmers and local financial institutions	SPIU-IFAD	IV	Lumpsum	1	1	2	1	1	1	1	4	2,000	4,000	8,000	12,000	2,000	2,000	2,000	2,000	2,000	2,000
C11002	Mobilization and training of farmers on land husbandry guidelines specific to each agro climatic zone	SPIU-IFAD	IV	Farmers	-	100	100	100	100	100	100	400	25	2,500	10,000	12,500	0	2,500	2,500	2,500	2,500	2,500
C11003	Community training in land husbandry technology implementation	SPIU-IFAD	IV	Farmers	-	-	-	-	250	250	-	500	100	-	50,000	50,000	0	0	0	25,000	25,000	0
C11004	Refresher course on land husbandry for service provider technicians	SPIU-IFAD	IV	Number	-	25	-	25	25	-	-	50	20	-	1,000	1,000	0	500	500	500	0	0
	Subtotal awarness comapign and training													**6,500**	**69,000**	**75,500**	**2,000**	**5,000**	**5,000**	**30,000**	**29,500**	**4,500**
C111	**Establishment of land husbandry techniques**																					
C11101	Establishment of land husbandry techniques including agroforestry trees in Ndego and Kabare sectors	SPIU-IFAD	II	Ha	-	200	200	-	200	200	200	600	1,867	373,396	1,120,189	1,493,586	0	373,396	0	373,396	373,396	373,396
C11102	Acquisition of inputs (lime,Organic manure)	SPIU-IFAD	I	tone	-	2,500	2,500	-	2,500	2,500	2,500	7,500	50	125,000	375,000	500,000	0	125,000	0	125,000	125,000	125,000
	Subtotal land husbandry techniques						2,700					-		498,396	1,495,189	1,993,586	0	498,396	0	498,396	498,396	498,396
C112	**Upstream protection for main irrigation infrastructures (Reforestation)**																					
C11201	Preparation and production of seedlings (callistris robusta, Pinus patula, Eucalyptus varieties, etc)	SPIU-IFAD	III	seedlings	-	2,000,000	2,000,000	-	-	-	3,000,000	3,000,000	0.05	90,000	135,000	225,000	0	90,000	0	0	0	135,000
C11202	Plantation of forest trees		III	ha	-	-	-	-	800	-	-	800	495	-	396,000	396,000	0	0	0	396,000	0	0
C11203	Technical support in quality ensurance for tree seedlings/ICRAF	SPIU/ICRAF	III	Lumpsum	-	-	-	1	-	-	-	1	30,000	-	30,000	30,000	0	0	30,000	0	0	0
	Sub-Total upstream protection													**90,000**	**561,000**	**651,000**	**-**	**90,000**	**30,000**	**396,000**	**-**	**135,000**
C113	**Implentation of watershed management plans**																					
C11301	Operationalization of Community competition grants for Natural Resources Management	SPIU-IFAD	I	number	-	5	5	2	5	5	3	15	5,000	25,000	75,000	100,000	0	25,000	10,000	25,000	25,000	15,000
	Sub-total Implentation of watershed management plans						-					-		25,000	75,000	100,000	-	25,000	10,000	25,000	25,000	15,000
C114	**Horticulture farming**																					
C11401	Management and maintenance of 900 ha of fruit orchard in Murama and Kabaro Sectors	SPIU-IFAD	III	Lumpsum	1	1	2	1	1	-	-	2	150,000	300,000	300,000	600,000	150,000	150,000	150,000	150,000	0	0
C11402	Follow up the sustainability of 900 ha of fruit orchard in Murama and Kabaro Sectors	SPIU-IFAD	III	Lumpsum	-	-	-	1	1	1	1	4	100,000	-	400,000	400,000	0	0	100,000	100,000	100,000	100,000
	Subtotal of Hort farming													300,000	700,000	1,000,000	150,000	150,000	250,000	250,000	100,000	100,000
	Total Sub-comp 1.1 : Catchment Rehabilitation and Protection													919,896.38	2,900,189.14	3,820,085.52	152,000.00	768,396.38	295,000.00	1,199,396.38	652,896.38	752,896.38
C12	**Sub–component 1.2: Irrigation Development**																					
C120	**Detailed Design for projects with Feasibility Studies (FS) completed in KIIWPI**																					
C12001	Undertake Detailed design for Kanyeganyege dam and irrigation system (150ha)	SPIU-IFAD	III	Lumpsum	-	1	1	-	-	-	-	-	60,000	60,000	0	60,000	0	60,000	0	0	0	0
C12002	Detailed design for pipeline 5000 ha net Command Area in Eastern Province of Rwanda	SPIU-IFAD	III	Lumpsum	-	1	1	1	-	-	-	1	500,000	250,000	250,000	500,000	0	250,000	250,000	0	0	0
	SUB-Total detailed design study													310,000	250,000	560,000	0	310,000	250,000	0	0	0
C121	**Infrastructure development**																					
C12101	Civil works for bulk Irrigation Infrastructure in Kibare, Ihema and Nasho	SPIU-IFAD	II	Lumpsum	-	-	-	0.5	0.5	0.5	0.5	2	10,170,600	-	8,136,480	8,136,480	0	0	2,034,120	2,034,120	2,034,120	2,034,120
C12102	In-field irrigation installation in Kibare, Ihema and Nasho	SPIU-IFAD	II	Lumpsum	-	-	-	0.5	0.5	0.5	0.5	2	2,653,200	-	1,061,280	1,061,280	0	0	265,320	265,320	265,320	265,320
C12103	Civil Works for Gishyanda Dam and irrigation infrastructure (125ha)	SPIU-IFAD	II	Lumpsum	-	-	-				1.0	1	830,000	-	166,000	166,000	0	0	0	0	0	166,000
	Sub-Total Infrastructure Development													-	9,363,760	9,363,760	-	-	2,299,440	2,299,440	2,299,440	2,465,440
C122	**Work supervision**																					
C12201	Supervision work for Nasho, Kibare and Ihema schemes	SPIU-IFAD	III	Study	-	-	-	1	1	1	1	4	187,500	-	750,000	750,000	0	0	187,500	187,500	187,500	187,500
C12202	Supervision work for Gishanda	SPIU-IFAD	III	Study	-	-	-	1	1	1	1	4	18,750	-	75,000	75,000	0	0	18,750	18,750	18,750	18,750
C12203	International technical assistance (irrigation expert)	SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	30,000	60,000	120,000	180,000	30,000	30,000	30,000	30,000	30,000	30,000
	Sub-total work supervision													**60,000**	**945,000**	**1,005,000**	**30,000**	**30,000**	**236,250**	**236,250**	**236,250**	**236,250**
	Sub–total C 1.2: Irrigation Development						-					-		370,000	10,558,760	10,928,760	30,000	340,000	2,785,690	2,535,690	2,535,690	2,701,690
C13	**Infrastructure management institutions**																					
C130	**Formation and strengthening sub-catchment committees**																					
C13001	Formation and support operationalization of catchments Committee at District level	SPIU-IFAD	IV	Lumpsum	-	1	1	1	1	1	1	4	1,500	1,500	6,000	7,500	0	1,500	1,500	1,500	1,500	1,500

		% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/Banks	Benef In-cash)	Benef (In-kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In-cash)	Benef (In kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In cash)	Benef (In Kind)	Comments	
12,000	12	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	444	2,160	9,204	-	-	-	192	0.5	2.2	9.5	-	-	-	0.20		
12,500	13	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	463	2,250	9,588	-	-	-	200	0.5	2.3	9.9	-	-	-	0.21		
50,000	52	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	1,850	9,000	38,350	-	-	-	800	1.9	9.3	39.7	-	-	-	0.83		
1,500	2	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	56	270	1,151	-	-	-	24	0.1	0.3	1.2	-	-	-	0.02		
76,000	79								2,812	13,680	58,292	-	-	-	1,216	2.9	14.2	60.4	-	-	-	1.3		
1,493,586	1,548	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	55,263	268,845	1,145,580	-	-	-	23,897	57.3	278.6	1,187.1	-	-	-	24.8		
500,000	518	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	18,500	90,000	383,500	-	-	-	8,000	19.2	93.3	397.4	-	-	-	8.3		
1,993,586	2,066								73,763	358,845	1,529,080	-	-	-	31,897	76.4	371.9	1,584.5	-	-	-	33.1	-	-
225,000	233	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	8,325	40,500	172,575	-	-	-	3,600	8.6	42.0	178.8	-	-	-	3.7		
396,000	410	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	14,652	71,280	303,732	-	-	-	6,336	15.2	73.9	314.7	-	-	-	6.6		
30,000	31	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	1,110	5,400	23,010	-	-	-	480	1.2	5.6	23.8	-	-	-	0.5		
651,000	**675**								**24,087**	117,180	499,317	-	-	-	**10,416**	**25.0**	**121.4**	**517.4**	-	-	-	**10.8**	-	-
100,000	104	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	3,700	18,000	76,700	-	**0**	**0**	1,600	3.83	18.65	79.48	**0**	**0**	**0**	1.7		
100,000	104								3,700	18,000	76,700	-	-	-	1,600.0	3.8	18.7	79.5	-	-	-	1.7	-	-
600,000	622	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	22,200	108,000	460,200	-	-	-	9,600	23.0	111.9	476.9	-	-	-	9.9		
400,000	415	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	14,800	72,000	306,800	-	-	-	6,400	15.3	74.6	317.9	-	-	-	6.6		
1,000,000	1,036								37,000	180,000	767,000	-	-	-	16,000.0	38.3	186.5	794.8	-	-	-	16.6	-	-
3,820,585.52	3,959.16								141,362	687,705	2,930,389	-	-	-	61,129	146	713	3,037	-	-	-	63	-	-
60,000	62	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	16,200	10,620	32,400	-	-	-	780	16.79	11.01	33.58	-	-	-	0.81		
500,000	518	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	135,000	88,500	270,000	-	-	-	6,500	139.90	91.71	279.79	-	-	-	6.74		
560,000	580								**151,200**	**99,120**	**302,400**	-	-	-	**7,280**	**157**	**103**	**313**	-	-	-	**7.5**	-	-
	0																							
8,136,480	8,432	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	2,196,850	1,440,157	4,393,699	-	-	-	105,774	2,276.53	1,492.39	4,553.06	-	-	-	**109.61**		
1,061,280	1,100	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	286,546	187,847	573,091	-	-	-	13,797	296.94	194.66	593.88	-	-	-	**14.30**		
166,000	172	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	44,820	29,382	89,640	-	-	-	2,158	46.45	30.45	92.89	-	-	-	**2.24**		
9,363,760	9,703								2,528,215	1,657,386	5,056,430	-	-		121,729	2,620	1,717	5,240	-	-	-	126.1	-	-
750,000	777	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	202,500	132,750	405,000	-	-	-	9,750	210	138	420				10		
75,000	78	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	20,250	13,275	40,500	-	-	-	975	21	14	42				1		
180,000	187	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	48,600	31,860	97,200	-	-	-	2,340	50	33	101				2		
1,005,000	1,041								**271,350**	**177,885**	**542,700**	-	-		**13,065**	281	184	562		-	-	14	-	-
10,928,760	11,325					-	-		2,950,765	1,934,391	5,901,530	-	-	-	142,074	3,058	2,005	6,116	-	-	-	147	-	-
7,500	8	0.0%	83.4%	16.6%	0.0%					1,245	6,255		-	-			1	6						

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022- June 2023			
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2	Q3	Q4
C13002	Formation and support operationalization of Sub Catchment Committee at Sector level	SPIU-IFAD	IV	sessions	-	27	27	27	27	27	27	108	1,620	43,740	174,960	218,700	0	43,740	43,740	43,740	43,740	43,740
C13003	Training and coaching of catchment management committees	SPIU	IV	number	-	-	-	27	27	27	27	108	100	-	10,800	10,800	0	0	2,700	2,700	2,700	2,700
	Sub-total sub-catchment committees													**45,240**	**191,760**	**237,000**	**-**	**45,240**	**47,940**	**47,940**	**47,940**	**47,940**
C131	**Irrigation infrastructures management committees**																					
C13101	Support cooperatives to establish professional committee in charge of operationalization, management and maintenance of infrastructures	SPIU-IFAD	III	Number	-	-	-	2	4	4	3	13	100	-	1,300	1,300	0	0	200	400	400	300
C13102	Production of training Manual on O&M of irrigation infrastructures (pumped and dam schemes)	SPIU-IFAD	III	lampsum	1.0	-	1		1			1	5,000	5,000	5,000	10,000	5,000	0	0	5,000	0	0
C13103	Layout and printing of O&M and maintenance manuals	SPIU-IFAD	IV	lampsum	1.0	-	1	-	-	85	1	86	12	12	1,032	1,044	12	0	0	0	1,020	12
C13104	Training of infrastructures management committee	SPIU-IFAD	IV	Numbers						33	33	65	25	-	1,625	1,625	0	0	0	0	813	813
C13105	Organization of workshop at district level (infrastructure management committees and other stakeholders)	SPIU-IFAD	IV	Lumpsum							1	1	2,000	-	2,000	2,000	0	0	0	0	0	2,000
C13106	Study tour	SPIU-IFAD	IV	Number							65	65	50	-	3,250	3,250	0	0	0	0	0	3,250
	Sub-total irrigation infrastructure management committees													5,012	14,207	**19,219**	5,012	-	200	5,400	2,233	6,375
	Sub Total 1.3 Infrastructure Management institutions													50,252	205,967	256,219	5,012	45,240	48,140	53,340	50,173	54,315
C14	**sub-component A4: enhancing climate smart agriculture practices and technologies**																					
C140	**Farmer Field School**																					
C14001	Identification and validation of new FFS facilitators (preliminary workshop to estabish EFFS		IV	Sessions	-	1	1	1		-	-	1	5,000	5,000	5,000	10,000	0	5,000	5,000	0	0	0
C14002	Update of existing FFS training modules and translation	SPIU-IFAD	IV	lumpsum	-	-	-	1	-	-	-	1	3,000	-	3,000	3,000	0	0	3,000	0	0	0
C14003	Layout and printing of FFS booklets and leaflets	SPIU-IFAD	IV	number					500			500	8	-	4,000	4,000	0	0	0	4,000	0	0
C14004	FFS facilitators training on its general approach and methodology and CSA and GAP	SPIU-IFAD	IV		-				227			227	10	-	2,270	2,270	0	0	0	2,270	0	0
C14005	On field Study for FFS facilitators	SPIU-IFAD	IV	Sessions				-	-	1,362	1,362	2,724	4	-	10,896	10,896	0	0	0	0	5,448	5,448
C14006	Follow up and technical backstoping of FFS groups	SPIU/RAB	IV	Lumpsum	1	1	2	1	1	1	1	4	15,000	30,000	60,000	90,000	15,000	15,000	15,000	15,000	15,000	15,000
C14007	Study tour for FFS facilitator	SPIU-IFAD	IV	number				-	-	1	1	2	3,000	-	6,000	6,000	0	0	0	0	3,000	3,000
C14008	Bicycles	SPIU-IFAD	I	number							227	227	105	-	23,835	23,835	0	0	0	0	0	23,835
C14009	Recruitement of service provider to roll out PICSA training	SPIU	III	Lumpsum			-		1	-	-	1	25,000	-	25,000	25,000	0	0	0	25,000	0	0
	Sub-total FFS													**35,000**	**140,001**	**175,001**	**15,000**	**20,000**	**23,000**	**46,270**	**23,448**	**47,283**
C141	**Farmers promoters and demonstration plots**																					
C14101	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 cassava FFS in kayonza	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0	500	0	0
C14102	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 maize and beans FFS in kayonza	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0	500	0	0
C14103	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 banana FFS in kayonza	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0	500	0	0
C14104	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 Vegetables FFS in kayonza	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0	500	0	0
C14105	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 Orange sweet potato FFS in kayonza	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0	500	0	0
C14106	FFS training on orchard management	SPIU-RAB	IV	Lumpsum	1	1	2	1	1	1	1	4	1,197	2,394	4,788	7,182	1,197	1,197	1,197	1,197	1,197	1,197
C14107	Refreshment trainings farmer promoters	SPIU	IV	number				153	153			305	10	-	3,050	3,050	0	0	1,525	1,525	0	0
C14108	Exchanges and local visits of farmer promoters	SPIU	IV	sessions			-		3	7	7	17		-	0	0	0	0	0	0	0	0
	Sub-total Farmers promoters and demonstration plots													**2,394**	**10,338**	**12,732**	**1,197**	**1,197**	**2,722**	**5,222**	**1,197**	**1,197**
C142	**Support to sustainable mechanization**						**-**															
C14201	Mechanization technical advser	Lumpsum	III			1	**1**	-	-	-	-	-	40,000	40,000	0	40,000	0	40,000	0	0	0	0
C14202	support reseach and construction of best adapted tools	Lumpsum	III				**-**	1	-			1	16,667	-	16,667	16,667	0	0	16,667	0	0	0
C14203	trainng to youg artisans	sessions	IV				**-**		1			1	26,667	-	26,667	26,667	0	0	0	26,667	0	0
C14204	local exchange and visits	Lumpsum	IV				**-**			1	1	2	3,750	-	7,500	7,500	0	0	0	0	3,750	3,750
C14205	international exchange trainings for local TOT manufacturers	visit	IV				**-**				1	1	3,750	-	3,750	3,750	0	0	0	0	0	3,750
C14206	Training to young service providers	sessions	IV				**-**			1	1	2	20,000	-	40,000	40,000	0	0	0	0	20,000	20,000
	Sub-total support to sustainable mechanization													**40,000**	**94,583**	**134,583**	**-**	**40,000**	**16,667**	**26,667**	**23,750**	**27,500**
C143	**Inputs for farmer's initial support**	SPIU					-					-		-	0	0	0	0	0			
C14301	Acquisition and distribution of orange sweet potato vines	SPIU	I	vines		2,100,000	2,100,000					0	0	31,500	0	31,500	0	31,500	0	0	0	0
C14302	Acquisition and distribution of iron fortified beans seeds	SPIU	I	kg	6,000	-	6,000					-	1	7,200	0	7,200	7,200	0	0	0	0	0
C14303	Acquisition and districbution of kale seed	SPIU	I	HH	300	300	600	200	200	200	200	800	0	240	320	560	120	120	80	80	80	80
C14304	Acquisition and distribution of pumpkin seed	SPIU	I	HH	300	300	600	200	200	200	200	800	1	600	800	1,400	300	300	200	200	200	200
C14305	Acquisition of improved seed	SPIU	I	kg					14,000			14,000	10	-	140,000	140,000	0	0	0	140,000	0	0
C14306	Acquisition of fertilizers	SPIU	I	lumpsum					1			1	45,000	-	45,000	45,000	0	0	0	45,000	0	0
C14307	Acquisition of manual tools for women and most vulnerable	SPIU	I	lumpsum	-	-	-	-	700			700	50	-	35,000	35,000	0	0	0	35,000	0	0
C14308	Preparation and production of fruit seedlings for Kabare, Ihema and Nasho blocks and Home gardens (Avocado, Mango, Papaya, passion fruit)	SPIU	I	number							300,000	300,000	1	-	270,000	270,000	0	0	0	0	0	270,000
	Sub-total inputs for initial support													**39,540**	**221,120**	**530,660**	**7,620**	**31,920**	**280**	**220,280**	**280**	**280**

		% Financing							Financiers RWF '000							Equivalent Financing in USD '000							Comments	
Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/Banks	Benef In-cash)	Benef (In-kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In-cash)	Benef (In kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In cash)	Benef (In Kind)		
218,700	227	0.0%	83.4%	16.6%	0.0%					36,304	182,396		-	-			38	189						
10,800	11	0.0%	83.4%	16.6%	0.0%					1,793	9,007						2	9						
237,000	246					-				**39,342**	**197,658**	-	-	-	-	-	**41**	**205**	-	-	-	-	-	-
1,300	1		83.4%	16.6%						**216**	**1,084**						**0**	**1**						
10,000	10		83.4%	16.6%						**1,660**	**8,340**						**2**	**9**						
1,044	1		83.4%	16.6%						**173**	**871**						**0**	**1**						
1,625	2		83.4%	16.6%						**270**	**1,355**						**0**	**1**						
2,000	2		83.4%	16.6%						**332**	**1,668**						**0**	**2**						
3,250	3		83.4%	16.6%						**540**	**2,711**						**1**	**3**						
19,219	20									3,190	16,029	-	-	-	-	-	3	17	-	-	-	-	-	-
256,219	266	-		-		-	-		-	42,532	213,687	-	-	-	-	-	44	221	-	-	-	-	-	-
10,000	10		84.7%	15.3%						**1,530**	**8,470**						**2**	**9**						
3,000	3		84.7%	15.3%						**459**	**2,541**						**0**	**3**						
4,000	4		84.7%	15.3%						**612**	**3,388**						**1**	**4**						
2,270	2		84.7%	15.3%						**347**	**1,923**						**0**	**2**						
10,896	11		84.7%	15.3%						**1,667**	**9,229**						**2**	**10**						
90,000	93		84.7%	15.3%						**13,770**	**76,230**						**14**	**79**						
6,000	6		84.7%	15.3%						**918**	**5,082**						**1**	**5**						
23,835	25		84.7%	15.3%						**3,647**	**20,188**						**4**	**21**						
25,000	26		84.7%	15.3%						**3,825**	**21,175**						**4**	**22**						
175,001	181								-	**26,775**	**148,226**		-	-		-	**28**	**154**		-	-		-	-
	0																							
500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
7,182	7		84.7%	15.3%						**1,099**	**6,083**						**1**	**6**						
3,050	3		84.7%	15.3%						**467**	**2,583**						**0**	**3**						
-	0		84.7%	15.3%						**0**	**0**						**0**	**0**						
12,732	13						-	-		**1,948**	**10,784**		-	-		-	**2**	**11**		-	-		-	-
40,000	41		84.7%	15.3%						6,120	33,880						6	35						
16,667	17		84.7%	15.3%						2,550	14,117						3	15						
26,667	28		84.7%	15.3%						4,080	22,587						4	23						
7,500	8		84.7%	15.3%						1,148	6,353						1	7						
3,750	4		84.7%	15.3%						574	3,176						1	3						
40,000	41		84.7%	15.3%						6,120	33,880						6	35						
134,583	139									**20,591**	**113,992**	-	-	-	-	-	**21**	**118**						
31,500	33		84.7%	15.3%						4,820	26,681						5	28						
7,200	7		84.7%	15.3%						1,102	6,098						1	6						
560	1		84.7%	15.3%						86	474						0	0						
1,400	1		84.7%	15.3%						214	1,186						0	1						
140,000	145		84.7%	15.3%						21,420	118,580						22	123						
45,000	47		84.7%	15.3%						6,885	38,115						7	39						
35,000	36		84.7%	15.3%						5,355	29,645						6	31						
270,000	280		84.7%	15.3%						41,310	228,690						43	237						
530,660	550									**81,191**	**449,469**	-	-	-	-	-	**84**	**466**						

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022- June 2023			
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2	Q3	Q4
	Sub Total sub-component A4: enhancing climate smart agriculture practices and technologies													**116,934**	**466,042**	**852,976**	**23,817**	**93,117**	**42,669**	**298,439**	**48,675**	**76,260**
C15	**Sub-component A5: Environmental and social management plan**																**0**	**0**	**0**	**0**		
C1501	Implementation of Environment and Social Management Plan (ESMPs) for Nasho irrigation scheme	SPIU/contractor	III	Lumpsum			-				1	1	54,000	-	54,000	54,000	0	0	0	0	0	54,000
C1502	Implementation of Environment and Social Management Plan (ESMPs) for Kibare irrigation scheme	SPIU/contractor	III	Lumpsum							1	1	54,000	-	54,000	54,000	0	0	0	0	0	54,000
C1503	Implementation of Environment and Social Management Plan (ESMPs) for Ihema irrigation scheme	SPIU contractor	III	Lumpsum							1	1	32,000	-	32,000	32,000	0	0	0	0	0	32,000
C1504	Implementation of Environmental management plan linked with other project activities	SPIU	III	Lumpsum				0	1	1	1	3	4,000	-	12,000	12,000	0	0	0	4,000	4,000	4,000
	Sub-total Environmental and social management plan													**-**	**152,000**	**152,000**	**0**	**0**	**0**	**4,000**	**4,000**	**144,000**
	Sub-Total Component 1:Strengthening resilience to droughts													**1,457,082**	**14,282,958**	**16,010,041**	**210,829**	**1,246,753**	**3,171,499**	**4,090,865**	**3,291,434**	**3,729,161**
C2	**Component 2: Support to Farm Business Development**																					
C20	**I. Investment cost**																					
C21	Sub-component B1: Developing Farming as business skills (FaaB)																					
C210	**Capacity building of cooperatives**																					
C21001	Recruitment of service provider to build capacity of farmers'cooperatives on Global GAP certification	SPIU/SP	III	Lumpsum	1	0	1	0	1	0	1	2	15,000	15,000	30,000	45,000	15,000	0	0	15,000	0	15,000
C21002	Refreshment allowance for farmers during training on GAP standards	SPI	V	numbers	91	0	91	0	91	0	91	182	25	2,275	4,550	6,825	2,275	0	0	2,275	0	2,275
C21003	Monitoring and follow-up the activity of capacity building of farmers on GAP standards	SPIU/NAEB	III	Lumpsum	91	0	91	1	1	1	1	4	20,000	1,820,000	80,000	1,900,000	1,820,000	0	20,000	20,000	20,000	20,000
C21004	Training and coaching of existing cooperatives on cooperative organization and management	SPIU/Service provider	IV	numbers					10	20	20	50	2,600	-	130,000	130,000	0	0	0	26,000	52,000	52,000
C21005	Exchange visits / study tours for cooperative leaders	SPIU	IV	sessions				1		1		2	5,000	-	10,000	10,000	0	0	5,000	0	5,000	0
	Sub-total Capacity building of cooperatives													**1,837,275**	**254,550**	**2,091,825**	**1,837,275**	**-**	**25,000**	**63,275**	**77,000**	**89,275**
C211	**Business development service**																					
C21101	Preparation of Business Plans	SPIU/Service provider	III	numbers							1	1	2,760	-	2,760	2,760	0	0	0	0	0	2,760
C21102	Recruitment of TA for preparing of Farming as a Business (Faab) curriculum	SPIU/ICCO	III	Lumpsum							1	1	13,000	-	13,000	13,000	0	0	0	0	0	13,000
C21103	Recruitment of BDSPs services for capacity building on FaaB, integrated to FFS sessions	SPIU/ICCO	III	Lumpsum						1		1	150,000	-	150,000	150,000	0	0	0	0	150,000	0
C21104	Farmers refreshment during training of farmers on FAAB skills	SPIU	V	numbers						300	300	600	25	-	15,000	15,000	0	0	0	0	7,500	7,500
	Sub-total busness development services													**-**	**180,760**	**180,760**	**-**	**-**	**-**	**-**	**157,500**	**23,260**
	Sub-total Developing Farming as business skills (FaaB)													1,837,275	435,310	2,272,585	1,837,275	-	25,000	63,275	234,500	112,535
C22	**Promotion of mechanization, post-harvest storage and irrigation kits**																					
C2201	Small Equipment Investments for individual men (>30)	SPIU	I						5	10	5	20	5,000	-	100,000	100,000	0	0	0	25,000	50,000	25,000
C2202	Small Equipment Investments for individual women & youth (<30)	SPIU	I						5	10	5	20	5,000	-	100,000	100,000	0	0	0	25,000	50,000	25,000
C2203	Cooperative microprojects on post-harvest management facilities	SPIU	I							4	2	6	30,000	-	180,000	180,000	0	0	0	0	120,000	60,000
C2204	BDF grant management fee (about 7.35 % of total grants)	SPIU	VI						1			1	25,500	-	25,500	25,500	0	0	0	25,500	0	0
	Sub-total Promotion of mechanization, post-harvest storage and irrigation kits													**-**	405,500	405,500	**-**	**-**	**-**	75,500	220,000	110,000
C23	**Supporting backward and forward market linkage**																					
C230	**Market Access**																					
C23001	Conduct pre-season meetings for cooperatives	SPIU	IV	sessions	1		1		1	1		2	2,000	2,000	4,000	6,000	2,000	0	0	2,000	2,000	0
C23002	Supporting farmers to participate in in fairs/ shows	SPIU	IV	sessions		1	1				1	1	2,000	2,000	2,000	4,000	0	2,000	0	0	0	2,000
C23003	Supporting farmers cooperatives in signing contracts	SPIU	IV	number		1	1		1	1		2	2,000	2,000	4,000	6,000	0	2,000	0	2,000	2,000	0
	Sub total market access													**6,000**	**10,000**	**16,000**	**2,000**	**4,000**	**-**	**4,000**	**4,000**	**2,000**
C231	**Facilitating Public Private Producers Partnerships**																					
C23101	Conduct workshop among different actors in value chain/value chain p	SPIU	IV	sessions		1	1		1		1	2	2,000	2,000	4,000	6,000	0	2,000	0	2,000	0	2,000
	Sub total faciliting 4Ps													**2,000**	**4,000**	**6,000**	**-**	**2,000**	**-**	**2,000**	**-**	**2,000**
C232	**Access to Finance**													-	0							
C23201	Recruitment of TA for development of tailored agrifinance products for PFIs (SACCO, MFIs)	ICCO	III	lumpsum		1	1						10,400	10,400	0	10,400	0	10,400	0	0	0	0
C23202	recruitment of service provider to conduct financial literacy training among farmers cooperatives and facilitate PFIs to access credit line	ICCO	III	lumpsum		1	1						8,667	8,667	0	8,667	0	8,667	0	0	0	0
C23203	Recruitment of SP to support access to agricultural insurance among KIIWP beneficiaries as well as training of NAIS stakehilders	SPIU	III	lumpsum						1		1	300,000	-	300,000	300,000	0	0	0	0	300,000	0
	Sub-total access to finance													**19,067**	**300,000**	**319,067**	**-**	**19,067**	**-**	**-**	**300,000**	**-**
	Sub-Total sub-component C3 : Supporting backward and forward market linkage													**27,067**	**314,000**	**341,067**	**2,000**	**25,067**	**-**	**6,000**	**304,000**	**4,000**
	Sub-Total Component 2													**1,864,342**	**1,154,810**	**3,019,152**	**1,839,275**	**25,067**	**25,000**	**144,775**	**758,500**	**226,535**
C3	**Comp 3:Institutional development and project coordination**																					
C31	**Sub-component 3.1: Policy and insitutional development**																					
C310	**A.Policy support and implementation**																					
	I. Study																					

		% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/Banks	Benef In-cash)	Benef (In-kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In-cash)	Benef (In kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In cash)	Benef (In Kind)	Comments	
852,976	**884**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**130,505**	**722,471**	**-**	**-**	**-**	**-**	**-**	**135**	**749**	**-**	**-**	**-**	**-**	**-**	**-**
54,000	56		52.6%	47.4%						**25,596**	**28,404**						**27**	**29**						
54,000	56		84.7%	15.3%						**8,262**	**45,738**						**9**	**47**						
32,000	33		84.7%	15.3%						**4,896**	**27,104**						**5**	**28**						
12,000	12		84.7%	15.3%						**1,836**	**10,164**						**2**	**11**						
152,000	158									**40,590**	**111,410**	**0**	**0**	**0**	**0**	**0**	**42**	**115**						
16,010,541	**16,591**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3,092,127**	**2,835,724**	**9,879,487**	**-**	**-**	**-**	**203,203**	**3,204**	**2,939**	**10,238**	**-**	**-**	**-**	**211**	**-**	**-**
45,000	47	72.3%		2.4%	25.3%				32,535	1,080		**11,385**				**34**	**1**		**12**					
6,825	7	72.3%		2.4%	25.3%				4,934	164		**1,727**				**5**	**0**		**2**					
1,900,000	1,969	72.3%		2.4%	25.3%				1,373,700	45,600		**480,700**				**1,424**	**47**		**498**					
130,000	135	72.3%		2.4%	25.3%				93,990	3,120		**32,890**				**97**	**3**		**34**					
10,000	10	72.3%		2.4%	25.3%				7,230	240		**2,530**				**7**	**0**		**3**					
2,091,825	2,168								1,512,389	50,204		529,232	-	-	-	1,567	52	-	548	-				
2,760	3	72.3%		2.4%	25.3%				1,995	66		698				2	0		1					
13,000	13	72.3%		2.4%	25.3%				9,399	312		3,289				10	0		3					
150,000	155	72.3%		2.4%	25.3%				108,450	3,600		37,950				112	4		39					
15,000	16	72.3%		2.4%	25.3%				10,845	360		3,795				11	0		4					
180,760	187								**130,689**	**4,338**	-	**45,732**	-	-	-	**135**	**4**	-	**47**	-	-	-	-	-
2,272,585	2,355								1,643,079	54,542	-	574,964	-	-	-	1,703	57	-	596	-	-	-	-	-
	0																							
100,000	104	55.2%				8.3%	36.5%		55,200				8,300	36,500		57				9	38			
100,000	104	55.2%				8.3%	36.5%		55,200				8,300	36,500		57				9	38			
180,000	187	55.2%		0.0%		8.3%	36.5%		99,360	-			14,940	65,700		103	-			15	68		-	-
25,500	26	55.2%				8.3%	36.5%		14,076				2,117	9,308		15				2	10			
405,500	420		-	-	-			-	223,836	-	-	-	33,657	148,008	-	232	-	-	-	35	153	-	-	-
6,000	6	83.7%		6.5%	9.8%				5,022	390		588				5	0		1					
4,000	4	83.7%		6.5%	9.8%				3,348	260		392	-	-		3	0		0	-	-		-	-
6,000	6	83.7%		6.5%	9.8%				5,022	390		588				5	0		1					
16,000	17								**13,392**	**1,040**	-	**1,568**	-	-	-	14	1	-	2	-	-	-	-	-
																								-
6,000	6	83.7%		6.5%	9.8%				5,022	390		588				5	0		1					
6,000	6								**5,022**	**390**	-	**588**	-	-	-	5	0	-	1	-	-	-	-	-
10,400	11	83.7%		6.5%	9.8%				8,705	676		1,019				9	1		1					
8,667	9	83.7%		6.5%	9.8%				7,254	563		849				8	1		1					
300,000	311	83.7%		6.5%	9.8%				251,100	19,500		29,400				260	20		30					
319,067	**331**					-	-	-	**267,059**	**20,739**	-	**31,269**	-	-	-	**277**	**21**	-	**32**	-	-	-	-	-
341,067	**353**	-	-	-	-	-	-	-	**285,473**	**22,169**	-	**33,425**	-	-	-	**296**	**23**	-	**35**	-	-	-	-	-
3,019,152	**3,129**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,152,388**	**76,711**	**-**	**608,389**	**33,657**	**148,008**	**-**	**2,230**	**79**	**-**	**630**	**35**	**153**	**-**	**-**	**-**

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022- June 2023			
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2	Q3	Q4
C31001	Start-up workshop		IV		1		1						25,000	25,000	0	25,000	25,000	0	0	0	0	0
C31004	Policy assesment and regulation studies /a		III								1	1	80,000	-	80,000	80,000	0	0	0	0	0	80,000
C31006	Nutrition studies for baseline (MDD-W)		III							1		1	25,000	-	25,000	25,000	0	0	0	0	25,000	0
	Subtotal													**25,000**	**105,000**	**130,000**	**25,000**	**-**	**-**	**-**	**25,000**	**80,000**
C311	**II. Support to multistakeholder dialogue**																					
C31101	Forums and workshops for policy dialogue	Lumpsum	IV			1	1		1	1	1	3	5,000	5,000	15,000	20,000	0	5,000	0	5,000	5,000	5,000
C31103	Support dialogue and advocacy for Cooperatives unions of Kayonza and National level Federations /d		IV					1	1	1	1	4	5,000	-	20,000	20,000	0	0	5,000	5,000	5,000	5,000
C31104	Support dialogue and advocacy for WUO and WLUO		IV			1	1	1			1	2	5,000	5,000	10,000	15,000	0	5,000	5,000	0	0	5,000
C31105	Gender learning and sharing events (multi stakeholder coordination)		IV						1			1	2,800	-	2,800	2,800	0	0	0	2,800	0	0
C31106	Nutrition multi stakeholder coordination		IV					1			1	2	1,400	-	2,800	2,800	0	0	1,400	0	0	1,400
	Subtotal													**10,000**	**50,600**	**60,600**	**-**	**10,000**	**11,400**	**12,800**	**10,000**	**16,400**
	Subtotal Sub-component 3.1: Policy and institutional development						**-**					**-**		35,000	155,600	190,600	25,000	10,000	11,400	12,800	35,000	96,400
C32	**Sub-component 3.2: Project management and coordination**											**-**										
C3201	Office equipment and furniture	SPIU-IFAD	I	Lumpsum			-		1			1	10,000	-	10,000	10,000	0	0	0	10,000	0	0
C3202	Outcome survey	SPIU-IFAD	III	Number		0	-		1			1	40,000	-	40,000	40,000	0	0	0	40,000	0	0
C3203	Knowledge Management	SPIU-IFAD	III	Lumpsum		1	1		1	1	1	3	10,000	10,000	30,000	40,000	0	10,000	0	10,000	10,000	10,000
C3204	Capacity building of SPIU Staff	SPIU-IFAD	IV	Lumpsum		1	1	1	1	1	1	4	10,000	10,000	40,000	50,000	0	10,000	10,000	10,000	10,000	10,000
C3205	Promotion materials	SPIU-IFAD	I	Lumpsum		2	2		1	1	1	3	2,000	4,000	6,000	10,000	0	4,000	0	2,000	2,000	2,000
C3206	Preparation and validation of ToRs for different studies	SPIU-IFAD	III	Lumpsum	1		1					-	5,196	5,196	0	5,196	5,196	0	0	0	0	0
	Sub-total Investment cost						**-**					**-**		**29,196**	**126,000**	**155,196**	**5,196**	**24,000**	**10,000**	**72,000**	**22,000**	**22,000**
C321	**Recurrent Costs**																0	0	0	0		
C3210	**Salaries and Allowancies**																0	0	0	0		
	A.New staff																0	0	0	0		
	1.Central Level																0	0	0	0		
C321001	Operations Manager	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2,216	13,294	26,588	39,882	6,647	6,647	6,647	6,647	6,647	6,647
C321002	Irrigation Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321003	Climate and Environment Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321004	Civil Engineering Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321005	Cooperative Development Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321006	Social Safeguard and Compliance Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321007	Access to Finance Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321008	Accountant	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321009	Procurement Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321010	M/E Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321011	Drivers	SPIU-IFAD	V	Pers.month	12	12	24	12	12	12	12	48	312	7,493	14,986	22,478	3,746	3,746	3,746	3,746	3,746	3,746
	Subtotal													**111,008**	**222,016**	**333,024**	**55,504**	**55,504**	**55,504**	**55,504**	**55,504**	**55,504**
	2.District Level																0	0	0	0	0	0
C321012	Watershed Management Officer	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321013	Value Chain Development/Agribusiness Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321014	Electromechanical Engineering	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321015	Senior Agronomist and FFS Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321016	Land Husbandry Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321017	Accountant for KIIWP transaction at District	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321018	Irrigation Technicians /a	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321019	Water Users' Association Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321020	Horticulture Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
C321021	Social Inclusion, Gender and Youth Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345
	Subtotal													**100,912**	**201,824**	**302,735**	**50,456**	**50,456**	**50,456**	**50,456**	**50,456**	**50,456**
	B.Shared SPIU Staff																0	0	0	0	0	0
C321022	SPIU Coordinator	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2614	15,684	31,368	47,052	7,842	7,842	7,842	7,842	7,842	7,842
C321023	Head of Procurement	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2216	13,294	26,588	39,882	6,647	6,647	6,647	6,647	6,647	6,647
C321024	Head of MIS	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2216	13,294	26,588	39,882	6,647	6,647	6,647	6,647	6,647	6,647
C321025	Chief Accountant	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1782	10,691	21,381	32,072	5,345	5,345	5,345	5,345	5,345	5,345

		% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/Banks	Benef In-cash)	Benef (In-kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In-cash)	Benef (In kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In cash)	Benef (In Kind)	Comments	
25,000	26	89.5%		10.5%					22,375	2,625						23.19	2.72							
80,000	83	89.5%		10.5%					71,600	8,400						74.20	8.70							
25,000	26	89.5%		10.5%					22,375	2,625						23.19	2.72							
130,000	**135**						-	-	**116,350**	**13,650**	-	-	-	-	-	**120.6**	**14.1**	-	-	-	-	-	-	-
20,000	21	89.5%		10.5%					17,900	2,100						19	2							
20,000	21	89.5%		10.5%					17,900	2,100						19	2							
15,000	16	89.5%		10.5%					13,425	1,575						14	2							
2,800	3	89.5%		10.5%					2,506	294						3	0							
2,800	3	89.5%		10.5%					2,506	294						3	0							
60,600	**63**					-	-	-	**54,237**	**6,363**	-	-	-	-	-	**56**	**7**	-	-	-	-	-	-	-
190,600	198	-	-	-	-	-	-	-	170,587	20,013	-	-	-	-	-	177	21	-	-	-	-	-	-	-
10,000	10	89.5%		10.5%					8,950	1,050						9								
40,000	41	89.5%		10.5%					35,800	4,200						37								
40,000	41	89.5%		10.5%					35,800	4,200						37								
50,000	52	89.5%		10.5%					44,750	5,250						46								
10,000	10	89.5%		10.5%					8,950	1,050						9								
5,196	5	89.5%		10.5%					4,651	546						5								
155,196	**358**					-	-	-	**138,901**	**16,296**	-	-	-	-	-	**321**		-	-	-	-	-	-	-
39,882	41	100%							39,882							41								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
26,077	27	100%							26,077							27								
26,077	27	100%							26,077							27								
26,077	27	100%							26,077							27								
22,478	23	100%							22,478							23								
333,024	345								**333,024**	-	-	-	-	-	-	345	-	-	-	-	-	-	-	-
-																								
26,077	27	100%							26,077							27								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
26,077	27	100%							26,077							27								
26,077	27	100%							26,077							27								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
32,072	33	100%							32,072							33								
302,735	**314**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**302,735**	**0**	**0**	**0**	**0**	**0**	**0**	**314**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
-																								
47,052	49	100%							47,052															
39,882	41	100%							39,882							41								
39,882	41	100%							39,882							41								
32,072	33	100%							32,072							33								

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022- June 2023			
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2	Q3	Q4
C321026	Administrative and logistic Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321027	Internal Auditor	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1449	8,692	17,385	26,077	4,346	4,346	4,346	4,346	4,346	4,346
C321028	ICT and data officer	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1162	6,972	13,944	20,916	3,486	3,486	3,486	3,486	3,486	3,486
C321029	Administrative Assistant	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	623	3,739	7,478	11,217	1,869	1,869	1,869	1,869	1,869	1,869
C321030	Messenger	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	126	759	1,517	2,276	379	379	379	379	379	379
	Subtotal													**81,817**	**163,634**	**245,451**	**40,909**	**40,909**	**40,909**	**40,909**	**40,909**	**40,909**
	Sub-total Salaries and Allowances													**293,737**	**587,474**	**881,210**	**146,868**	**146,868**	**146,868**	**146,868**	**146,868**	**146,868**
C3202	**Operational costs**																					
C320201	Field visit of KIIWP activities	SPIU-IFAD	V	Months	3	3	6	3	3	3	3	12	2,000	12,000	24,000	36,000	6,000	6,000	6,000	6,000	6,000	6,000
C320202	Communication fees	SPIU-IFAD	V	Lumpsum	3	3	6	3	3	3	3	12	1,875	11,250	22,500	33,750	5,625	5,625	5,625	5,625	5,625	5,625
C320203	Office supply / consumable	SPIU-IFAD	I	Lumpsum	1	1	2	1	1	1	1	4	5,000	10,000	20,000	30,000	5,000	5,000	5,000	5,000	5,000	5,000
C320204	Announcements and advertisements	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	300	1,800	3,600	5,400	900	900	900	900	900	900
C320205	Hiring a vehicle for field visits	SPIU-IFAD	I	Lumpsum	3	3	6	3	3	3	3	12	984	5,904	11,808	17,712	2,952	2,952	2,952	2,952	2,952	2,952
C320206	Codification of KIIWP equipments	SPIU-IFAD	III	Lumpsum			-		1			1	2,000	-	2,000	2,000	0	0	0	2,000	0	0
C320207	Steering/technical comittee meetings	SPIU-IFAD	VI	Number		1	1	1	1		1	3	250	250	750	1,000	0	250	250	250	0	250
C320208	Allowances for procurement tender committee	SPIU-IFAD	V	Number	3	3	6	3	3	3	3	12	195	1,170	2,340	3,510	585	585	585	585	585	585
C320209	Advertisement and TV talk show's	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	300	1,800	3,600	5,400	900	900	900	900	900	900
C320210	Participation in Agrishow	SPIU-IFAD	IV	Lumpsum			-				1	1	20,000	-	20,000	20,000	0	0	0	0	0	20,000
C320211	Courier dispatching services	SPIU-IFAD	III	Number	3	3	6	3	3	3	3	12	100	600	1,200	1,800	300	300	300	300	300	300
C320212	Refreshment service (different meetings& workshops)	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	1,000	6,000	12,000	18,000	3,000	3,000	3,000	3,000	3,000	3,000
C320213	Computer accessoires	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	500	3,000	6,000	9,000	1,500	1,500	1,500	1,500	1,500	1,500
C320214	Vehicle hire for office administration transport services in Kigali City	SPIU-IFAD	III	Lumpsum	3	3	6	1	1	1	1	4	2,294	13,761	9,174	22,935	6,881	6,881	2,294	2,294	2,294	2,294
C320215	Car wash cleaning services	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	240	1,440	2,880	4,320	720	720	720	720	720	720
C320216	Sport for SPIU Personnel	SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	490	980	1,960	2,940	490	490	490	490	490	490
C320217	Cleaning service fees	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	911	5,466	10,932	16,398	2,733	2,733	2,733	2,733	2,733	2,733
	Subtotal Operational costs						-					-		**75,421**	**154,744**	**230,165**	**17,109**	**17,359**	**12,772**	**12,772**	**12,522**	**32,772**
C3203	**Institution Support**						-					-		-	0							
C320301	Institutional Support to MINAGRI to perform the ministerial supervisory role on the project	MINAGRI/SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	20,000	40,000	80,000	120,000	20,000	20,000	20,000	20,000	20,000	20,000
C320302	Suppot to MINAGRI to the operationalization of MINAGRI Knowledge Manamagent & communication Strategy	MINAGRI/SPU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	10,000	20,000	40,000	60,000	10,000	10,000	10,000	10,000	10,000	10,000
C320303	Institutional Support to RAB	RAB/SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	20,000	40,000	80,000	120,000	20,000	20,000	20,000	20,000	20,000	20,000
C320304	Support RAB in Agrishow	RAB	III	Lumpsum	1	1	2				1	1	30,000	60,000	30,000	90,000	30,000	30,000	0	0	0	30,000
C320305	Coomunication fees for RAB Focal Point following MoU between RAB and SPIU	RAB	III	Lumpsum	1	1	2	3	3	3	3	12	50	100	600	700	50	50	150	150	150	150
	Subtotal Institution Support						-					-		**160,100**	**230,600**	**390,700**	**80,050**	**80,050**	**160,100**	**50,150**	**50,150**	**100,300**
C3204	**Vehicles operation & Maintenance**						-					-		-	0	0	0	0	0	0	0	
C320401	Insurance for 4 WD Twin Cab pickups	SPIU-IFAD	I	Number			-	4				4	2,048	-	8,192	8,192	0	0	8,192	0	0	0
C320402	Fuel for 4 WD Twin Cab pickups	SPIU-IFAD	I	Lumpsum	4	4	8	4	4	4	4	16	400	3,200	6,400	9,600	1,600	1,600	1,600	1,600	1,600	1,600
C320403	Maintenance fees for 4 WD Twin Cab pickups	SPIU-IFAD	I	Number	4	4	8	4	4	4	4	16	800	6,400	12,800	19,200	3,200	3,200	3,200	3,200	3,200	3,200
C320404	Tyre purchasing	SPIU-IFAD	I	Number			-		4	12		16	250	-	4,000	4,000	0	0	0	1,000	3,000	0
	Subtotal Vehicle Operation & Maintenance						-					-		9,600	31,392	**40,992**	4,800	4,800	12,992	5,800	7,800	4,800
C3205	**Bank charges and commission**						-					-		-	0	0	0	0	0	0	0	0
C320501	Bank charges	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	92	184	369	553	92	92	92	92	92	92
C320502	Purchase of Cheque and Op books	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	26	51	102	153	26	26	26	26	26	26
C320503	Bank statement fees	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	12	23	46	69	12	12	12	12	12	12
C320504	Money transfer fees	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	250	500	1,000	1,500	250	250	250	250	250	250
C320505	Loss on currency exchange and translations	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	7,290	14,581	29,161	43,742	7,290	7,290	7,290	7,290	7,290	7,290
C320506	Demonetization Expenses	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4		-	0	0	0	0	0	0	0	0
C320507	Other commissions	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	250	500	1,000	1,500	250	250	250	250	250	250
	Subtotal						-					-		**9,600**	**94,462**	**47,517**	**17,519**	**17,519**	**33,903**	**19,519**	**23,519**	**17,519**
	Subtotal Reccurent cost						-							19,200	125,854	88,509	22,319	22,319	46,895	25,319	31,319	22,319
	Subtotal Sub-component 3.2: Project management and coordination						-					-		577,654	1,224,671	1,745,780	271,543	290,596	376,635	307,109	262,859	324,259
	Total Component 3: Institutional Development and Project Coordination						-					-		612,654	1,380,271	1,936,380	296,543	300,596	388,035	319,909	297,859	420,659
C33	Emergency Fund																					
	Total Project Costs													**3,934,077.99**	**16,818,039.94**	**20,965,572.88**	**2,346,646.52**	**1,572,416.41**	**3,584,534.03**	**4,555,549.41**	**4,347,793.25**	**4,376,355.25**
	Total Project Costs in USD						-					-		**4,076,765**	**17,428,021**	**21,725,982**	**2,431,758**	**1,629,447**	**3,714,543**	**4,720,777**	**4,505,485**	**4,535,083**

		% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/Banks	Benef In-cash)	Benef (In-kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In-cash)	Benef (In kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In cash)	Benef (In Kind)	Comments	
26,077	27	100%							26,077							27								
26,077	27	100%							26,077							27								
20,916	22	100%							20,916	-			-	-		22								
11,217	12	100%							11,217							12								
2,276	2	100%							2,276							2								
245,451	**254**		**0**	**0**	**0**	**0**	**0**	**0**	**245,451**	**0**	**0**	**0**	**0**	**0**	**0**	**206**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
881,210	**913**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**881,210**	**0**	**0**	**0**	**0**	**0**	**0**	**864**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
36,000	37	100%							36,000	-						37								
33,750	35	100%							33,750	-						35								
30,000	31	82%		18%					24,600	5,400						25								
5,400	6	82%		18%					4,428	972						5								
17,712	18	82%		18%					14,524	3,188						15								
2,000	2	82%		18%					1,640	360						2								
1,000	1	100%							1,000	-						1								
3,510	4	100%							3,510	-						4								
5,400	6	82%		18%					4,428	972						5								
20,000	21	100%							20,000	-						21								
1,800	2	82%		18%					1,476	324						2								
18,000	19	82%		18%					14,760	3,240						15								
9,000	9	82%		18%					7,380	1,620						8								
22,935	24	82%		18%					18,807	4,128						19								
4,320	4	82%		18%					3,542	778						4								
2,940	3	82%		18%					2,411	529						2								
16,398	17	82%		18%					13,446	2,952						14								
230,165	**109**		**-**		**-**	**-**	**-**	**-**	**205,702**	**24,463**	**-**	**-**	**-**	**-**	**-**	**94**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
120,000	124	100%							120,000	-						124								
60,000	62	100%							60,000	-						62								
120,000	124	100%							120,000	-						124								
90,000	93	100%							90,000	-						93								
700	0.7	100%							700	-						1								
390,700	405								**390,700**	**0**			**0**	**0**		**405**	**0**			**0**	**0**			
8,192	8	82%		18%					6,717	1,474.56						7								
9,600	10	82%		18%					7,872	1,728						8								
19,200	20	82%		18%					15,744	3,456						16								
4,000	4	82%		18%					3,280	720						3								
40,992	42								**33,613**	**7,379**			**0**	**0**		**35**	**0**			**0**	**0**			
-	0																							
553	1	100%							553							1								
153	0	100%							153							0								
69	0	100%							69							0								
1,500	2	100%							1,500							2								
43,742	45	100%							43,742							45								
-	0	100%							-							-								
1,500	2	100%							1,500							2								
47,517	49								**47,517**	**0**			**0**	**0**		**49**	**0**			**0**	**0**			
88,509	92	-	-	-	-	-	-	-	81,130	7,379	-	-	-	-	-	84	-	-	-	-	-	-	-	-
1,745,780	1,877		-	-	-	-	-	-	1,697,643	48,137	-	-	-	-	-	1,768	-	-	-	-	-	-	-	-
1,936,380	2,075		-	-	-	-	-	-	1,868,230	68,150	-	-	-	-	-	1,945	21	-	-	-	-	-	-	-
		40%	**60%**													**1,773**	**0**			**0**	**0**			
20,966,072.88	21,727																							
21,726,500	22,515																							

KIIWP II ACTION PLAN AND BUDGET for 18 Months' Period from January 2022 to June 2023 Component by Financier

Components	IFAD Loan	GOR	Private/Banks	GOS	GOR	ICCO	Private/Banks	Benef (In-cash)	Benef (In kind	Total	%
Component 1 :Catchment Rehabilitation and Protection											
Sub–component 1.1 – Catchment Rehabilitation and Protection	141,362			2,930,389	687,705				61,129.37	3,820,585.52	**18**
Sub–component 1.2 – Irrigation Development	2,950,765			5,901,530	1,934,391				142,073.88	10,928,760.00	**52**
Sub–component 1.3 – Infrastructure management institutions	0			213,687	**42,532**					256,219.00	**1**
sub-component A4: enhancing climate smart agriculture practices and technologies				722,471	**130,505**					852,976.33	**4**
Sub–component 1.45– Environmental and Social Management Plans				111,410	**40,590**					152,000.00	**1**
Component 2: Support to Farm Business Development										0.00	**0**
Sub-component B1: Developing Farming as business skills (FaaB)	1,643,079				54,542	574,964				2,272,585.00	**11**
Sub-component 2.2 –Promotion of mechanization, post-harvest storage and irrigation technologies	223,836						33,657	148,008		405,500.00	**2**
Sub-component 2.3 – Supporting backward and forward market linkages	285,473				22,169	33,425				341,066.67	**2**
Component 3: Institutional development and project coordination										0.00	**0**
Sub Component 3.1 –.Support to policy dialogue and enabling institutional environment	170,587			20,013						190,600.00	**1**
Sub Component 3.2 –Project management and coordination	1,697,643			48,137						1,745,780.36	**8**
Total Project Costs (0000 Frw)	**7,112,745**	**0**	**0**	**9,947,637**	**2,912,435**	**608,389**	**33,657**	**148,008**	**203,203**	**20,966,072.88**	**100**
Total Project Costs (000 USD)	**7,371**	**0**	**0**	**10,308**	**3,018**	**630**	**35**	**153**	**211**	**21,726.50**	

KIIWP II ACTION PLAN AND BUDGET for 18 Months' Period from January 2022 to June 2023 Component by Financier

Component I: Strengthening resilience to droughts

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		F
								Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1
C1	**COMPONENT I : Strengthening resilience to droughts**																					
C10	**I. Investment Costs**																					
C11	**S/Comp 1 :Catchment Rehabilitation and Protection**																					
C110	**Awareness compain and capacity building**																					
C11001	Mobilization of local authorities, opinion leaders, farmers and local financial institutions	SPIU-IFAD	IV	Lumpsum	SPIU-IFAD	IV	Lumpsum	1	1	2	1	1	1	1	4	2,000	4,000	8,000	12,000	2,000	2,000	2,000
C11002	Mobilization and training of farmers on land husbandry guidelines specific to each agro climatic zone	SPIU-IFAD	IV	Farmers	SPIU-IFAD	IV	Farmers	-	100	100	100	100	100	100	400	25	2,500	10,000	12,500	0	2,500	2,500
C11003	Community training in land husbandry technology implementation	SPIU-IFAD	IV	Farmers	SPIU-IFAD	IV	Farmers	-	-	-	-	250	250	-	500	100	-	50,000	50,000	0	0	0
C11004	Refresher course on land husbandry for service provider technicians	SPIU-IFAD	IV	Number	SPIU-IFAD	IV	Number	-	25	-	25	25	-	-	50	20	-	1,000	1,000	0	500	500
	Subtotal awarness comapign and training																**6,500**	**69,000**	**75,500**	**2,000**	**5,000**	**5,000**
C111	**Establishment of land husbandry techniques**																					
C11101	Establishment of land husbandry techniques including agroforestry trees in Ndego and Kabare sectors	SPIU-IFAD	II	Ha	SPIU-IFAD	II	Ha	-	200	200	-	200	200	200	600	1,867	373,396	1,120,189	1,493,586	0	373,396	0
C11102	Acquisition of inputs (lime,Organic manure)	SPIU-IFAD	I	tone	SPIU-IFAD	I	tone	-	2,500	2,500	-	2,500	2,500	2,500	7,500	50	125,000	375,000	500,000	0	125,000	0
	Subtotal land husbandry techniques									2,700					-		498,396	1,495,189	1,993,586	0	498,396	0
C112	**Upstream protection for main irrigation infrastructures (Reforestation)**																					
C11201	Preparation and production of seedlings (callistris robusta, Pinus patula, Eucalyptus varieties, etc)	SPIU-IFAD	III	seedlings	SPIU-IFAD	III	seedlings	-	2,000,000	2,000,000	-	-	-	3,000,000	3,000,000	0.05	90,000	135,000	225,000	0	90,000	0
C11202	Plantation of forest trees		III	ha		III	ha	-	-	-	-	800	-	-	800	495	-	396,000	396,000	0	0	0
C11203	Technical support in quality ensurance for tree seedlings/ICRAF	SPIU/ICR	III	Lumpsum	SPIU/ICR	III	Lumpsum	-	-	-	1	-	-	-	1	30,000	-	30,000	30,000	0	0	30,000
	Sub-Total upstream protection																**90,000**	**561,000**	**651,000**	**-**	**90,000**	**30,000**
C113	**Implentation of watershed management plans**																					
C11301	Operationalization of Community competition grants for Natural Resources Management	SPIU-IFAD	I	number	SPIU-IFAD	I	number	-	5	5	2	5	5	3	15	5,000	25,000	75,000	100,000	0	25,000	10,000
	Sub-total Implentation of watershed management plans									-					-		25,000	75,000	100,000	-	25,000	10,000
C114	**Horticulture farming**																					
C11401	Management and maintenance of 900 ha of fruit orchard in Murama and Kabaro Sectors	SPIU-IFAD	III	Lumpsum	SPIU-IFAD	III	Lumpsum	1	1	2	1	1	-	-	2	150,000	300,000	300,000	600,000	150,000	150,000	150,000
C11402	Follow up the sustainability of 900 ha of fruit orchard in Murama and Kabaro Sectors	SPIU-IFAD	III	Lumpsum	SPIU-IFAD	III	Lumpsum	-	-	-	1	1	1	1	4	100,000	-	400,000	400,000	0	0	100,000
	Subtotal of Hort farming																300,000	700,000	1,000,000	150,000	150,000	250,000
	Total Sub-comp 1.1 : Catchment Rehabilitation and Protection																919,896.38	2,900,189.14	3,820,085.52	#########	##########	##########
C12	**Sub–component 1.2: Irrigation Development**																					
C120	**Detailed Design for projects with Feasibility Studies (FS) completed in KIIWPI**																					
C12001	Undertake Detailed design for Kanyeganyege dam and irrigation system (150ha)	SPIU-IFAD	III	Lumpsum	SPIU-IFAD	III	Lumpsum	-	1	1	-	-	-	-	-	60,000	60,000	0	60,000	0	60,000	0
C12002	Detailed design for pipeline 5000 ha net Command Area in Eastern Province of Rwanda	SPIU-IFAD	III	Lumpsum	SPIU-IFAD	III	Lumpsum	-	1	1	1	-	-	-	1	500,000	250,000	250,000	500,000	0	250,000	250,000
	SUB-Total detailed design study																310,000	250,000	560,000	0	310,000	250,000
C121	**Infrastructure development**																					
C12101	Civil works for bulk Irrigation Infrastructure in Kibare, Ihema and Nasho	SPIU-IFAD	II	Lumpsum	SPIU-IFAD	II	Lumpsum	-	-	-	0.5	0.5	0.5	0.5	2	#########	-	8,136,480	8,136,480	0	0	2,034,120
C12102	In-field irrigation installation in Kibare, Ihema and Nasho	SPIU-IFAD	II	Lumpsum	SPIU-IFAD	II	Lumpsum	-	-	-	0.5	0.5	0.5	0.5	2	2,653,200	-	1,061,280	1,061,280	0	0	265,320
C12103	Civil Works for Gishyanda Dam and irrigation infrastructure (125ha)	SPIU-IFAD	II	Lumpsum	SPIU-IFAD	II	Lumpsum	-	-	-				1.0	1	830,000	-	166,000	166,000	0	0	0
	Sub-Total Infrastructure Development																-	9,363,760	9,363,760	-	-	2,299,440
C122	**Work supervision**																					
C12201	Supervision work for Nasho, Kibare and Ihema schemes	SPIU-IFAD	III	Study	SPIU-IFAD	III	Study	-	-	-	1	1	1	1	4	187,500	-	750,000	750,000	0	0	187,500
C12202	Supervision work for Gishanda	SPIU-IFAD	III	Study	SPIU-IFAD	III	Study	-	-	-	1	1	1	1	4	18,750	-	75,000	75,000	0	0	18,750

					% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
Budget July 2022- June 2023																										Comments	
Q2	Q3	Q4	Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/Banks	enef In-cash	enef (In-kin	IFAD Loan	GOR	GOS	ICCO	Private/Banks	enef (In-cas	enef (In kin	IFAD Loan	GOR	GOS	ICCO	Private/Banks	enef (In cas	enef (In Kind)		
2,000	2,000	2,000	12,000	12	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	444	2,160	9,204	-	-	-	192	0.5	2.2	9.5	-	-	-	0.20		
2,500	2,500	2,500	12,500	13	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	463	2,250	9,588	-	-	-	200	0.5	2.3	9.9	-	-	-	0.21		
25,000	25,000	0	50,000	52	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	1,850	9,000	38,350	-	-	-	800	1.9	9.3	39.7	-	-	-	0.83		
500	0	0	1,500	2	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	56	270	1,151	-	-	-	24	0.1	0.3	1.2	-	-	-	0.02		
30,000	**29,500**	**4,500**	**76,000**	79								2,812	13,680	58,292	-	-	-	1,216	2.9	14.2	60.4	-	-	-	1.3		
373,396	373,396	373,396	1,493,586	1,548	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	55,263	268,845	1,145,580	-	-	-	23,897	57.3	278.6	1,187.1	-	-	-	24.8		
125,000	125,000	125,000	500,000	518	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	18,500	90,000	383,500	-	-	-	8,000	19.2	93.3	397.4	-	-	-	8.3		
498,396	498,396	498,396	1,993,586	2,066								73,763	358,845	1,529,080	-	-	-	31,897	76.4	371.9	1,584.5	-	-	-	33.1	-	-
0	0	135,000	225,000	233	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	8,325	40,500	172,575	-	-	-	3,600	8.6	42.0	178.8	-	-	-	3.7		
396,000	0	0	396,000	410	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	14,652	71,280	303,732	-	-	-	6,336	15.2	73.9	314.7	-	-	-	6.6		
0	0	0	30,000	31	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	1,110	5,400	23,010	-	-	-	480	1.2	5.6	23.8	-	-	-	0.5		
396,000	**-**	**135,000**	**651,000**	**675**								**24,087**	117,180	499,317	-	-	-	**10,416**	**25.0**	**121.4**	**517.4**	-	-	-	**10.8**	-	-
25,000	25,000	15,000	100,000	104	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	3,700	18,000	76,700	-	**0**	**0**	1,600	3.83	18.65	79.48	**0**	**0**	**0**	1.7		
25,000	25,000	15,000	100,000	104								3,700	18,000	76,700	-	-	-	1,600.0	3.8	18.7	79.5	-	-	-	1.7	-	-
150,000	0	0	600,000	622	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	22,200	108,000	460,200	-	-	-	9,600	23.0	111.9	476.9	-	-	-	9.9		
100,000	100,000	100,000	400,000	415	3.7%	76.7%	18.0%	0.0%	0.0%	0.0%	1.6%	14,800	72,000	306,800	-	-	-	6,400	15.3	74.6	317.9	-	-	-	6.6		
250,000	100,000	100,000	1,000,000	1,036								37,000	180,000	767,000	-	-	-	16,000.0	38.3	186.5	794.8	-	-	-	16.6	-	-
###########	###########	###########	3,820,585.52	3,959.16								141,362	687,705	2,930,389	-	-	-	61,129	146	713	3,037	-	-	-	63	-	-
0	0	0	60,000	62	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	16,200	10,620	32,400	-	-	-	780	16.79	11.01	33.58	-	-	-	0.81		
0	0	0	500,000	518	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	135,000	88,500	270,000	-	-	-	6,500	139.90	91.71	279.79	-	-	-	6.74		
0	0	0	560,000	580								**151,200**	**99,120**	**302,400**	-	-	-	**7,280**	**157**	**103**	**313**	-	-	-	**7.5**	-	-
				0																							
2,034,120	2,034,120	2,034,120	8,136,480	8,432	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	2,196,850	1,440,157	4,393,699	-	-	-	105,774	2,276.53	1,492.39	4,553.06	-	-	-	**109.61**		
265,320	265,320	265,320	1,061,280	1,100	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	286,546	187,847	573,091	-	-	-	13,797	296.94	194.66	593.88	-	-	-	**14.30**		
0	0	166,000	166,000	172	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	44,820	29,382	89,640	-	-	-	2,158	46.45	30.45	92.89	-	-	-	**2.24**		
2,299,440	2,299,440	2,465,440	9,363,760	9,703								2,528,215	1,657,386	5,056,430	-	-		121,729	2,620	1,717	5,240	-	-	-	126.1	-	-
187,500	187,500	187,500	750,000	777	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	202,500	132,750	405,000	-	-	-	9,750	210	138	420				10		
18,750	18,750	18,750	75,000	78	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	20,250	13,275	40,500	-	-	-	975	21	14	42				1		

C12203	International technical assistance (irrigation expert)	SPIU-IFAD	III	Lumpsum	SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	30,000	60,000	120,000	180,000	30,000	30,000	30,000
	Sub-total work supervision																**60,000**	**945,000**	**1,005,000**	**30,000**	**30,000**	**236,250**
	Sub–total C 1.2: Irrigation Development									-					-		370,000	10,558,760	10,928,760	30,000	340,000	2,785,690
C13	**Infrastructure management institutions**																					
C130	**Formation and strengthening sub-catchment committees**																					
C13001	Formation and support operationalization of catchments Committee at District level	SPIU-IFAD	IV	Lumpsum	SPIU-IFAD	IV	Lumpsum	-	1	1	1	1	1	1	4	1,500	1,500	6,000	7,500	0	1,500	1,500
C13002	Formation and support operationalization of Sub Catchment Committee at Sector level	SPIU-IFAD	IV	sessions	SPIU-IFAD	IV	sessions	-	27	27	27	27	27	27	108	1,620	43,740	174,960	218,700	0	43,740	43,740
C13003	Training and coaching of catchment management committees	SPIU	IV	number	SPIU	IV	number	-	-	-	27	27	27	27	108	100	-	10,800	10,800	0	0	2,700
	Sub-total sub-catchment committees																**45,240**	**191,760**	**237,000**	**-**	**45,240**	**47,940**
C131	**Irrigation infrastructures management committees**																					
C13101	Support cooperatives to establish professional committee in charge of operationalization, management and maintenance of infrastructures	SPIU-IFAD	III	Number	SPIU-IFAD	III	Number	-	-	-	2	4	4	3	13	100	-	1,300	1,300	0	0	200
C13102	Production of training Manual on O&M of irrigation infrastructures (pumped and dam schemes)	SPIU-IFAD	III	lampsum	SPIU-IFAD	III	lampsum	1.0	-	1		1			1	5,000	5,000	5,000	10,000	5,000	0	0
C13103	Layout and printing of O&M and maintenance manuals	SPIU-IFAD	IV	lampsum	SPIU-IFAD	IV	lampsum	1.0	-	1	-	-	85	1	86	12	12	1,032	1,044	12	0	0
C13104	Training of infrastructures management committee	SPIU-IFAD	IV	Numbers	SPIU-IFAD	IV	Numbers						33	33	65	25	-	1,625	1,625	0	0	0
C13105	Organization of workshop at district level (infrastructure management committees and other stakeholders)	SPIU-IFAD	IV	Lumpsum	SPIU-IFAD	IV	Lumpsum							1	1	2,000	-	2,000	2,000	0	0	0
C13106	Study tour	SPIU-IFAD	IV	Number	SPIU-IFAD	IV	Number							65	65	50	-	3,250	3,250	0	0	0
	Sub-total irrigation infrastructure management committees																5,012	14,207	**19,219**	5,012	-	200
	Sub Total 1.3 Infrastructure Management institutions																50,252	205,967	256,219	5,012	45,240	48,140
C14	**sub-component A4: enhancing climate smart agriculture practices and technologies**																					
C140	**Farmer Field School**																					
C14001	Identification and validation of new FFS facilitators (preliminary workshop to e		IV	Sessions		IV	Sessions	-	1	1	1		-	-	1	5,000	5,000	5,000	10,000	0	5,000	5,000
C14002	Update of existing FFS training modules and translation	SPIU-IFAD	IV	lumpsum	SPIU-IFAD	IV	lumpsum	-	-	-	1	-	-	-	1	3,000	-	3,000	3,000	0	0	3,000
C14003	Layout and printing of FFS booklets and leaflets	SPIU-IFAD	IV	number	SPIU-IFAD	IV	number					500			500	8	-	4,000	4,000	0	0	0
C14004	FFS facilitators training on its general approach and methodology and CSA and GAP	SPIU-IFAD	IV		SPIU-IFAD	IV		-				227			227	10	-	2,270	2,270	0	0	0
C14005	On field Study for FFS facilitators	SPIU-IFAD	IV	Sessions	SPIU-IFAD	IV	Sessions				-	-	1,362	1,362	2,724	4	-	10,896	10,896	0	0	0
C14006	Follow up and technical backstoping of FFS groups	SPIU/RAB	IV	Lumpsum	SPIU/RAB	IV	Lumpsum	1	1	2	1	1	1	1	4	15,000	30,000	60,000	90,000	15,000	15,000	15,000
C14007	Study tour for FFS facilitator	SPIU-IFAD	IV	number	SPIU-IFAD	IV	number				-	-	1	1	2	3,000	-	6,000	6,000	0	0	0
C14008	Bicycles	SPIU-IFAD	I	number	SPIU-IFAD	I	number							227	227	105	-	23,835	23,835	0	0	0
C14009	Recruitement of service provider to roll out PICSA training	SPIU	III	Lumpsum	SPIU	III	Lumpsum			-		1	-	-	1	25,000	-	25,000	25,000	0	0	0
	Sub-total FFS																**35,000**	**140,001**	**175,001**	**15,000**	**20,000**	**23,000**
C141	**Farmers promoters and demonstration plots**																					
C14101	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 cassava FFS in kayonza	SPIU-RAB	I	Lumpsum	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0
C14102	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 maize and beans FFS in kayonza	SPIU-RAB	I	Lumpsum	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0
C14103	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 banana FFS in kayonza	SPIU-RAB	I	Lumpsum	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0
C14104	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 Vegetables FFS in kayonza	SPIU-RAB	I	Lumpsum	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0
C14105	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 Orange sweet potato FFS in kayonza	SPIU-RAB	I	Lumpsum	SPIU-RAB	I	Lumpsum					1			1	500	-	500	500	0	0	0
C14106	FFS training on orchard management	SPIU-RAB	IV	Lumpsum	SPIU-RAB	IV	Lumpsum	1	1	2	1	1	1	1	4	1,197	2,394	4,788	7,182	1,197	1,197	1,197
C14107	Refreshment trainings farmer promoters	SPIU	IV	number	SPIU	IV	number				153	153			305	10	-	3,050	3,050	0	0	1,525
C14108	Exchanges and local visits of farmer promoters	SPIU	IV	sessions	SPIU	IV	sessions			-		3	7	7	17		-	0	0	0	0	0
	Sub-total Farmers promoters and demonstration plots																**2,394**	**10,338**	**12,732**	**1,197**	**1,197**	**2,722**
C142	**Support to sustainable mechanization**									**-**												
C14201	Mechanization technical advser	Lumpsum	III		Lumpsum	III			1	**1**	-	-	-	-	-	40,000	40,000	0	40,000	0	40,000	0
C14202	support reseach and construction of best adapted tools	Lumpsum	III		Lumpsum	III				**-**	1	-			1	16,667	-	16,667	16,667	0	0	16,667
C14203	trainng to youg artisans	sessions	IV		sessions	IV				**-**		1			1	26,667	-	26,667	26,667	0	0	0
C14204	local exchange and visits	Lumpsum	IV		Lumpsum	IV				**-**			1	1	2	3,750	-	7,500	7,500	0	0	0
C14205	international exchange trainings for local TOT manufacturers	visit	IV		visit	IV				**-**				1	1	3,750	-	3,750	3,750	0	0	0
C14206	Training to young service providers	sessions	IV		sessions	IV				**-**			1	1	2	20,000	-	40,000	40,000	0	0	0
	Sub-total support to sustainable mechanization																**40,000**	**94,583**	**134,583**	**-**	**40,000**	**16,667**
C143	**Inputs for farmer's initial support**	SPIU			SPIU					-					-		-	0	0	0	0	0

30,000	30,000	30,000	180,000	187	27.0%	54.0%	17.7%	0.0%	0.0%	0.0%	1.3%	48,600	31,860	97,200	-	-	-	2,340	50	33	101				2		
236,250	**236,250**	**236,250**	**1,005,000**	1,041								**271,350**	**177,885**	**542,700**	**-**	**-**		**13,065**	281	184	562		**-**	**-**	14	**-**	**-**
2,535,690	2,535,690	2,701,690	10,928,760	11,325					-	-		2,950,765	1,934,391	5,901,530	-	-	-	142,074	3,058	2,005	6,116	-	-	-	147	-	-
1,500	1,500	1,500	7,500	8	0.0%	83.4%	16.6%	0.0%					1,245	6,255		-	-			1	6						
43,740	43,740	43,740	218,700	227	0.0%	83.4%	16.6%	0.0%					36,304	182,396		-	-			38	189						
2,700	2,700	2,700	10,800	11	0.0%	83.4%	16.6%	0.0%					1,793	9,007						2	9						
47,940	**47,940**	**47,940**	**237,000**	246					**-**				**39,342**	**197,658**	**-**	**-**	**-**	**-**	**-**	**41**	**205**	**-**	**-**	**-**	**-**	**-**	**-**
400	400	300	1,300	1		83.4%	16.6%						**216**	**1,084**						**0**	**1**						
5,000	0	0	10,000	10		83.4%	16.6%						**1,660**	**8,340**						**2**	**9**						
0	1,020	12	1,044	1		83.4%	16.6%						**173**	**871**						**0**	**1**						
0	813	813	1,625	2		83.4%	16.6%						**270**	**1,355**						**0**	**1**						
0	0	2,000	2,000	2		83.4%	16.6%						**332**	**1,668**						**0**	**2**						
0	0	3,250	3,250	3		83.4%	16.6%						**540**	**2,711**						**1**	**3**						
5,400	2,233	6,375	**19,219**	20									3,190	16,029	-	-	-	-	-	3	17	-	-	-	-	-	-
53,340	50,173	54,315	256,219	266	-		-		-	-		-	42,532	213,687	-	-	-	-	-	44	221	-	-	-	-	-	-
0	0	0	10,000	10		84.7%	15.3%						**1,530**	**8,470**						**2**	**9**						
0	0	0	3,000	3		84.7%	15.3%						**459**	**2,541**						**0**	**3**						
4,000	0	0	4,000	4		84.7%	15.3%						**612**	**3,388**						**1**	**4**						
2,270	0	0	2,270	2		84.7%	15.3%						**347**	**1,923**						**0**	**2**						
0	5,448	5,448	10,896	11		84.7%	15.3%						**1,667**	**9,229**						**2**	**10**						
15,000	15,000	15,000	90,000	93		84.7%	15.3%						**13,770**	**76,230**						**14**	**79**						
0	3,000	3,000	6,000	6		84.7%	15.3%						**918**	**5,082**						**1**	**5**						
0	0	23,835	23,835	25		84.7%	15.3%						**3,647**	**20,188**						**4**	**21**						
25,000	0	0	25,000	26		84.7%	15.3%						**3,825**	**21,175**						**4**	**22**						
46,270	**23,448**	**47,283**	**175,001**	181								**-**	**26,775**	**148,226**		**-**	**-**		**-**	**28**	**154**		**-**	**-**		**-**	**-**
				0																							
500	0	0	500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	0	0	500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	0	0	500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	0	0	500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
500	0	0	500	1		84.7%	15.3%						**77**	**424**						**0**	**0**						
1,197	1,197	1,197	7,182	7		84.7%	15.3%						**1,099**	**6,083**						**1**	**6**						
1,525	0	0	3,050	3		84.7%	15.3%						**467**	**2,583**						**0**	**3**						
0	0	0	-	0		84.7%	15.3%						**0**	**0**						**0**	**0**						
5,222	**1,197**	**1,197**	**12,732**	13						**-**		**-**	**1,948**	**10,784**		**-**	**-**		**-**	**2**	**11**		**-**	**-**		**-**	**-**
0	0	0	40,000	41		84.7%	15.3%						6,120	33,880						6	35						
0	0	0	16,667	17		84.7%	15.3%						2,550	14,117						3	15						
26,667	0	0	26,667	28		84.7%	15.3%						4,080	22,587						4	23						
0	3,750	3,750	7,500	8		84.7%	15.3%						1,148	6,353						1	7						
0	0	3,750	3,750	4		84.7%	15.3%						574	3,176						1	3						
0	20,000	20,000	40,000	41		84.7%	15.3%						6,120	33,880						6	35						
26,667	**23,750**	**27,500**	**134,583**	139									**20,591**	**113,992**	**-**	**-**	**-**	**-**	**-**	**21**	**118**						

C14301	Acquisition and distribution of orange sweet potato vines	SPIU	I	vines	SPIU	I	vines		2,100,000	2,100,000					0	0	31,500	0	31,500	0	31,500	0
C14302	Acquisition and distribution of iron fortified beans seeds	SPIU	I	kg	SPIU	I	kg	6,000	-	6,000					-	1	7,200	0	7,200	7,200	0	0
C14303	Acquisition and districbution of kale seed	SPIU	I	HH	SPIU	I	HH	300	300	600	200	200	200	200	800	0	240	320	560	120	120	80
C14304	Acquisition and distribution of pumpkin seed	SPIU	I	HH	SPIU	I	HH	300	300	600	200	200	200	200	800	1	600	800	1,400	300	300	200
C14305	Acquisition of improved seed	SPIU	I	kg	SPIU	I	kg					14,000			14,000	10	-	140,000	140,000	0	0	0
C14306	Acquisition of fertilizers	SPIU	I	lumpsum	SPIU	I	lumpsum					1			1	45,000	-	45,000	45,000	0	0	0
C14307	Acquisition of manual tools for women and most vulnerable	SPIU	I	lumpsum	SPIU	I	lumpsum	-	-	-	-	700			700	50	-	35,000	35,000	0	0	0
C14308	Preparation and production of fruit seedlings for Kabare, Ihema and Nasho blocks and Home gardens (Avocado, Mango, Papaya, passion fruit)	SPIU	I	number	SPIU	I	number							300,000	300,000	1	-	270,000	270,000	0	0	0
	Sub-total inputs for initial support																**39,540**	**221,120**	**530,660**	**7,620**	**31,920**	**280**
	Sub Total sub-component A4: enhancing climate smart agriculture practices and technologies																**116,934**	**466,042**	**852,976**	**23,817**	**93,117**	**42,669**
C15	**Sub-component A5: Environmental and social management plan**																			**0**	**0**	**0**
C1501	Implementation of Environment and Social Management Plan (ESMPs) for Nasho irrigation scheme	SPIU/contractor	III	Lumpsum	SPIU/contractor	III	Lumpsum			-				1	1	54,000	-	54,000	54,000	0	0	0
C1502	Implementation of Environment and Social Management Plan (ESMPs) for Kibare irrigation scheme	SPIU/contractor	III	Lumpsum	SPIU/contractor	III	Lumpsum							1	1	54,000	-	54,000	54,000	0	0	0
C1503	Implementation of Environment and Social Management Plan (ESMPs) for Ihema irrigation scheme	SPIU contractor	III	Lumpsum	SPIU contractor	III	Lumpsum							1	1	32,000	-	32,000	32,000	0	0	0
C1504	Implementation of Environmental management plan linked with other project activities	SPIU	III	Lumpsum	SPIU	III	Lumpsum				0	1	1	1	3	4,000	-	12,000	12,000	0	0	0
	Sub-total Environmental and social management plan																**-**	**152,000**	**152,000**	**0**	**0**	**0**
	Total Component 1:Strengthening resilience to droughts																**1,457,082**	**14,282,958**	**16,010,041**	**210,829**	**1,246,753**	**3,171,499**

0	0	0	31,500	33		84.7%	15.3%						4,820	26,681						5	28						
0	0	0	7,200	7		84.7%	15.3%						1,102	6,098						1	6						
80	80	80	560	1		84.7%	15.3%						86	474						0	0						
200	200	200	1,400	1		84.7%	15.3%						214	1,186						0	1						
140,000	0	0	140,000	145		84.7%	15.3%						21,420	118,580						22	123						
45,000	0	0	45,000	47		84.7%	15.3%						6,885	38,115						7	39						
35,000	0	0	35,000	36		84.7%	15.3%						5,355	29,645						6	31						
0	0	270,000	270,000	280		84.7%	15.3%						41,310	228,690						43	237						
220,280	**280**	**280**	**530,660**	550									**81,191**	**449,469**	**-**	**-**	**-**	**-**	**-**	**84**	**466**						
298,439	**48,675**	**76,260**	**852,976**	**884**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**130,505**	**722,471**	**-**	**-**	**-**	**-**	**-**	**135**	**749**	**-**	**-**	**-**	**-**	**-**	**-**
0																											
0	0	54,000	54,000	56		52.6%	47.4%						**25,596**	**28,404**						**27**	**29**						
0	0	54,000	54,000	56		84.7%	15.3%						**8,262**	**45,738**						**9**	**47**						
0	0	32,000	32,000	33		84.7%	15.3%						**4,896**	**27,104**						**5**	**28**						
4,000	4,000	4,000	12,000	12		84.7%	15.3%						**1,836**	**10,164**						**2**	**11**						
4,000	**4,000**	**144,000**	**152,000**	158									**40,590**	**111,410**	**0**	**0**	**0**	**0**	**0**	**42**	**115**						
4,090,865	**3,291,434**	**3,729,161**	**16,010,541**	**16,591**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3,092,127**	**2,835,724**	**9,879,487**	**-**	**-**	**-**	**203,203**	**3,204**	**2,939**	**10,238**	**-**	**-**	**-**	**211**	**-**	**-**

KIIWP II ACTION PLAN AND BUDGET for 18 Months' Period from January 2022 to June 2023

Component 2: Support to Farm Business Development

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022- June 2023		
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2	Q3
C20	**I. Investment cost**																				
C21	Sub-component B1: Developing Farming as business skills (FaaB)																				
C210	**Capacity building of cooperatives**																				
C21001	Recruitment of service provider to build capacity of farmers'cooperatives on Global GAP certification	SPIU/SP	III	Lumpsum	1	0	1	0	1	0	1	2	15,000	15,000	30,000	45,000	15,000	0	0	15,000	0
C21002	Refreshment allowance for farmers during training on GAP standards	SPI	V	numbers	91	0	91	0	91	0	91	182	25	2,275	4,550	6,825	2,275	0	0	2,275	0
C21003	Monitoring and follow-up the activity of capacity building of farmers on GAP standards	SPIU/NAEB	III	Lumpsum	91	0	91	1	1	1	1	4	20,000	1,820,000	80,000	1,900,000	1,820,000	0	20,000	20,000	20,000
C21004	Training and coaching of existing cooperatives on cooperative organization and management	SPIU/Service provider	IV	numbers					10	20	20	50	2,600	-	130,000	130,000	0	0	0	26,000	52,000
C21005	Exchange visits / study tours for cooperative leaders	SPIU	IV	sessions				1		1		2	5,000	-	10,000	10,000	0	0	5,000	0	5,000
	Sub-total Capacity building of cooperatives													**1,837,275**	**254,550**	**2,091,825**	**1,837,275**	**-**	**25,000**	**63,275**	**77,000**
C211	**Business development service**																				
C21101	Preparation of Business Plans	SPIU/Service provider	III	numbers							1	1	2,760	-	2,760	2,760	0	0	0	0	0
C21102	Recruitment of TA for preparing of Farming as a Business (Faab) curriculum	SPIU/ICCO	III	Lumpsum							1	1	13,000	-	13,000	13,000	0	0	0	0	0
C21103	Recruitment of BDSPs services for capacity building on FaaB, integrated to FFS sessions	SPIU/ICCO	III	Lumpsum						1		1	150,000	-	150,000	150,000	0	0	0	0	150,000
C21104	Farmers refreshment during training of farmers on FAAB skills	SPIU	V	numbers						300	300	600	25	-	15,000	15,000	0	0	0	0	7,500
	Sub-total busness development services													**-**	**180,760**	**180,760**	**-**	**-**	**-**	**-**	**157,500**
	Sub-total Developing Farming as business skills (FaaB)													1,837,275	435,310	2,272,585	1,837,275	-	25,000	63,275	234,500
C22	**Promotion of mechanization, post-harvest storage and irrigation kits**																				
C2201	Small Equipment Investments for individual men (>30)	SPIU	I						5	10	5	20	5,000	-	100,000	100,000	0	0	0	25,000	50,000
C2202	Small Equipment Investments for individual women & youth (<30)	SPIU	I						5	10	5	20	5,000	-	100,000	100,000	0	0	0	25,000	50,000
C2203	Cooperative microprojects on post-harvest management facilities	SPIU	I							4	2	6	30,000	-	180,000	180,000	0	0	0	0	120,000
C2204	BDF grant management fee (about 7.35 % of total grants)	SPIU	VI						1			1	25,500	-	25,500	25,500	0	0	0	25,500	0
	Sub-total Promotion of mechanization, post-harvest storage and irrigation kits													-	405,500	405,500	-	-	-	75,500	220,000
C23	**Supporting backward and forward market linkage**																				
C230	**Market Access**																				
C23001	Conduct pre-season meetings for cooperatives	SPIU	IV	sessions	1		1		1	1		2	2,000	2,000	4,000	6,000	2,000	0	0	2,000	2,000
C23002	Supporting farmers to participate in in fairs/ shows	SPIU	IV	sessions		1	1				1	1	2,000	2,000	2,000	4,000	0	2,000	0	0	0
C23003	Supporting farmers cooperatives in signing contracts	SPIU	IV	number		1	1		1	1		2	2,000	2,000	4,000	6,000	0	2,000	0	2,000	2,000
	Sub total market access													**6,000**	**10,000**	**16,000**	**2,000**	**4,000**	**-**	**4,000**	**4,000**
C231	**Facilitating Public Private Producers Partnerships**																				
C23101	Conduct workshop among different actors in value chai	SPIU	IV	sessions		1	1		1		1	2	2,000	2,000	4,000	6,000	0	2,000	0	2,000	0
	Sub total faciliting 4Ps													**2,000**	**4,000**	**6,000**	**-**	**2,000**	**-**	**2,000**	**-**
C232	**Access to Finance**													-	0						
C23201	Recruitment of TA for development of tailored agrifinance products for PFIs (SACCO, MFIs)	ICCO	III	lumpsum		1	1						10,400	10,400	0	10,400	0	10,400	0	0	0
C23202	recruitment of service provider to conduct financial literacy training among farmers cooperatives and facilitate PFIs to access credit line	ICCO	III	lumpsum		1	1						8,667	8,667	0	8,667	0	8,667	0	0	0
C23203	Recruitment of SP to support access to agricultural insurance among KIIWP beneficiaries as well as training of NAIS stakehilders	SPIU	III	lumpsum						1		1	300,000	-	300,000	300,000	0	0	0	0	300,000
	Sub-total access to finance													**19,067**	**300,000**	**319,067**	**-**	**19,067**	**-**	**-**	**300,000**
	Sub-Total sub-component C3 : Supporting backward and forward market linkage													**27,067**	**314,000**	**341,067**	**2,000**	**25,067**	**-**	**6,000**	**304,000**
	Total Component 2													**1,864,342**	**1,154,810**	**3,019,152**	**1,839,275**	**25,067**	**25,000**	**144,775**	**758,500**

			% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
Q4	Total costs Jan 2022-June 2023 Frw'000	Total USD '000	IFAD Loan	GOS	GOR	ICCO	Private/ Banks	nef In-cas	enef (In-kin	IFAD Loan	GOR	GOS	ICCO	Private/B anks	enef (In-cas	enef (In kin	IFAD Loan	GOR	GOS	ICCO	Private/Bank s	Benef (In cash	Benef (In Kind)	Comments	
15,000	45,000	47	72.3%		2.4%	25.3%				32,535	1,080		**11,385**				**34**	**1**		**12**					
2,275	6,825	7	72.3%		2.4%	25.3%				4,934	164		**1,727**				**5**	**0**		**2**					
20,000	1,900,000	1,969	72.3%		2.4%	25.3%				1,373,700	45,600		**480,700**				**1,424**	**47**		**498**					
52,000	130,000	135	72.3%		2.4%	25.3%				93,990	3,120		**32,890**				**97**	**3**		**34**					
0	10,000	10	72.3%		2.4%	25.3%				7,230	240		**2,530**				**7**	**0**		**3**					
89,275	**2,091,825**	2,168								1,512,389	50,204		529,232	-	-	-	1,567	52	-	548	-				
2,760	2,760	3	72.3%		2.4%	25.3%				1,995	66		698				2	0		1					
13,000	13,000	13	72.3%		2.4%	25.3%				9,399	312		3,289				10	0		3					
0	150,000	155	72.3%		2.4%	25.3%				108,450	3,600		37,950				112	4		39					
7,500	15,000	16	72.3%		2.4%	25.3%				10,845	360		3,795				11	0		4					
23,260	**180,760**	187								**130,689**	**4,338**	**-**	**45,732**	**-**	**-**	**-**	**135**	**4**	**-**	**47**	**-**	**-**	**-**	**-**	**-**
112,535	2,272,585	2,355								1,643,079	54,542	-	574,964	-	-	-	1,703	57	-	596	-	-	-	-	-
		0																							
25,000	100,000	104	55.2%				8.3%	36.5%		55,200				8,300	36,500		57				9	38			
25,000	100,000	104	55.2%				8.3%	36.5%		55,200				8,300	36,500		57				9	38			
60,000	180,000	187	55.2%		0.0%		8.3%	36.5%		99,360	-			14,940	65,700		103	-			15	68		-	-
0	25,500	26	55.2%				8.3%	36.5%		14,076				2,117	9,308		15				2	10			
110,000	405,500	420		-	-	-			-	223,836	-	-	-	33,657	148,008	-	232	-	-	-	35	153	-	-	-
0	6,000	6	83.7%		6.5%	9.8%				5,022	390		588				5	0		1					
2,000	4,000	4	83.7%		6.5%	9.8%				3,348	260		392	-	-		3	0		0	-	-		-	-
0	6,000	6	83.7%		6.5%	9.8%				5,022	390		588				5	0		1					
2,000	**16,000**	17								**13,392**	**1,040**	**-**	**1,568**	**-**	**-**	**-**	14	1	-	2	-	-	-	-	-
																									-
2,000	6,000	6	83.7%		6.5%	9.8%				5,022	390		588				5	0		1					
2,000	**6,000**	6								**5,022**	**390**	**-**	**588**	**-**	**-**	**-**	5	0	-	1	-	-	-	-	-
0	10,400	11	83.7%		6.5%	9.8%				8,705	676		1,019				9	1		1					
0	8,667	9	83.7%		6.5%	9.8%				7,254	563		849				8	1		1					
0	300,000	311	83.7%		6.5%	9.8%				251,100	19,500		29,400				260	20		30					
-	**319,067**	**331**					**-**	**-**	**-**	**267,059**	**20,739**	**-**	**31,269**	**-**	**-**	**-**	**277**	**21**	**-**	**32**	**-**	**-**	**-**	**-**	**-**
4,000	**341,067**	**353**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**285,473**	**22,169**	**-**	**33,425**	**-**	**-**	**-**	**296**	**23**	**-**	**35**	**-**	**-**	**-**	**-**	**-**
226,535	**3,019,152**	**3,129**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,152,388**	**76,711**	**-**	**608,389**	**33,657**	**148,008**	**-**	**2,230**	**79**	**-**	**630**	**35**	**153**	**-**	**-**	**-**

KIIWP II ACTION PLAN AND BUDGET for 18 Months Period January 2022 - June 2023

Comp 3:Institutional development and project coordination

Activity No	Activity per component & sub-component	Implementing Agency	IFAD Categ	Unit	Quantity FY 2021/22		Total Quantity FY 2021/22	Quantity FY 2022/23				Total Quantity FY 2022/23	Unit Price Frw '000	Total Jan 2022-June 2022 Frw'000	Total Jul 2022-June 2023 Frw'000	Total Jan 2022-June 2023Frw'000	Budget Jan 2021- June 2022		Budget July 2022-	
					Q3	Q4		Q1	Q2	Q3	Q4						Q3	Q4	Q1	Q2
C31	**Sub-component 3.1: Policy and insitutional development**																			
C310	**A.Policy support and implementation**																			
	I. Study																			
C31001	Start-up workshop		IV		1		1						25,000	25,000	0	25,000	25,000	0	0	0
C31004	Policy assesment and regulation studies /a		III								1	1	80,000	-	80,000	80,000	0	0	0	0
C31006	Nutrition studies for baseline (MDD-W)		III							1		1	25,000	-	25,000	25,000	0	0	0	0
	Subtotal													**25,000**	**105,000**	**130,000**	**25,000**	**-**	**-**	**-**
C311	**II. Support to multistakeholder dialogue**																			
C31101	Forums and workshops for policy dialogue	Lumpsum	IV			1	1		1	1	1	3	5,000	5,000	15,000	20,000	0	5,000	0	5,000
C31103	Support dialogue and advocacy for Cooperatives unions of Kayonza and National level Federations /d		IV					1	1	1	1	4	5,000	-	20,000	20,000	0	0	5,000	5,000
C31104	Support dialogue and advocacy for WUO and WLUO		IV			1	1	1			1	2	5,000	5,000	10,000	15,000	0	5,000	5,000	0
C31105	Gender learning and sharing events (multi stakeholder coordination)		IV						1			1	2,800	-	2,800	2,800	0	0	0	2,800
C31106	Nutrition multi stakeholder coordination		IV					1			1	2	1,400	-	2,800	2,800	0	0	1,400	0
	Subtotal													**10,000**	**50,600**	**60,600**	**-**	**10,000**	**11,400**	**12,800**
	Subtotal Sub-component 3.1: Policy and institutional development						**-**					**-**		35,000	155,600	190,600	25,000	10,000	11,400	12,800
C32	**Sub-component 3.2: Project management and coordination**											-								
C3201	Office equipment and furniture	SPIU-IFAD	I	Lumpsum			-		1			1	10,000	-	10,000	10,000	0	0	0	10,000
C3202	Outcome survey	SPIU-IFAD	III	Number		0	-		1			1	40,000	-	40,000	40,000	0	0	0	40,000
C3203	Knowledge Management	SPIU-IFAD	III	Lumpsum		1	1		1	1	1	3	10,000	10,000	30,000	40,000	0	10,000	0	10,000
C3204	Capacity building of SPIU Staff	SPIU-IFAD	IV	Lumpsum		1	1	1	1	1	1	4	10,000	10,000	40,000	50,000	0	10,000	10,000	10,000
C3205	Promotion materials	SPIU-IFAD	I	Lumpsum		2	2		1	1	1	3	2,000	4,000	6,000	10,000	0	4,000	0	2,000
C3206	Preparation and validation of ToRs for different studies	SPIU-IFAD	III	Lumpsum	1		1					-	5,196	5,196	0	5,196	5,196	0	0	0
	Sub-total Investment cost						**-**					**-**		**29,196**	**126,000**	**155,196**	**5,196**	**24,000**	**10,000**	**72,000**
C321	**Recurrent Costs**																0	0	0	0
C3210	**Salaries and Allowancies**																0	0	0	0
	A.New staff																0	0	0	0
	1.Central Level																0	0	0	0
C321001	Operations Manager	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2,216	13,294	26,588	39,882	6,647	6,647	6,647	6,647
C321002	Irrigation Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321003	Climate and Environment Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321004	Civil Engineering Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321005	Cooperative Development Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321006	Social Safeguard and Compliance Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321007	Access to Finance Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321008	Accountant	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321009	Procurement Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321010	M/E Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321011	Drivers	SPIU-IFAD	V	Pers.month	12	12	24	12	12	12	12	48	312	7,493	14,986	22,478	3,746	3,746	3,746	3,746
	Subtotal													**111,008**	**222,016**	**333,024**	**55,504**	**55,504**	**55,504**	**55,504**
	2.District Level																0	0	0	0
C321012	Watershed Management Officer	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321013	Value Chain Development/Agribusiness Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321014	Electromechanical Engineering	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321015	Senior Agronomist and FFS Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321016	Land Husbandry Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345

KIIWP II ACTION PLAN AND BUDGET for 18 Months' Period from January 2022 to June 2023

Component 3: Institutional Development and Project Coordination

				% Financing							Financiers RWF '000							Equivalent Financing in USD '000								
June 2023		Total costs Jan 2022-June 2023 Frw'000	Total USD '000																						Comments	
Q3	Q4			IFAD Loan	GOS	GOR	ICCO	Private/Banks	Benef In-cash	Benef (In-kind)	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In-cash	Benef (In kind	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Benef (In cash	Benef (In Kind)		
0	0	25,000	26	89.5%		10.5%					22,375	2,625						23.19	2.72							
0	80,000	80,000	83	89.5%		10.5%					71,600	8,400						74.20	8.70							
25,000	0	25,000	26	89.5%		10.5%					22,375	2,625						23.19	2.72							
25,000	**80,000**	**130,000**	**135**						**-**	**-**	**116,350**	**13,650**	**-**	**-**	**-**	**-**	**-**	**120.6**	**14.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5,000	5,000	20,000	21	89.5%		10.5%					17,900	2,100						19	2							
5,000	5,000	20,000	21	89.5%		10.5%					17,900	2,100						19	2							
0	5,000	15,000	16	89.5%		10.5%					13,425	1,575						14	2							
0	0	2,800	3	89.5%		10.5%					2,506	294						3	0							
0	1,400	2,800	3	89.5%		10.5%					2,506	294						3	0							
10,000	**16,400**	**60,600**	**63**					**-**	**-**	**-**	**54,237**	**6,363**	**-**	**-**	**-**	**-**	**-**	**56**	**7**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
35,000	96,400	190,600	198	-	-	-	-	-	-	-	170,587	20,013	-	-	-	-	-	177	21	-	-	-	-	-	-	-
0	0	10,000	10	89.5%		10.5%					8,950	1,050						9								
0	0	40,000	41	89.5%		10.5%					35,800	4,200						37								
10,000	10,000	40,000	41	89.5%		10.5%					35,800	4,200						37								
10,000	10,000	50,000	52	89.5%		10.5%					44,750	5,250						46								
2,000	2,000	10,000	10	89.5%		10.5%					8,950	1,050						9								
0	0	5,196	5	89.5%		10.5%					4,651	546						5								
22,000	**22,000**	**155,196**	**358**					**-**	**-**	**-**	**138,901**	**16,296**	**-**	**-**	**-**	**-**	**-**	**321**		**-**	**-**	**-**	**-**	**-**	**-**	**-**
6,647	6,647	39,882	41	100%							39,882							41								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
4,346	4,346	26,077	27	100%							26,077							27								
4,346	4,346	26,077	27	100%							26,077							27								
4,346	4,346	26,077	27	100%							26,077							27								
3,746	3,746	22,478	23	100%							22,478							23								
55,504	**55,504**	**333,024**	345								**333,024**	-	-	-	-	-	-	345	-	-	-	-	-	-	-	-
0	0	-																								
4,346	4,346	26,077	27	100%							26,077							27								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								
5,345	5,345	32,072	33	100%							32,072							33								

C321017	Accountant for KIIWP transaction at District	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321018	Irrigation Technicians /a	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321019	Water Users' Association Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321020	Horticulture Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321021	Social Inclusion, Gender and Youth Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1,782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
	Subtotal													**100,912**	**201,824**	**302,735**	**50,456**	**50,456**	**50,456**	**50,456**
	B.Shared SPIU Staff																0	0	0	0
C321022	SPIU Coordinator	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2614	15,684	31,368	47,052	7,842	7,842	7,842	7,842
C321023	Head of Procurement	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2216	13,294	26,588	39,882	6,647	6,647	6,647	6,647
C321024	Head of MIS	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	2216	13,294	26,588	39,882	6,647	6,647	6,647	6,647
C321025	Chief Accountant	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1782	10,691	21,381	32,072	5,345	5,345	5,345	5,345
C321026	Administrative and logistic Specialist	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321027	Internal Auditor	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1449	8,692	17,385	26,077	4,346	4,346	4,346	4,346
C321028	ICT and data officer	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	1162	6,972	13,944	20,916	3,486	3,486	3,486	3,486
C321029	Administrative Assistant	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	623	3,739	7,478	11,217	1,869	1,869	1,869	1,869
C321030	Messenger	SPIU-IFAD	V	Pers.month	3	3	6	3	3	3	3	12	126	759	1,517	2,276	379	379	379	379
	Subtotal													**81,817**	**163,634**	**245,451**	**40,909**	**40,909**	**40,909**	**40,909**
	Sub-total Salaries and Allowances													**293,737**	**587,474**	**881,210**	**146,868**	**146,868**	**146,868**	**146,868**
C3202	**Operational costs**																			
C320201	Field visit of KIIWP activities	SPIU-IFAD	V	Months	3	3	6	3	3	3	3	12	2,000	12,000	24,000	36,000	6,000	6,000	6,000	6,000
C320202	Communication fees	SPIU-IFAD	V	Lumpsum	3	3	6	3	3	3	3	12	1,875	11,250	22,500	33,750	5,625	5,625	5,625	5,625
C320203	Office supply / consumable	SPIU-IFAD	I	Lumpsum	1	1	2	1	1	1	1	4	5,000	10,000	20,000	30,000	5,000	5,000	5,000	5,000
C320204	Announcements and advertisements	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	300	1,800	3,600	5,400	900	900	900	900
C320205	Hiring a vehicle for field visits	SPIU-IFAD	I	Lumpsum	3	3	6	3	3	3	3	12	984	5,904	11,808	17,712	2,952	2,952	2,952	2,952
C320206	Codification of KIIWP equipments	SPIU-IFAD	III	Lumpsum			-		1			1	2,000	-	2,000	2,000	0	0	0	2,000
C320207	Steering/technical comittee meetings	SPIU-IFAD	VI	Number		1	1	1	1		1	3	250	250	750	1,000	0	250	250	250
C320208	Allowances for procurement tender committee	SPIU-IFAD	V	Number	3	3	6	3	3	3	3	12	195	1,170	2,340	3,510	585	585	585	585
C320209	Advertisement and TV talk show's	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	300	1,800	3,600	5,400	900	900	900	900
C320210	Participation in Agrishow	SPIU-IFAD	IV	Lumpsum			-				1	1	20,000	-	20,000	20,000	0	0	0	0
C320211	Courier dispatching services	SPIU-IFAD	III	Number	3	3	6	3	3	3	3	12	100	600	1,200	1,800	300	300	300	300
C320212	Refreshment service (different meetings& workshops)	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	1,000	6,000	12,000	18,000	3,000	3,000	3,000	3,000
C320213	Computer accessoires	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	500	3,000	6,000	9,000	1,500	1,500	1,500	1,500
C320214	Vehicle hire for office administration transport services in Kigali City	SPIU-IFAD	III	Lumpsum	3	3	6	1	1	1	1	4	2,294	13,761	9,174	22,935	6,881	6,881	2,294	2,294
C320215	Car wash cleaning services	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	240	1,440	2,880	4,320	720	720	720	720
C320216	Sport for SPIU Personnel	SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	490	980	1,960	2,940	490	490	490	490
C320217	Cleaning service fees	SPIU-IFAD	III	Lumpsum	3	3	6	3	3	3	3	12	911	5,466	10,932	16,398	2,733	2,733	2,733	2,733
	Subtotal Operational costs						-					-		**75,421**	**154,744**	**230,165**	**17,109**	**17,359**	**12,772**	**12,772**
C3203	**Institution Support**						-					-		-	0					
C320301	Institutional Support to MINAGRI to perform the ministerial supervisory role on the project	MINAGRI/SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	20,000	40,000	80,000	120,000	20,000	20,000	20,000	20,000
C320302	Suppot to MINAGRI to the operationalization of MINAGRI Knowledge Manamagent & communication Strategy	MINAGRI/SPU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	10,000	20,000	40,000	60,000	10,000	10,000	10,000	10,000
C320303	Institutional Support to RAB	RAB/SPIU-IFAD	III	Lumpsum	1	1	2	1	1	1	1	4	20,000	40,000	80,000	120,000	20,000	20,000	20,000	20,000
C320304	Support RAB in Agrishow	RAB	III	Lumpsum	1	1	2				1	1	30,000	60,000	30,000	90,000	30,000	30,000	0	0
C320305	Coomunication fees for RAB Focal Point following MoU between RAB and SPIU	RAB	III	Lumpsum	1	1	2	3	3	3	3	12	50	100	600	700	50	50	150	150
	Subtotal Institution Support						-					-		**160,100**	**230,600**	**390,700**	**80,050**	**80,050**	**160,100**	**50,150**
C3204	**Vehicles operation & Maintenance**						-					-		-	0	0	0	0	0	0
C320401	Insurance for 4 WD Twin Cab pickups	SPIU-IFAD	I	Number			-	4				4	2,048	-	8,192	8,192	0	0	8,192	0
C320402	Fuel for 4 WD Twin Cab pickups	SPIU-IFAD	I	Lumpsum	4	4	8	4	4	4	4	16	400	3,200	6,400	9,600	1,600	1,600	1,600	1,600
C320403	Maintenance fees for 4 WD Twin Cab pickups	SPIU-IFAD	I	Number	4	4	8	4	4	4	4	16	800	6,400	12,800	19,200	3,200	3,200	3,200	3,200
C320404	Tyre purchasing	SPIU-IFAD	I	Number			-		4	12		16	250	-	4,000	4,000	0	0	0	1,000
	Subtotal Vehicle Operation & Maintenance						-					-		9,600	31,392	**40,992**	4,800	4,800	12,992	5,800
C3205	**Bank charges and commission**						-					-		-	0	0	0	0	0	0

4,346	4,346	26,077	27	100%							26,077							27							
4,346	4,346	26,077	27	100%							26,077							27							
5,345	5,345	32,072	33	100%							32,072							33							
5,345	5,345	32,072	33	100%							32,072							33							
5,345	5,345	32,072	33	100%							32,072							33							
50,456	**50,456**	**302,735**	**314**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**302,735**	**0**	**0**	**0**	**0**	**0**	**0**	**314**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	-																							
7,842	7,842	47,052	49	100%							47,052														
6,647	6,647	39,882	41	100%							39,882							41							
6,647	6,647	39,882	41	100%							39,882							41							
5,345	5,345	32,072	33	100%							32,072							33							
4,346	4,346	26,077	27	100%							26,077							27							
4,346	4,346	26,077	27	100%							26,077							27							
3,486	3,486	20,916	22	100%							20,916	-			-	-		22							
1,869	1,869	11,217	12	100%							11,217							12							
379	379	2,276	2	100%							2,276							2							
40,909	**40,909**	**245,451**	**254**		**0**	**0**	**0**	**0**	**0**	**0**	**245,451**	**0**	**0**	**0**	**0**	**0**	**0**	**206**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
146,868	**146,868**	**881,210**	**913**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**881,210**	**0**	**0**	**0**	**0**	**0**	**0**	**864**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
6,000	6,000	36,000	37	100%							36,000	-						37							
5,625	5,625	33,750	35	100%							33,750	-						35							
5,000	5,000	30,000	31	82%		18%					24,600	5,400						25							
900	900	5,400	6	82%		18%					4,428	972						5							
2,952	2,952	17,712	18	82%		18%					14,524	3,188						15							
0	0	2,000	2	82%		18%					1,640	360						2							
0	250	1,000	1	100%							1,000	-						1							
585	585	3,510	4	100%							3,510	-						4							
900	900	5,400	6	82%		18%					4,428	972						5							
0	20,000	20,000	21	100%							20,000	-						21							
300	300	1,800	2	82%		18%					1,476	324						2							
3,000	3,000	18,000	19	82%		18%					14,760	3,240						15							
1,500	1,500	9,000	9	82%		18%					7,380	1,620						8							
2,294	2,294	22,935	24	82%		18%					18,807	4,128						19							
720	720	4,320	4	82%		18%					3,542	778						4							
490	490	2,940	3	82%		18%					2,411	529						2							
2,733	2,733	16,398	17	82%		18%					13,446	2,952						14							
12,522	**32,772**	**230,165**	**109**		**-**		**-**	**-**	**-**	**-**	**205,702**	**24,463**	**-**	**-**	**-**	**-**	**-**	**94**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
20,000	20,000	120,000	124	100%							120,000	-						124							
10,000	10,000	60,000	62	100%							60,000	-						62							
20,000	20,000	120,000	124	100%							120,000	-						124							
0	30,000	90,000	93	100%							90,000	-						93							
150	150	700	0.7	100%							700	-						1							
50,150	**100,300**	**390,700**	405								**390,700**	**0**			**0**	**0**		**405**	**0**			**0**	**0**			
0																									
0	0	8,192	8	82%		18%					6,717	1,474.56						7							
1,600	1,600	9,600	10	82%		18%					7,872	1,728						8							
3,200	3,200	19,200	20	82%		18%					15,744	3,456						16							
3,000	0	4,000	4	82%		18%					3,280	720						3							
7,800	4,800	**40,992**	42								**33,613**	**7,379**			**0**	**0**		**35**	**0**			**0**	**0**			
0	0	-	0																						

C320501	Bank charges	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	92	184	369	553	92	92	92	92
C320502	Purchase of Cheque and Op books	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	26	51	102	153	26	26	26	26
C320503	Bank statement fees	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	12	23	46	69	12	12	12	12
C320504	Money transfer fees	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	250	500	1,000	1,500	250	250	250	250
C320505	Loss on currency exchange and translations	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	7,290	14,581	29,161	43,742	7,290	7,290	7,290	7,290
C320506	Demonetization Expenses	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4		-	0	0	0	0	0	0
C320507	Other commissions	SPIU-IFAD	VI	Number	1	1	2	1	1	1	1	4	250	500	1,000	1,500	250	250	250	250
	Subtotal						-					-		**9,600**	**94,462**	**47,517**	**17,519**	**17,519**	**33,903**	**19,519**
	Subtotal Reccurent cost						-							19,200	125,854	88,509	22,319	22,319	46,895	25,319
	Subtotal Sub-component 3.2: Project management and coordination						-					-		577,654	1,224,671	1,745,780	271,543	290,596	376,635	307,109
	Total Component 3: Institutional Development and Project Coordination						-					-		612,654	1,380,271	1,936,380	296,543	300,596	388,035	319,909

92	92	553	1	100%							553							1								
26	26	153	0	100%							153							0								
12	12	69	0	100%							69							0								
250	250	1,500	2	100%							1,500							2								
7,290	7,290	43,742	45	100%							43,742							45								
0	0	-	0	100%							-							-								
250	250	1,500	2	100%							1,500							2								
23,519	**17,519**	**47,517**	49								**47,517**	**0**			**0**	**0**		**49**	**0**			**0**	**0**			
31,319	22,319	88,509	92	-	-	-	-	-	-	-	81,130	7,379	-	-	-	-	-	84	-	-	-	-	-	-	-	-
262,859	324,259	########	1,877		-	-	-	-	-	-	1,697,643	48,137	-	-	-	-	-	1,768	-	-	-	-	-	-	-	-
297,859	420,659	########	2,075		-	-	-	-	-	-	1,868,230	68,150	-	-	-	-	-	1,945	21	-	-	-	-	-	-	-

KIIWP II ACTION PLAN AND BUDGET for 18 Months Period January 2022 - June 2023 Category by Financier

Category	IFAD Loan	GOR	GOS	ICCO	Private/Banks	Beneficiaries In-cash)	Beneficiaries (In-Kind)	TOTAL FRW'000	%
I. Goods	322,597	211,287	931,975	0	31,540	138,700	9,600	**1,645,699**	**7.85**
II. Works	2,583,478	1,926,231	6,202,010	0	0	0	145,626	**10,857,346**	**51.79**
III.Consultancies & non-consulting services	2,910,019	736,389	2,301,423	565,291	0	0	46,761	**6,559,882**	**31.29**
IV.Training & Workshop	263,808	106,155	444,079	37,576	0	0	1,216	**852,834**	**4.07**
V.Salaries & allowances	984,326	524	0	5,522	2,117	9,308	0	**1,001,795**	**4.78**
VI.Operating costs	48,517	0	0	0	0	0	0	**48,517**	**0.23**
Total	**7,112,745**	**2,980,585**	**9,879,487**	**608,389**	**33,657**	**148,008**	**203,203**	**20,966,073**	**100.00**
%	**34**	**14**	**47**	**3**	**0**	**1**	**1**	**100**	

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 7: Procurement Plan for first 18 months

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Guidance Note

Overview of the template

The template provides excel worksheets for (i) Guidance, timelines and (ii) the actual Procurement Plan

Worksheets for the Procurement Plan

SUMMARY | GOODS | WORKS | CONSULTING

- **Goods, Works, Consulting:** used to enter procurement plan data. **Note:** Non-consulting services should be inserted in any of the categories for Goods, Works and Consulting depending on the nature of the services.
- **Summary:** displays a summary of amounts by category, and procurement thresholds.

Worksheets for Guidance and timelines

- **Guidance:** quick reference guidance on how to use the template.
- **Time Estimation:** estimated timelines by procurement methods, based on experience and guidance in the Procurement Handbook where specified.

Procurement Summary

The Summary worksheet displays basic information, total amounts and procurement thresholds for the project.

Populating the Procurement Plan Summary

Procurement Plan SUMMARY

Country:	Wakanda
Project Name:	Community Livestock and Agriculture Project (CLAP)
Project ID:	2000001234
Version	1.0
Version Date	01-Jan-20
Prepared by:	
Approved by:	

Procurement Category	Plan		Actual	
Currenty	USD	LCU	USD	LCU
Goods	-	-	-	-
Works	-	-	-	-
Consulting Services	-	-	-	-
TOTAL	-	-	-	-

STEP 1: Enter the **Country**, **Project Name**, Project ID, **Version**, **Version Date** and Name(s) of the person(s) preparing and/or approving the Plan.

Managing versions, updates and upgrades

The Version of the Procurement Plan (and the version date) must be updated for every **Update** and **Upgrade** to the Plan. This version update shall be made to the summary sheet only. It will be automatically populated to the other sheets. The first digit (1.0) should be kept for the entire 18 or 12 months period that represents the Plan's duration and changed in the next period/year (for example, Year/Period 1: 1.0. Year/Period 2: 2.0). The second digit represents updates and upgrades.

An **Update** is the filling in the contents of the **Actual** rows in the Procurement Plan

All other changes are **Upgrades.** For Prior Review, upgrades require an IFAD NO

Do not populate this section. Total amounts are automatically calculated from the Procurement Plan Sheets for each category.

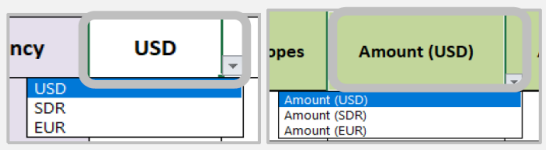
Prior Review Thresholds

Thresholds		Goods		Works	Non-Consulting Services	Firms - Consulting Services	Individuals - Consulting Services
Prior Review		≥ US$ 0.00		≥ US$ 0.00	≥ US$ 0.00	≥ US$ 0.00	≥ US$ 0.00

*All Direct Contracting and Single-Source Procurements are **Prior Review** (in alignment with IFAD Procurement Handbook).*

Procurement Method Thresholds

		Shopping		NCB	ICB
Goods		< US$ 0.00		≥ US$ 0.00 to ≤ US$ 0.00	> US$ 0.00
Works		< US$ 0.00		≥ US$ 0.00 to ≤ US$ 0.00	> US$ 0.00
Non-Consulting Services		< US$ 0.00		≥ US$ 0.00 to ≤ US$ 0.00	> US$ 0.00
		ICS/CQS		LCS	QCBS
Individuals		< US$ 0.00		≥ US$ 0.00 to ≤ US$ 0.00	> US$ 0.00
Firms		< US$ 0.00		≥ US$ 0.00 to ≤ US$ 0.00	> US$ 0.00



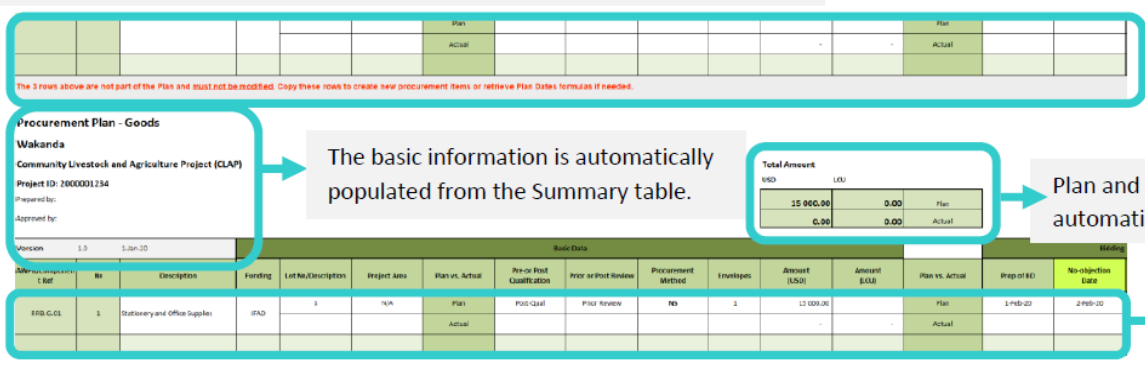
Note: If currency is neither USD nor LOCAL CURRENCY, modify the USD labels in the template using the dropdowns where provided or typing directly if required option is not available.

STEP 2: Enter the **Prior Review Thresholds and Procurement Method Thresholds** for the project. These are defined in the Letter to the Borrower.

Goods, Works and Consulting Worksheets

Planning and Actual data on each procurement item is entered in these worksheets, by category. All worksheets are generally structured the same way.

Overall Structure of the Worksheets



For each worksheet, 3 rows (Plan, Actual and a blank row) are provided at the to facilitate copying/pasting of new items, or retrieval of plan date formulas. **Do not edit/delete these rows.**

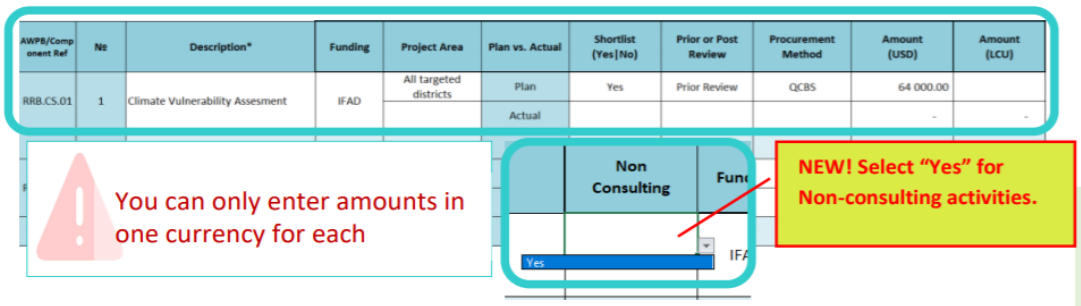
The basic information is automatically populated from the Summary table.

Plan and Actual total amounts are calculated automatically.

A Procurement item should be expressed in a **Planned Row** and an **Actual Row**, with a blank row at the bottom.

Adding a New Procurement Item

STEP 1: To add a new procurement where rows are still available, fill out all the items in the Plan until you get to the date. This is the "**Basic Data**" section, and reference to the corresponding AWPB, Procurement No., Description, Funding, Number of Lots, Project Area (where applicable), Procurement/selection methods and the Planned Amount in USD **or** Local Currency. *The date cells for Goods and Works start with the cell directly under **Submission of PreQual** docs, and for the Consulting Services worksheet, the cell directly under **Submission of REOI.***



Submission of REOI	No Objection Date	REOI Launch Date
Enter Date		

STEP 2: Based on the selected criteria, you will be prompted to **Enter the first date** of the process in the relevant field.

	EOI Shortlist Procedure						
Plan vs. Actual	Submission of REOI	No Objection Date	REOI Launch Date	EOI Submission Deadline	Submission of Shortlist Report	No Objection Date	Submission o RFP/RCQ
Plan	1-Feb-20	8-Feb-20	10-Feb-20	2-Mar-20	16-Mar-20	23-Mar-20	27-Mar-20
Actual							

Planned dates are calculated using formulas, from **start to finish**. **Note:** If you enter a Procurement Method that is not listed in the dropdown, the formulas will not work, however you may proceed with manual entry.

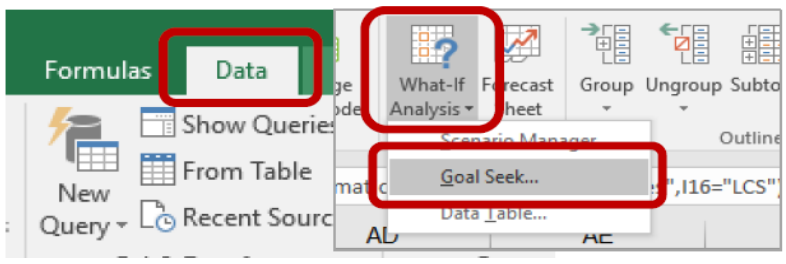
Planned dates provided by the formulas are not prescriptive and may be modified as needed.

Modifying Planned Dates

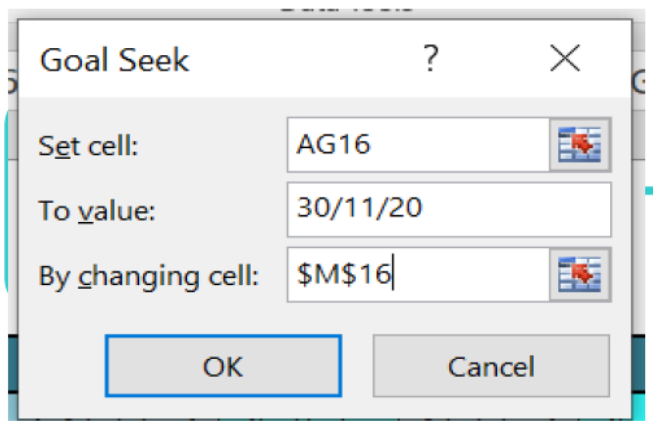
- **Planning from Finish to Start:** As long as no manual entries have been made to the planned dates and the formulas are still in place, you can **adjust the timeline based on an END DATE** as follows:

No-objection Date	Date Contract Award	Date Contract Signature
22-Aug-20	24-Aug-20	31-Aug-20

STEP 1: **Follow steps 1 and 2** in the previous section, entering a start date. Once you have planned dates in the cells based on the formulas, **select** the cell that contains the **last/finish date.**



STEP 2: Click **Data** and select the dropdown menu on the button called **What-If Analysis**. Select the **Goal Seek** feature from the dropdown.



STEP 3: Fill in the popup box as indicated below:

- **Set cell:** this is already selected from step 1. If not, click the field and select the cell containing the last/finish date.
- **To value:** enter the **target finish date** for the procurement.
- **By changing cell:** click the field and select the cell containing the **first/start date.**
- Click **OK**, and then click **OK** again on the following popup.

The timeline will be adjusted, with a new calculated start date.

- **Modifying the number of days in the timeline:** This can be done in two ways:
  - **Using the Time Estimation worksheet:** Modifying the approximate (Approx) number of days for specific processes (by procurement methods) within the Time Estimation worksheet. **Note:** this timeline applies to all items in the procurement worksheet using that method.
  - **Directly modifying planned dates** for a procurement item within the procurement plan worksheet. Note: modifying dates in the worksheets should be done from earliest to latest date, to ensure remaining dates are adjusted accordingly by the formulas.

Using the Time Estimation Sheet to modify timelines by procurement method

This spreadsheet provides estimated timelines by procurement methods, for each step of the procurement process based on experience and guidance in the Procurement Handbook where specified.

Goods & Works

Procurement Method	Bid Invitation Date			Bid Closing-Opening			Su Tec	
	Min	Max	Approx	Min	Max	Approx	Min	
Single Envelope								
RFQ/Shopping (NS/IS)	1	3	1	5	21	14	0	
NCB (no PreQual)	1	3	2	30	45	45	0	
ICB (no PreQual)	1	3	2	45	70	45	0	
LIB (no PreQual)	1	3	2	45	70	45	0	
NCB (with PreQual)	1	3	2	30	45	45	0	
ICB (with PreQual)	1	3	2	45	70	30	0	0 0
LIB (with PreQual)	1	3	2	45	70	45	0	
Direct Contracting	1	3	1	7	30	14	0	
Two Envelope								
NCB (no PreQual)	1	3	2	30	45	45	3	
ICB (no PreQual)	1	3	2	45	70	45	3	

ACTION: Identify the **Approx** cell value for the step in the process, and procurement method for which you wish to modify the timeline, and change the number of days.
Note: Cells will be highlighted for your attention if the value entered is below the Minimum number of days (as shown in this example).

Zero indicates steps that are not applicable to the method, and are indicated as *N/A* in the Formulas.

Directly modifying planned dates

ACTION: Simply enter new dates manually.
Note: Start editing from earliest to latest to ensure that the following dates are adjusted by the formulas.

Note: If you need to restore one or more planned date formulas, you can do so by copying and pasting the corresponding cell (in the same column) from the upper most row in the worksheet.

Plan				
Actual				

	EOI Shortlist Procedure			
Plan vs. Actual	Submission of REOI	No Objection Date	REOI Launch Date	EOI Submission Deadline
Plan	1-Feb-20	8-Feb-20	10-Feb-20	2-Mar-20

Entering Actual Dates and Information

AWPB/Component Ref	№	Description*	Funding	Project Area	Plan vs. Actual	Shortlist (Yes|No)	Prior or Post Review	Procurement Method	Amount (USD)	Amount (LCU)	Plan vs. Actual
RRB.CS.01	1	Climate Vulnerability Assesment	IFAD	All targeted districts	Plan	Yes	Prior Review	QCBS	64 000.00		Plan
				All targeted districts	Actual	Yes	Prior Review	QCBS	-	-	Actual
								ICS			

This cell contains a formula
Actual amounts can be entered at the end of the spreadsheet.

Submission of REOI	No Objection Date	REOI Launch Date	EOI Submission Deadline	Submission of Shortlist Report	No Objection Date
1-Feb-20	8-Feb-20	10-Feb-20	2-Mar-20	16-Mar-20	23-Mar-20
3-Feb-20	9-Feb-20	11-Feb-20	3-Mar-20	16-Mar-20	23-Mar-20

Note: Enter the Actual Amount at the end of the worksheet.

Date Contract Award	Date Contract Signature	Amount (USD)
24-Aug-20	31-Aug-20	64 000.00
30-Aug-20	10-Sep-20	60 000.00

ACTION: As the procurement processes are implemented, update the Actual Rows for the Basic Data, Actual Dates and finally, the Actual Amount at the end of the worksheet. **NEW!** Columns have been added for Contract No., **Vendor Name/ID**, **Contract Completion** and **Remarks**

	USD	LCU	
Total Amount	**80 000.00**	**0.00**	Plan
	65 000.00	**0.00**	Actual
Non-Consulting:	*30 000.00*	*0.00*	*Plan*
	20 000.00	*0.00*	*Actual*

NEW! Total values are included for Non-Consulting activities on each worksheet and in the summary worksheet.

Procurement Category	Plan		Actual	
Currency	USD	LCU	USD	LCU
Goods	50 000.00	-	45 000.00	-
Works	-	80 000.00	-	75 000.00
Consulting Services	15 000.00	-	10 000.00	-
Non-Consulting Services	30 000.00	-	20 000.00	-
TOTAL	95 000.00	80 000.00	75 000.00	75 000.00

Entering Actual Data and Information for Multiple LOTS

In cases of multiple LOTS, insert a new Actual Row for each LOT. The Actual Dates will likely be the same until the Submission of Technical Evaluation Report.

1								Plan	
								Actual	
3									
4	The 3 rows above are not part of the Plan and must not be modified. Copy these rows to create new procureme								

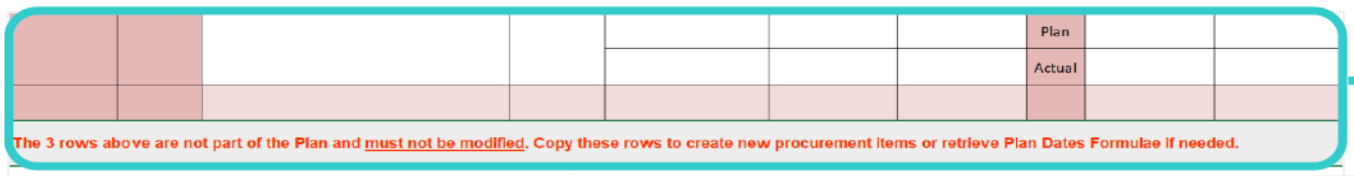
STEP 1: Select and **Copy** the **Actual** Row (Row 2) from the top section of the worksheet, and insert the copied row in your worksheet to create another Actual row as shown in the screenshot below.

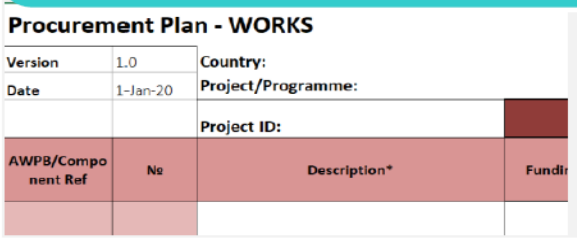
STEP 2: In the Lot No./Description section of the Planned Row, indicate the number of LOTS in the Plan row, and individual lots in each Actual row. Fill in the information as shown in the example below.

Lot №/Description	Project Area	Plan vs. Actual	Pre-or Post Qualification	Prior or Post Review	Procurement Method	Envelopes	Amount (USD)
2 Lots	N/A	Plan	Post-Qual	Post Review	NS	1	25 000.00
1. Desktops	N/A	Actual	Post-Qual	Post Review	NS	1	15 000.00
2. Monitors	N/A	Actual	Post-Qual	Post Review	NS	1	10 000.00

NOTE: The Amount entered on the Plan row is the total amount for all the lots, while the amount entered in the Actual row reflects the amount for each lot.

Adding Rows for New Procurement Items



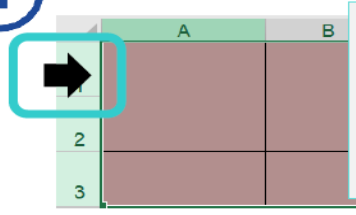


For all worksheets (Goods, Works, Consulting), 3 rows (Planned row, Actual row, and the blank row) are provided at the top of the worksheet, before the start of the Procurement Plan.

Do not modify or delete these rows. They are not part of the Plan and serve only to create new procurement items or retrieve formulas if needed.

To add rows for a new procurement item

1 **Scroll to the top of the worksheet and select the first 3 rows.**

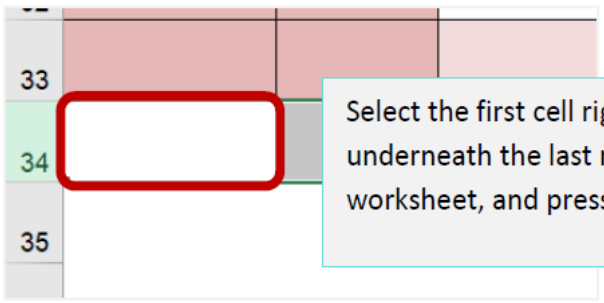


Quick tip:
Hover the mouse over the first row number until you see a small black arrow, then click and drag down to the 3rd row.

2 **Copy the selected rows**

Right click anywhere within the selected area and select **Copy** on the dropdown menu.
OR press **CTRL + C** on the keyboard.

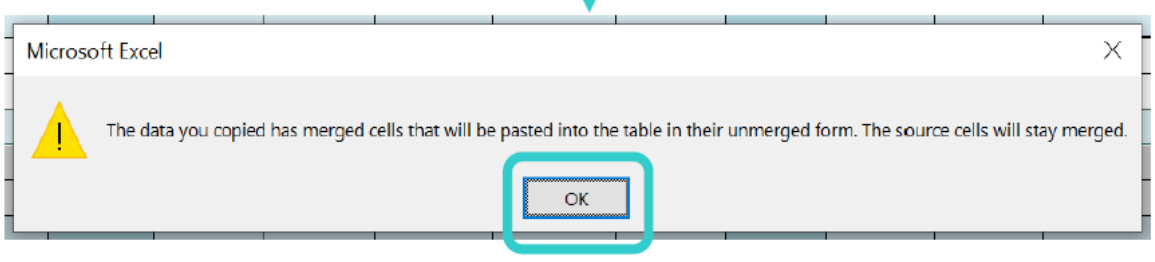
3 **Paste the rows at the end of the Plan**



Select the first cell right underneath the last row in the worksheet, and press **CTRL + V**

4

Click **OK** on the following popup.



Things to Note

- Do not insert or delete a column in the **Time Estimation** worksheet;
- Users are advised against inserting or deleting columns in the worksheets for Goods, Works, Consulting. If this is necessary, please note that the automation will be lost and manual entry will be required;
- Do not copy rows and columns from other Plan worksheets to paste in a worksheet;
- Users of the Plan are advised not to change any of the formulas in the document, with the exception of changing dates (a copy of the formulas are provided at the top of every worksheet for new rows or inadvertent deletions).

Procurement Plan SUMMARY

Country:	Rwanda
Project Name:	Kayonza Irrigation and Integrated Watershed Management Project, Phase 2 (KIIWP2)
Project ID:	2000002350
Version	1.0
Version Date	16-Apr-21
Prepared by:	Ingabire Ramutsa Angelique
Approved by:	Rwamulangwa Stephen

Procurement Category	Plan		Actual	
Currency	**USD**	**LCU**	**USD**	**LCU**
Goods	-	1,656,347,000.00	-	-
Works	-	9,796,066,000.00	-	-
Consulting Services	-	4,729,990,000.00	-	-
Non-Consulting Services	-	1,430,985,000.00	-	-
TOTAL	**-**	**17,613,388,000.00**	**-**	**-**

Prior Review Thresholds				
Thresholds	**Goods**	**Works**	**Firms - Consulting Services**	**Individuals - Consulting Services**
Prior Review	≥ US$ 100,000.00	≥ US$ 200,000.00	≥ US$ 100,000.00	≥ US$ 50,000.00

All Direct Contracting and Single-Source Procurements are ***Prior Review*** *(in alignment with IFAD Procurement Handbook), or based on the thresholds stipulated in the LTB*

The exchange rate at time of submission will be used for reviews.

Procurement Method Thresholds			
	Shopping	**NCB**	**ICB**
Goods	< US$ 20,000.00	≥ US$ 20,000.00 to ≤ US$ 250,000.00	> US$ 250,000.00
Works	< US$ 40,000.00	≥ US$ 40,000.00 to ≤ US$ 1,000,000.00	> US$ 1,000,000.00
Non-Consulting Services	< US$ 20,000.00	≥ US$ 20,000.00 to ≤ US$ 250,000.00	> US$ 250,000.00
	CQS	**QBS/LCS/FBS**	**QCBS**
Firms	< US$ 100,000.00	≥ US$ 100,000 to ≤ US$ 200,000.00	> US$ 200,000.00

							Plan							Plan									
							Actual					-	-	Actual									

The 3 rows above are not part of the Plan and must not be modified. Copy these rows to create new procurement items or retrieve Plan Dates formulas if needed.

Procurement Plan - Goods

Kayonza Irrigation and Integrated Watershed Management Project, Phase 2 (KIIWP2)
Project ID: 2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

	USD	LCU	
Total Amount	**0.00**	**2,997,332,000.00**	Plan
	0.00	**0.00**	Actual
Non-Consulting:	*0.00*	*1,340,985,000.00*	*Plan*
	0.00	*0.00*	*Actual*

Version	1.0	16-Apr-21	Basic Data												Pre-Qualification						Bidding Process		
AWPB/Component Ref	**№**	**Description**	**Non Consulting**	**Funding**	**Lot №/Description**	**Project Area or Procuring Entity**	**Plan vs. Actual**	**Pre-or Post Qualification**	**Prior or Post Review**	**Procurement Method**	**Envelopes**	**Amount (USD)**	**Amount (LCU)**	**Plan vs. Actual**	**Submission of PreQual Docs**	**No Objection Date**	**PreQual Invitation Date**	**PreQual Closing Date**	**Submission of PreQual Report**	**No Objection Date**	**Submission of BD**	**No-objection Date**	**Bid Invitation Date**
C11102	1	Acquisition of inputs (lime and organic manure) for Ndego and Kabare sectors		IFAD	N/A		Plan	Post-Qual	Prior Review	**DC**	1		500,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	24-Apr-22	27-Apr-22	30-Apr-22
							Actual					-		Actual									
C12102	2	Supply and installation of In-field irrigation in Kibare, Ihema and Nasho		IFAD	N/A		Plan	Post-Qual	Prior Review	ICB	1		1,061,280,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	22-Feb-22	8-Mar-22	10-Mar-22
							Actual					-		Actual									
C3201	3	Acquisition of office equipment and furniture		IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		10,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	11-Jan-22	N/A	12-Jan-22
							Actual					-		Actual									
C14008	4	Acquisition of bicycles		IFAD	N/A		Plan	Post-Qual	Post Review	NCB	1		23,835,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	11-Apr-23	N/A	13-Apr-23
							Actual					-		Actual									
C14101 C14102 C14103 C14104 C14105	5	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 cassava, 10 maize and beans, 10 banana, vegetables, and orange sweet potato FFS in Kayonza		IFAD	N/A		Plan	Post-Qual	Post Review	Use of RAB framework contracts	1		2,500,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
							Actual					-		Actual									
C14301 C14302 C12303 C14304	6	Acquisition and distribution of orange sweet potato vines, iron fortified beans seeds and kale seeds		IFAD	N/A		Plan	Post-Qual	Post Review	Use of RAB framework contracts	1		1,120,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
							Actual					-		Actual									
C13103 C14002	7	Acquisition of promotion materials		IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		5,012,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	10-Jan-22	N/A	11-Jan-22
							Actual					-		Actual									
C320203	8	Acquisition of office supply / consumables		IFAD	N/A		Plan	Post-Qual	Post Review	NCB	1		30,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	8-Feb-22	N/A	10-Feb-22
							Actual					-	-	Actual									
C320213	9	Acquisition of computer accessories		IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		9,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	30-Jan-22	N/A	31-Jan-22
							Actual							Actual									
C320402	10	Acquisition of fuel for 4 WD Twin Cab pickups		IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		9,600,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	9-Dec-21	N/A	10-Dec-21
							Actual					-		Actual									
C320404	11	Acquisition of tyres		IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		4,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	30-Jan-22	N/A	31-Jan-22
							Actual					-	-	Actual									
C11201 C11202	12	Preparation ,production and plantation of forest trees (callistris robusta, Pinus patula, Eucalyptus varieties, etc)	Yes Yes	IFAD	N/A		Plan	Post-Qual	Prior Review	DC	1		621,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	2-Feb-22	16-Feb-22	18-Feb-22
							Actual							Actual									

								Plan						-	-			
								Actual										

The 3 rows above are not part of the Plan and must not be modified. Copy these rov

Procurement Plan - Goods

Kayonza Irrigation and Integrated Watershed Management Project, Phase 2 (KIIWP2
Project ID: 2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

Procurement Methods
NS: National Shopping
IS: International Shopping
NCB: National Competitive Bidding
ICB: International Competitive Bidding
LIB: Limited (International) Bidding
DC: Direct Contracting

Version	1.0	16-Apr-21		Bid Evaluation					Contract Award & Signature								
AWPB/Component Ref	№	Description	Bid Closing-Opening	Submission Tech Eval Rpt	No-objection Date	Submission Combined Eval Rpt*	No-objection Date	Plan vs. Actual	Issue of NOITA&Standstill	Date Contract Award	Date Contract Signature	Contract No.	Vendor Name/ID	Amount (USD)	Amount (LCU)	Date Contract Completion	Remarks
C11102	1	Acquisition of inputs (lime and organic manure) for Ndego and Kabare sectors	14-May-22	N/A	N/A	4-Jun-22	18-Jun-22	Plan	25-Jun-22	8-Jul-22	22-Jul-22			-	500,000,000	22-Jul-23	The acquistion of inputs must be undertaken without disrupting ongoing operations.
								Actual									
C12102	2	Supply and installation of In-field irrigation in Kibare, Ihema and Nasho	24-Apr-22	N/A	N/A	15-May-22	29-May-22	Plan	5-Jun-22	19-Jun-22	24-Jun-22			-	1,061,280,000	24-Dec-23	
								Actual									
C3201	3	Acquisition of office equipment and furniture	26-Jan-22	N/A	N/A	26-Jan-22	N/A	Plan	26-Jan-22	28-Jan-22	30-Jan-22			-	10,000,000	31-May-22	
								Actual									
C14008	4	Acquisition of bicycles	13-May-23	N/A	N/A	3-Jun-23	N/A	Plan	10-Jun-23	24-Jun-23	29-Jun-23			-	23,835,000	29-Aug-23	
								Actual									
C14101 C14102 C14103 C14104 C14105	5	Inputs and materials for Ngoma RAB station for establishing demosntration plots and trials at both RAB stations and 10 cassava, 10 maize and beans, 10 banana, vegetables, and orange sweet potato FFS in Kayonza	N/A	N/A	N/A	N/A	N/A	Plan	N/A	N/A	N/A			-	2,500,000	30 days from the purchase order date	Seeds multiplication and supply is governed by Law No. 005/2016 of 05/04/2016 governing seeds and plant varieties in Rwanda. RAB has the mandate to certify seeds multipliers and monitor them to ensure the quality of seed and compliance with the above law.
								Actual									
C14301 C14302 C12303 C14304	6	Acquisition and distribution of orange sweet potato vines, iron fortified beans seeds and kale seeds	N/A	N/A	N/A	N/A	N/A	Plan	N/A	N/A	N/A			-	1,120,000	30 days from the purchase order date	Seeds multiplication and supply is governed by Law No. 005/2016 of 05/04/2016 governing seeds and plant varieties in Rwanda. RAB has the mandate to certify seeds multipliers and monitor them to ensure the quality of seed and compliance with the above law.
								Actual									
C13103 C14002	7	Acquisition of promotion materials	25-Jan-22	N/A	N/A	25-Jan-22	N/A	Plan	25-Jan-22	27-Jan-22	29-Jan-22			-	5,012,000	30-Mar-23	
								Actual									
C320203	8	Acquisition of office supply / consumables	27-Mar-22	N/A	N/A	10-Apr-22	N/A	Plan	22-Apr-22	29-Apr-22	1-May-22			-	30,000,000	1-May-23	
								Actual									
C320213	9	Acquisition of computer accessories	14-Feb-22	N/A	N/A	14-Feb-22	N/A	Plan	14-Feb-22	16-Feb-22	18-Feb-22			-	9,000,000	19-Apr-23	
								Actual									
C320402	10	Acquisition of fuel for 4 WD Twin Cab pickups	24-Dec-21	N/A	N/A	24-Dec-21	N/A	Plan	24-Dec-21	26-Dec-21	28-Dec-21			-	9,600,000	26-Feb-23	
								Actual									
C320404	11	Acquisition of tyres	14-Feb-22	N/A	N/A	14-Feb-22	N/A	Plan	14-Feb-22	16-Feb-22	18-Feb-22			-	4,000,000	19-Apr-23	
								Actual									
C11201 C11202	12	Preparation ,production and plantation of forest trees (callistris robusta, Pinus patula, Eucalyptus varieties, etc)	25-Feb-22	N/A	N/A	2-Mar-22	9-Mar-22	Plan	22-Mar-22	29-Mar-22	31-Mar-22			-	621,000,000	1-Oct-23	The activity must be undertaken without disrupting ongoing operations
								Actual									

Version	1.0	16-Apr-21	Basic Data													Pre-Qualification						Bidding Process		
AWPB/Component Ref	№	Description	Non Consulting	Funding	Lot №/Description	Project Area or Procuring Entity	Plan vs. Actual	Pre-or Post Qualification	Prior or Post Review	Procurement Method	Envelopes	Amount (USD)	Amount (LCU)	Plan vs. Actual	Submission of PreQual Docs	No Objection Date	PreQual Invitation Date	PreQual Closing Date	Submission of PreQual Report	No Objection Date	Submission of BD	No-objection Date	Bid Invitation Date
C11401	13	Management and maintenance of 900 ha of fruit orchard in Murama and Kabare Sectors	Yes	IFAD	N/A		Plan	Post-Qual	Prior Review	DC	1		600,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	9-Feb-22	23-Feb-22	25-Feb-22
			Yes				Actual					-	-	Actual									
C320206	14	Codification of KIIWP equipment	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		2,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Jun-22	N/A	16-Jun-22
			Yes				Actual					-		Actual									
C320210	15	Decoration for agrishow	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		3,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	28-Feb-22	N/A	1-Mar-22
			Yes				Actual					-	-	Actual									
C31001 C31101 C320212	16	Refreshment service (different meetings& workshops)	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NCB	1		41,000,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	30-Nov-21	N/A	2-Dec-21
			Yes				Actual					-		Actual									
C320214	17	Vehicle hire for office administration transport services in Kigali City	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NCB	1		22,935,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	6-Nov-21	N/A	8-Nov-21
			Yes				Actual					-		Actual									
C320215	18	Car wash cleaning services	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		4,320,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	3-Nov-21	N/A	4-Nov-21
			Yes				Actual					-		Actual									
C320216	19	Sport for SPIU staff	Yes	GoR	N/A		Plan	Post-Qual	Post Review	NS	1		2,940,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	28-Jan-22	N/A	29-Jan-22
			Yes				Actual					-	-	Actual									
C320217	20	Cleaning service	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		16,398,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	12-Jan-22	N/A	13-Jan-22
			Yes				Actual					-	-	Actual									
C320401	21	Insurance for 4 WD Twin Cab pickups	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		8,192,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	2-Aug-22	N/A	3-Aug-22
			Yes				Actual					-		Actual									
C320404	22	Maintenance fees for 4 WD Twin Cab pickups	Yes	IFAD	N/A		Plan	Post-Qual	Post Review	NS	1		19,200,000	Plan	N/A	N/A	N/A	N/A	N/A	N/A	31-Jan-22	N/A	1-Feb-22
			Yes				Actual					-	-	Actual									

Version	1.0	16-Apr-21		Bid Evaluation					Contract Award & Signature								
AWPB/Component Ref	№	Description	Bid Closing-Opening	Submission Tech Eval Rpt	No-objection Date	Submission Combined Eval Rpt*	No-objection Date	Plan vs. Actual	Issue of NOITA&Standstill	Date Contract Award	Date Contract Signature	Contract No.	Vendor Name/ID	Amount (USD)	Amount (LCU)	Date Contract Completion	Remarks
C11401	13	Management and maintenance of 900 ha of fruit orchard in Murama and Kabare Sectors	4-Mar-22	N/A	N/A	9-Mar-22	16-Mar-22	Plan	29-Mar-22	5-Apr-22	8-Apr-22			-	600,000,000	8-Apr-23	The activity must be undertaken without disrupting ongoing operations
								Actual									
C320206	14	Codification of KIIWP equipment	30-Jun-22	N/A	N/A	30-Jun-22	N/A	Plan	30-Jun-22	2-Jul-22	4-Jul-22			-	2,000,000	2-Sep-23	
								Actual									
C320210	15	Decoration for agrishow	15-Mar-22	N/A	N/A	15-Mar-22	N/A	Plan	15-Mar-22	17-Mar-22	19-Mar-22			-	3,000,000	18-May-23	
								Actual									
C31001 C31101 C320212	16	Refreshment service (different meetings& workshops)	1-Jan-22	N/A	N/A	22-Jan-22	N/A	Plan	29-Jan-22	12-Feb-22	17-Feb-22			-	41,000,000	17-Feb-23	
								Actual									
C320214	17	Vehicle hire for office administration transport services in Kigali City	8-Dec-21	N/A	N/A	29-Dec-21	N/A	Plan	5-Jan-22	19-Jan-22	24-Jan-22			-	22,935,000	24-Jan-23	
								Actual									
C320215	18	Car wash cleaning services	18-Nov-21	N/A	N/A	18-Nov-21	N/A	Plan	18-Nov-21	20-Nov-21	22-Nov-21			-	4,320,000	21-Jan-23	
								Actual									
C320216	19	Sport for SPIU staff	12-Feb-22	N/A	N/A	12-Feb-22	N/A	Plan	12-Feb-22	14-Feb-22	16-Feb-22			-	2,940,000	17-Apr-23	
								Actual									
C320217	20	Cleaning service	27-Jan-22	N/A	N/A	27-Jan-22	N/A	Plan	27-Jan-22	29-Jan-22	31-Jan-22			-	16,398,000	1-Apr-23	
								Actual									
C320401	21	Insurance for 4 WD Twin Cab pickups	17-Aug-22	N/A	N/A	17-Aug-22	N/A	Plan	17-Aug-22	19-Aug-22	21-Aug-22			-	8,192,000	20-Oct-23	
								Actual									
C320404	22	Maintenance fees for 4 WD Twin Cab pickups	15-Feb-22	N/A	N/A	15-Feb-22	N/A	Plan	15-Feb-22	17-Feb-22	19-Feb-22			-	19,200,000	20-Apr-23	
								Actual									

							Plan							Plan				
							Actual					-	-	Actual				

The 3 rows above are not part of the Plan and must not be modified. Copy these rows to create new procurement items or retrieve Plan Dates formulas if needed.

Procurement Plan -Works

Kayonza Irrigation and Integrated Watershed Management Project, phase 2 (KIIWP2)

Project ID:2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

	USD	LCU	
Total Amount	**0.00**	**9,796,066,000.00**	Plan
	0.00	**0.00**	Actual
Non-Consulting:	*0.00*	*0.00*	*Plan*
	0.00	*0.00*	*Actual*

Version	**1.0**	**16-Apr-21**	**Basic Data**												**Pre-Qualification**			
AWPB/Component Ref	**№**	**Description**	**Non Consulting**	**Funding**	**Lot №/Description**	**Project Area or Procuring Entity**	**Plan vs. Actual**	**Pre-or Post Qualification**	**Prior or Post Review**	**Procurement Method**	**Envelopes**	**Amount (USD)**	**Amount (LCU)**	**Plan vs. Actual**	**Submission of PreQual Docs**	**No Objection Date**	**PreQual Invitation Date**	**PreQual Closing Date**
C11101	1	Establishment of land husbandry techniques including agroforestry trees in Ndego and Kabare sectors		IFAD	N/A	Kabare Sector	Plan	Post-Qual	Prior Review	Force Account	1		1,493,586,000	Plan	N/A	N/A	N/A	N/A
							Actual					-		Actual				
C12101	2	Civil Works for bulk Irrigation Infrastructure and ESMPs in Kibare, Ihema and Nasho		IFAD	**4 lots**	Kibare-Ihema -Nasho	Plan	Post-Qual	Prior Review	ICB	1		8,136,480,000	Plan	N/A	N/A	N/A	N/A
					Lot 1: Bulk Irrigation Infrastructure and ESMPs for Kibare block		Actual							Actual				
					Lot 2:Bulk Irrigation Infrastructure and ESMPs for Ihema block		Actual							Actual				
					Lot 3:Bulk Irrigation Infrastructure and ESMPs for Nasho block		Actual					-		Actual				
					Lot 4:Farm roads, offices and post harverst infrastructures, preliminary land preparation and drainage system		Actual					-		Actual				
C12103	3	Civil Works for Gishanda Dam and irrigation infrastructure (125ha)		IFAD	N/A	Gishanda	Plan	Post-Qual	Prior Review	Force Account	1		166,000,000	Plan	N/A		N/A	N/A
							Actual					-		Actual				

													Plan						-
													Actual						

The 3 rows above are not part of the Plan and must not be modifi

Procurement Plan -Works

Kayonza Irrigation and Integrated Watershed Management Project, phase 2 (KIIWP2)

Project ID:2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

Procurement Methods
NS: National Shopping
IS: International Shopping
NCB: National Competitive Bidding
ICB: International Competitive Bidding
LIB: Limited (International) Bidding
DC: Direct Contracting

Version	1.0	16-Apr-21			Bidding Process				Bid Evaluation					Contract Award & Signature					
AWPB/Component Ref	№	Description	Submission of PreQual Report	No Objection Date	Submission of BD	No-objection Date	Bid Invitation Date	Bid Closing-Opening	Submission Tech Eval Rpt	No-objection Date	Submission Combined Eval Rpt*	No-objection Date	Plan vs. Actual	Issue of NOITA&Standstill	Date Contract Award	Date Contract Signature	Contract No.	Vendor Name/ID	Amount (USD)
C11101	1	Establishment of land husbandry techniques including agroforestry trees in Ndego and Kabare sectors	N/A	N/A	24-Apr-22	27-Apr-22	4/31/2022	14-May-22	N/A	N/A	4-Jun-22	18-Jun-22	Plan	25-Jun-22	8-Jul-22	22-Jul-22			-
													Actual						
C12101	2	Civil Works for bulk Irrigation Infrastructure and ESMPs in Kibare, Ihema and Nasho	N/A	N/A	20-Jul-22	3-Aug-22	5-Aug-22	19-Sep-22	N/A	N/A	10-Oct-22	24-Oct-22	Plan	31-Oct-22	14-Nov-22	19-Nov-22			-
													Actual						
													Actual						
													Actual						
													Actual						
													Actual						
C12103	3	Civil Works for Gishanda Dam and irrigation infrastructure (125ha)	N/A		27-Jul-23		30-Jul-23	13-Aug-23	N/A	N/A	3-Sep-23		Plan	10-Sep-23	24-Sep-23	1-Oct-23			-
													Actual						

			-		

The 3 rows above are not part of the Plan and must not be modifi

Procurement Plan -Works

Kayonza Irrigation and Integrated Watershed Management Project, phase 2 (KIIWP2)

Project ID:2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

Version	**1.0**	**16-Apr-21**			
AWPB/Component Ref	**№**	**Description**	**Amount (LCU)**	**Date Contract Completion**	**Remarks**
C11101	1	Establishment of land husbandry techniques including agroforestry trees in Ndego and Kabare sectors	1,493,586,000	22-Jul-23	The construction and installation works must be undertaken without disrupting ongoing operations
C12101	2	Civil Works for bulk Irrigation Infrastructure and ESMPs in Kibare, Ihema and Nasho	8,136,480,000	22-Jan-24	The amount of Rwf 20,493,3R00,000 in PP comes from the total estimated budget for this activity, which will extend to the following financial year. On the contrary, the amount of Rwf 8,766,480,000 in the AWPB comprises the projection of expenditures (40% of the total estimated amount) on 30th June 2023.
C12103	3	Civil Works for Gishanda Dam and irrigation infrastructure (125ha)	166,000,000	1-Oct-24	The construction and installation works must be undertaken without disrupting ongoing operations

						Plan						Plan												
						Actual				-	-	Actual												

The 3 rows above are not part of the Plan and must not be modified. Copy these rows to create new procurement items or retrieve Plan Dates formulas if needed.

Procurement Plan - Consulting

Kayonza Irrigation and Integrated Watershed Management Project, phase 2 (KIIWP2)

Project ID: 2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

	USD	LCU	
Total Amount	**0.00**	**4,819,990,000.00**	Plan
	0.00	**0.00**	Actual
Non-Consulting:	*0.00*	*90,000,000.00*	*Plan*
	0.00	*0.00*	*Actual*

Version	**1.0**	**16-Apr-21**	**Basic Data**										**EOI Shortlist Procedure**						**Proposal Process**				**Evaluation**	
AWPB/Component Ref	**№**	**Description***	**Non Consulting**	**Funding**	**Project Area or Procuring Entity**	**Plan vs. Actual**	**Shortlist (Yes|No)**	**Prior or Post Review**	**Procurement Method**	**Amount (USD)**	**Amount (LCU)**	**Plan vs. Actual**	**Submission of REOI**	**No Objection Date**	**REOI Launch Date**	**EOI Submission Deadline**	**Submission of Shortlist Report**	**No Objection Date**	**Submission of RFP/RCQ**	**No-objection Date**	**RFP/RCQ Launch Date**	**Proposal submission deadline**	**Submission of TER**	**No-objection Date**
C12001	1	Recruitment of a national firm to undertake a Detailed design for Kanyeganyege dam and irrigation system (150ha)		IFAD	Kanyeganyege	Plan	Yes	Post Review	CQS		60,000,000	Plan	20-Aug-22	N/A	22-Aug-22	12-Sep-22	26-Sep-22	N/A	30-Sep-22	N/A	2-Oct-22	23-Oct-22	6-Nov-22	N/A
						Actual						Actual												
C12002	2	Recruitment of an international firm to undertake a Detailed design for pipeline 5000 ha net Command Area in Eastern Province of Rwanda		IFAD	Kanyeganyege	Plan	Yes	Prior Review	QCBS		500,000,000	Plan	24-Oct-22	7-Nov-22	9-Nov-22	30-Nov-22	21-Dec-22	4-Jan-23	8-Jan-23	22-Jan-23	24-Jan-23	10-Mar-23	31-Mar-23	14-Apr-23
						Actual				-		Actual												
C12201	3	Recrutement of a company for the Supervision works for Nasho, Kibare and Ihema schemes		IFAD	Kanyegenyege	Plan	Yes	Prior Review	QCBS		750,000,000	Plan	13-Feb-22	27-Feb-22	1-Mar-22	22-Mar-22	12-Apr-22	26-Apr-22	30-Apr-22	14-May-22	16-May-22	30-Jun-22	21-Jul-22	4-Aug-22
						Actual				-		Actual												
C12202	4	Recrutement of a company for the supervision works for Gishanda		IFAD	Gishanda	Plan	Yes	Post Review	CQS		75,000,000	Plan	13-Apr-23	N/A	15-Apr-23	6-May-23	20-May-23	N/A	24-May-23	N/A	26-May-23	16-Jun-23	30-Jun-23	N/A
						Actual				-		Actual												
C14009	5	Recruitement of service provider to roll out PICSA training		IFAD		Plan	Yes	Post Review	CQS		25,000,000	Plan	20-Apr-22	N/A	22-Apr-22	13-May-22	27-May-22	N/A	31-May-22	N/A	2-Jun-22	23-Jun-22	7-Jul-22	N/A
						Actual				-		Actual												
C21001	6	Recruitment of service provider to build capacity of farmers' cooperatives on Global GAP certification		IFAD		Plan	No	Post Review	CQS		45,000,000	Plan	3-Feb-22	N/A	N/A	N/A	N/A	N/A	10-Feb-22	N/A	12-Feb-22	5-Mar-22	19-Mar-22	N/A
						Actual				-		Actual												
C21101	7	Recrutment of the SP for the Preparation of Business Plans		IFAD		Plan	Yes	Post Review	ICS		2,760,000	Plan	17-Apr-23	N/A	19-Apr-23	10-May-23	24-May-23	N/A	28-May-23	N/A	30-May-23	20-Jun-23	4-Jul-23	N/A
						Actual				-		Actual												
C23203	8	Recruitment of SP to support access to agricultural insurance among KIIWP beneficiaries as well as training of NAIS stakeholders		IFAD		Plan	Yes	Prior Review	QCBS		300,000,000	Plan	19-Dec-22	2-Jan-23	4-Jan-23	25-Jan-23	15-Feb-23	1-Mar-23	8-Mar-23	22-Mar-23	24-Mar-23	8-May-23	29-May-23	12-Jun-23
						Actual				-		Actual												
C31004	9	Recruitment of a consulting firm for the Policy assesment and regulation studies		IFAD		Plan	Yes	Post Review	CQS		80,000,000	Plan	10-Apr-23	N/A	12-Apr-23	3-May-23	17-May-23	N/A	21-May-23	N/A	23-May-23	13-Jun-23	27-Jun-23	N/A
						Actual				-	-	Actual												
C31006	10	Recruitment for an individual consultant to assess the nutrition studies for baseline (MDD-W)		IFAD		Plan	No	Post Review	ICS		25,000,000	Plan	10-Mar-23	N/A	N/A	N/A	N/A	N/A	17-Mar-23	N/A	19-Mar-23	9-Apr-23	23-Apr-23	N/A
						Actual				-	-	Actual												
C3202	11	KIIWP2 Outcome Survey		IFAD		Plan	No	Post Review	CQS		40,000,000	Plan	18-Jul-22	N/A	N/A	N/A	N/A	N/A	25-Jul-22	N/A	27-Jul-22	17-Aug-22	31-Aug-22	N/A

					Plan									-	-		
					Actual												

The 3 rows above are not part of the Plan and must not be modified. Copy these r

Procurement Plan - Consulting

Kayonza Irrigation and Integrated Watershed Management Project, phase 2 (KIIWF

Project ID: 2000002350

Prepared by: Ingabire Ramutsa Angelique

Approved by:Rwamulangwa Stephen

Selection Methods
QCBS: Quality and Cost-Based Selection
QBS: Quality-Based Selection
CQS: Selection by Consultants' Qualifications (shortlist is required for this method)
LCS: Least-Cost Selection
FBS Fixed Budget Selection
ICS: Individual Consultants Selection
SSS: Sole Source Selection

Version 1.0		16-Apr-21				Contract Award & Signature											
AWPB/Component Ref	№	Description*	Submission of CER	No-objection Date	Plan vs. Actual	Issue of NOITA&Standstill	Negotiations completed	Submission of Draft Contract and MoN	No-objection Date	Date Contract Award	Date Contract Signature	Contract No.	Vendor Name/ID	Amount (USD)	Amount (LCU)	Date Contract Completion	Remarks
C12001	1	Recruitment of a national firm to undertake a Detailed design for Kanyeganyege dam and irrigation system (150ha)	N/A	N/A	Plan	18-Nov-22	2-Dec-22	6-Dec-22	N/A	8-Dec-22	15-Dec-22			-	60,000,000	19-Jul-23	
					Actual												
C12002	2	Recruitment of an international firm to undertake a Detailed design for pipeline 5000 ha net Command Area in Eastern Province of Rwanda	28-Apr-23	12-May-23	Plan	26-May-23	9-Jun-23	13-Jun-23	27-Jun-23	29-Jun-23	6-Jul-23			-	500,000,000	6-Mar-24	
					Actual												
C12201	3	Recrutement of a company for the Supervision works for Nasho, Kibare and Ihema schemes	18-Aug-22	1-Sep-22	Plan	15-Sep-22	29-Sep-22	3-Oct-22	17-Oct-22	19-Oct-22	26-Oct-22			-	750,000,000	26-Feb-24	
					Actual										02/26/202		
C12202	4	Recrutement of a company for the supervision works for Gishanda	N/A	N/A	Plan	12-Jul-23	26-Jul-23	30-Jul-23	N/A	1-Aug-23	8-Aug-23			-	75,000,000	1-Nov-24	
					Actual												
C14009	5	Recruitement of service provider to roll out PICSA training	N/A	N/A	Plan	19-Jul-22	2-Aug-22	6-Aug-22	N/A	8-Aug-22	15-Aug-22			-	25,000,000	31-Mar-23	
					Actual												
C21001	6	Recruitment of service provider to build capacity of farmers' cooperatives on Global GAP certification	N/A	N/A	Plan	31-Mar-22	14-Apr-22	18-Apr-22	N/A	20-Apr-22	27-Apr-22			-	45,000,000	27-Jul-22	
					Actual												
C21101	7	Recrutment of the SP for the Preparation of Business Plans	N/A	N/A	Plan	16-Jul-23	30-Jul-23	3-Aug-23	N/A	5-Aug-23	12-Aug-23			-	2,760,000	12-Aug-24	
					Actual												
C23203	8	Recruitment of SP to support access to agricultural insurance among KIIWP beneficiaries as well as training of NAIS stakeholders	26-Jun-23	10-Jul-23	Plan	24-Jul-23	7-Aug-23	11-Aug-23	25-Aug-23	27-Aug-23	3-Sep-23			-	300,000,000	3-Sep-24	
					Actual												
C31004	9	Recruitment of a consulting firm for the Policy assesment and regulation studies	N/A	N/A	Plan	9-Jul-23	23-Jul-23	27-Jul-23	N/A	29-Jul-23	5-Aug-23			-	80,000,000	21-Mar-24	
					Actual												
C31006	10	Recruitment for an individual consultant to assess the nutrition studies for baseline (MDD-W)	N/A	N/A	Plan	5-May-23	19-May-23	23-May-23	N/A	25-May-23	1-Jun-23			-	25,000,000	1-Sep-24	
					Actual												
C3202	11	KIIWP2 Outcome Survey	N/A	N/A	Plan	12-Sep-22	26-Sep-22	30-Sep-22	N/A	2-Oct-22	9-Oct-22			-	40,000,000	25-Feb-23	

Version	1.0	16-Apr-21	Basic Data										EOI Shortlist Procedure						Proposal Process				Evaluation	
AWPB/Component Ref	№	Description*	Non Consulting	Funding	Project Area or Procuring Entity	Plan vs. Actual	Shortlist (Yes|No)	Prior or Post Review	Procurement Method	Amount (USD)	Amount (LCU)	Plan vs. Actual	Submission of REOI	No Objection Date	REOI Launch Date	EOI Submission Deadline	Submission of Shortlist Report	No Objection Date	Submission of RFP/RCQ	No-objection Date	RFP/RCQ Launch Date	Proposal submission deadline	Submission of TER	No-objection Date
						Actual				-	-	Actual												
C12203	12	International technical assistance (mitigation expert)		IFAD		Plan	Yes	Prior Review	QCBS		180,000,000.00	Plan	5-Feb-22	12-Feb-22	14-Feb-22	28-Feb-22	14-Mar-22	21-Mar-22	25-Mar-22	1-Apr-22	3-Apr-22	18-May-22	1-Jun-22	8-Jun-22
						Actual				-	-	Actual												
C13101	13	Support cooperatives to establish professional committee in charge of operationalization, management and maintenance of infrastructures		IFAD		Plan	Yes	Post Review	ICS		1,300,000.00	Plan	1-Mar-22	N/A	3-Mar-22	24-Mar-22	7-Apr-22	N/A	11-Apr-22	N/A	13-Apr-22	4-May-22	18-May-22	N/A
						Actual				-	-	Actual												
C13102	14	Production of training Manual on O&M of irrigation infrastructures (pumped and dam schemes)		IFAD		Plan	Yes	Post Review	ICS		10,000,000.00	Plan	15-May-22	N/A	17-May-22	7-Jun-22	21-Jun-22	N/A	25-Jun-22	N/A	27-Jun-22	18-Jul-22	1-Aug-22	N/A
						Actual				-	-	Actual												
C14201	15	Mechanization technical adviser		IFAD		Plan	Yes	Post Review	ICS		40,000,000.00	Plan	15-Jan-22	N/A	17-Jan-22	7-Feb-22	21-Feb-22	N/A	25-Feb-22	N/A	27-Feb-22	20-Mar-22	3-Apr-22	N/A
						Actual				-	-	Actual												
C14202	16	support reseach and construction of best adapted tools		IFAD		Plan	Yes	Post Review	ICS		16,667,000.00	Plan	15-Feb-22	N/A	17-Feb-22	10-Mar-22	24-Mar-22	N/A	28-Mar-22	N/A	30-Mar-22	20-Apr-22	4-May-22	N/A
						Actual				-	-	Actual												
C1501 C1502 C1503 C1504	17	Implementation of environment and social management plan (ESMPs) for Nasho, Kibare and Ihema irrigation schemes and of ESMP linked with other project activities		IFAD		Plan	Yes	Prior Review	QCBS		152,000,000.00	Plan	15-Jan-23	22-Jan-23	24-Jan-23	7-Feb-23	21-Feb-23	28-Feb-23	4-Mar-23	11-Mar-23	13-Mar-23	27-Apr-23	11-May-23	18-May-23
						Actual				-	-	Actual												
C21003	18	Monitoring and follow-up the activity of capacity building of farmers on GAP standards		IFAD		Plan	Yes	Prior Review	QCBS		1,900,000,000.00	Plan	15-Jan-22	22-Jan-22	24-Jan-22	7-Feb-22	21-Feb-22	28-Feb-22	4-Mar-22	11-Mar-22	13-Mar-22	27-Apr-22	11-May-22	18-May-22
						Actual				-	-	Actual												
C21102	19	Recruitment of TA for preparing of Farming as a Business (Faab) curriculum		IFAD		Plan	Yes	Post Review	ICS		13,000,000.00	Plan	15-Feb-23	N/A	17-Feb-23	10-Mar-23	24-Mar-23	N/A	28-Mar-23	N/A	30-Mar-23	20-Apr-23	4-May-23	N/A
						Actual				-	-	Actual												
C21103	20	Recruitment of BDSPs services for capacity building on FaaB, integrated to FFS sessions		IFAD		Plan	Yes	Prior Review	QCBS		150,000,000.00	Plan	15-Sep-22	22-Sep-22	24-Sep-22	8-Oct-22	22-Oct-22	29-Oct-22	2-Nov-22	9-Nov-22	11-Nov-22	26-Dec-22	9-Jan-23	16-Jan-23
						Actual				-	-	Actual												
C23201	21	Recruitment of TA for development of tailored agrifinance products for PFIs (SACCO, MFIs)		IFAD		Plan	Yes	Post Review	ICS		10,400,000.00	Plan	20-Jan-22	N/A	22-Jan-22	12-Feb-22	26-Feb-22	N/A	2-Mar-22	N/A	4-Mar-22	25-Mar-22	8-Apr-22	N/A
						Actual				-	-	Actual												
C23202	22	recruitment of service provider to conduct financial literacy training among farmers cooperatives and facilitate PFIs to access credit line		IFAD		Plan	Yes	Post Review	ICS		8,667,000.00	Plan	20-Jan-22	N/A	22-Jan-22	12-Feb-22	26-Feb-22	N/A	2-Mar-22	N/A	4-Mar-22	25-Mar-22	8-Apr-22	N/A
						Actual				-	-	Actual												
C3203	23	Knowledge management		IFAD		Plan	Yes	Post Review	ICS		40,000,000.00	Plan	10-Jan-22	N/A	12-Jan-22	2-Feb-22	16-Feb-22	N/A	20-Feb-22	N/A	22-Feb-22	15-Mar-22	29-Mar-22	N/A
						Actual				-	-	Actual												
C3206	24	Preparation and validation of ToRs for different studies		IFAD		Plan	Yes	Post Review	ICS		5,196,000.00	Plan	5-Jan-22	N/A	7-Jan-22	28-Jan-22	11-Feb-22	N/A	15-Feb-22	N/A	17-Feb-22	10-Mar-22	24-Mar-22	N/A
						Actual				-	-	Actual												
C320301	25	Institutional Support to MINAGRI to perform the ministerial supervisory role on the project		IFAD		Plan	Yes	Prior Review	QCBS		120,000,000.00	Plan	5-Jan-22	12-Jan-22	14-Jan-22	28-Jan-22	11-Feb-22	18-Feb-22	22-Feb-22	1-Mar-22	3-Mar-22	17-Apr-22	1-May-22	8-May-22
						Actual				-	-	Actual												
C320302	26	Support to MINAGRI to the operationalization of MINAGRI Knowledge Manamagent & communication Strategy		IFAD		Plan	Yes	Post Review	CQS		60,000,000.00	Plan	5-Jan-22	N/A	7-Jan-22	28-Jan-22	11-Feb-22	N/A	15-Feb-22	N/A	17-Feb-22	10-Mar-22	24-Mar-22	N/A
						Actual				-	-	Actual												
C320303	27	Institutional support to RAB		IFAD		Plan	Yes	Prior Review	QCBS		120,000,000.00	Plan	10-Jan-22	17-Jan-22	19-Jan-22	2-Feb-22	16-Feb-22	23-Feb-22	27-Feb-22	6-Mar-22	8-Mar-22	22-Apr-22	6-May-22	13-May-22
						Actual				-	-	Actual												
C320304	28	Support to RAB in Agrishow	Yes	IFAD		Plan	No	Post Review	QCBS		90,000,000.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	Enter Date	N/A				N/A
			Yes			Actual				-	-	Actual												

Version	1.0	16-Apr-21				Contract Award & Signature											
AWPB/Component Ref	№	Description*	Submission of CER	No-objection Date	Plan vs. Actual	Issue of NOITA&Standstill	Negotiations completed	Submission of Draft Contract and MoN	No-objection Date	Date Contract Award	Date Contract Signature	Contract No.	Vendor Name/ID	Amount (USD)	Amount (LCU)	Date Contract Completion	Remarks
					Actual												
C12203	12	International technical assistance (mitigation expert)	22-Jun-22	29-Jun-22	Plan	11-Jul-22	1-Aug-22	5-Aug-22	12-Aug-22	14-Aug-22	21-Aug-22			-	180,000,000.00		
					Actual												
C13101	13	Support cooperatives to establish professional committee in charge of operationalization, management and maintenance of infrastructures	N/A	N/A	Plan	30-May-22	13-Jun-22	17-Jun-22	N/A	19-Jun-22	26-Jun-22			-	1,300,000.00		
					Actual												
C13102	14	Production of training Manual on O&M of irrigation infrastructures (pumped and dam schemes)	N/A	N/A	Plan	13-Aug-22	27-Aug-22	31-Aug-22	N/A	2-Sep-22	9-Sep-22			-	10,000,000.00		
					Actual												
C14201	15	Mechanization technical adviser	N/A	N/A	Plan	15-Apr-22	29-Apr-22	3-May-22	N/A	5-May-22	12-May-22			-	40,000,000.00		
					Actual												
C14202	16	support reseach and construction of best adapted tools	N/A	N/A	Plan	16-May-22	30-May-22	3-Jun-22	N/A	5-Jun-22	12-Jun-22			-	16,667,000.00		
					Actual												
C1501 C1502 C1503 C1504	17	Implementation of environment and social management plan (ESMPs) for Nasho, Kibare and Ihema irrigation schemes and of ESMP linked with other project activities	1-Jun-23	8-Jun-23	Plan	20-Jun-23	11-Jul-23	15-Jul-23	22-Jul-23	24-Jul-23	31-Jul-23			-	152,000,000.00		
					Actual												
C21003	18	Monitoring and follow-up the activity of capacity building of farmers on GAP standards	1-Jun-22	8-Jun-22	Plan	20-Jun-22	11-Jul-22	15-Jul-22	22-Jul-22	24-Jul-22	31-Jul-22			-	1,900,000,000.00		
					Actual												
C21102	19	Recruitment of TA for preparing of Farming as a Business (Faab) curriculum	N/A	N/A	Plan	16-May-23	30-May-23	3-Jun-23	N/A	5-Jun-23	12-Jun-23			-	13,000,000.00		
					Actual												
C21103	20	Recruitment of BDSPs services for capacity building on FaaB, integrated to FFS sessions	30-Jan-23	6-Feb-23	Plan	18-Feb-23	11-Mar-23	15-Mar-23	22-Mar-23	24-Mar-23	31-Mar-23			-	150,000,000.00		
					Actual												
C23201	21	Recruitment of TA for development of tailored agrifinance products for PFIs (SACCO, MFIs)	N/A	N/A	Plan	20-Apr-22	4-May-22	8-May-22	N/A	10-May-22	17-May-22			-	10,400,000.00		
					Actual												
C23202	22	recruitment of service provider to conduct financial literacy training among farmers cooperatives and facilitate PFIs to access credit line	N/A	N/A	Plan	20-Apr-22	4-May-22	8-May-22	N/A	10-May-22	17-May-22			-	8,667,000.00		
					Actual												
C3203	23	Knowledge management	N/A	N/A	Plan	10-Apr-22	24-Apr-22	28-Apr-22	N/A	30-Apr-22	7-May-22			-	40,000,000.00		
					Actual												
C3206	24	Preparation and validation of ToRs for different studies	N/A	N/A	Plan	5-Apr-22	19-Apr-22	23-Apr-22	N/A	25-Apr-22	2-May-22			-	5,196,000.00		
					Actual												
C320301	25	Institutional Support to MINAGRI to perform the ministerial supervisory role on the project	22-May-22	29-May-22	Plan	10-Jun-22	1-Jul-22	5-Jul-22	12-Jul-22	14-Jul-22	21-Jul-22			-	120,000,000.00		
					Actual												
C320302	26	Support to MINAGRI to the operationalization of MINAGRI Knowledge Manamagent & communication Strategy	N/A	N/A	Plan	5-Apr-22	19-Apr-22	23-Apr-22	N/A	25-Apr-22	2-May-22			-	60,000,000.00		
					Actual												
C320303	27	Institutional support to RAB	27-May-22	3-Jun-22	Plan	15-Jun-22	6-Jul-22	10-Jul-22	17-Jul-22	19-Jul-22	26-Jul-22			-	120,000,000.00		
					Actual												
C320304	28	Support to RAB in Agrishow		N/A	Plan				N/A					-	90,000,000.00		
					Actual												

Day Ranges

These tables provide estimated timelines by procurement methods, based on experience and guidance in the Procurement Handbook where specified.
The approximate number of days are used in the default Procurement Plan Formulas. Timelines in the Approx fields/Formulas ***are not prescriptive, and may be modified by the project.***
Approx figures entered will be highlighted/flagged, if below the Minimun number of days. Zero indicates steps that are not applicable to the method, and are indicated as N/A in the Formulas.

Goods & Works

Procurement Method	Submission of PreQual docs			No Objection Date			PreQual Invitation Date			PreQual Closing Date			Submission of PreQual Report			No Objection Date			Submission of BD		
	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx
Single Envelope																					
RFQ/Shopping (NS/IS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	N/A-Start Date
NCB (no PreQual)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A-Start Date
ICB (no PreQual)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A-Start Date
LIB (no PreQual)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A-Start Date
NCB (with PreQual)	1	4	N/A-Start Date	7	10	7	1	3	2	14	30	30	14	21	14	7	10	7	1	14	10
ICB (with PreQual)	1	4	N/A-Start Date	7	10	7	1	3	2	14	30	30	14	21	14	7	10	7	1	14	10
LIB (with PreQual)	1	4	N/A-Start Date	5	10	7	1	3	2	14	30	30	14	21	14	7	10	7	1	14	10
Direct Contracting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	N/A-Start Date
Two Envelope																					
NCB (no PreQual)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A-Start Date
ICB (no PreQual)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A-Start Date
LIB (no PreQual)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A-Start Date
NCB (with PreQual)	1	4	N/A-Start Date	7	10	7	1	3	2	14	30	30	14	21	14	7	10	7	1	14	10
ICB (with PreQual)	1	4	N/A-Start Date	7	10	7	1	3	2	14	30	30	14	21	14	7	10	7	1	14	10
LIB (with PreQual)	1	4	N/A-Start Date	7	10	7	1	3	2	14	30	30	14	21	14	7	10	7	1	14	10

Services

Selection Method	Submission of REOI			No Objection Date			REOI Launch Date			EOI Submission Deadline			Submission of Shortlist Report			No Objection Date			Submission of RFP/RCQ		
	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx
QCBS (w/Shortlist)	1	4	N/A- Start Date	7	10	7	1	3	2	14	30	14	14	21	14	7	10	7	1	7	4
FBS (w/Shortlist)	1	4	N/A- Start Date	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	1	7	4
LCS (w/Shortlist)	1	4	N/A- Start Date	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	1	7	4
QBS (w/Shortlist)	1	4	N/A- Start Date	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	1	7	4
CQS (w/Shortlist)	1	4	N/A- Start Date	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	1	5	4
ICS (w/Shortlist)	1	4	N/A- Start Date	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	1	5	4
QCBS (noShortlist)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A- Start Date
FBS (noShortlist)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	N/A- Start Date
LCS (noShortlist)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A- Start Date
QBS (noShortlist)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A- Start Date
ICS (noShortlist)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	N/A- Start Date
SSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	N/A- Start Date

NOTE

1. Some procurement methods for low-value processes might require No Objections based on the Prior Review Thresholds. Where they do not require, No Objection number of days should be zero.
2. **RFP**: Request for Proposals: standard procurement document used for Services.
3. **RCQ**: Requests for Consultants Qualifications: Procurement document used for CQS and LCS. The RFP is used for all other procurement methods
4. Consulting services and Good/Works methods could either be used for Non-Consulting Services
5. All days are calendar days

Day Ranges

Goods & Works

Procurement Method	No-objection Date			Bid Invitation Date			Bid Closing-Opening			Submission Tech Eval Rpt			No-objection Date			Submission Combined Eval Rpt/Bid Evaluation Report			No-objection Date		
	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx
Single Envelope																					
RFQ/Shopping (NS/IS)	7	10	7	1	3	1	5	21	14	0	0	0	0	0	0	1	7	7	7	10	7
NCB (no PreQual)	7	10	7	1	3	2	30	45	45	0	0	0	0	0	0	3	21	14	7	10	7
ICB (no PreQual)	7	10	7	1	3	2	45	70	45	0	0	0	0	0	0	3	21	21	7	10	7
LIB (no PreQual)	7	10	7	1	3	2	45	70	45	0	0	0	0	0	0	3	21	21	7	10	7
NCB (with PreQual)	7	10	7	1	3	2	30	45	45	0	0	0	0	0	0	7	21	14	7	10	7
ICB (with PreQual)	7	10	7	1	3	2	45	70	45	0	0	0	0	0	0	7	21	21	7	10	7
LIB (with PreQual)	7	10	7	1	3	2	45	70	45	0	0	0	0	0	0	7	21	21	7	10	7
Direct Contracting	7	10	7	1	3	1	7	30	14	0	0	0	0	0	0	3	21	7	7	10	7
Two Envelope																					
NCB (no PreQual)	7	10	7	1	3	2	30	45	45	3	21	3	7	10	7	3	7	7	7	10	7
ICB (no PreQual)	7	10	7	1	3	2	45	70	45	3	21	21	7	10	7	3	7	7	7	10	7
LIB (no PreQual)	7	10	7	1	3	2	45	70	45	3	21	21	7	10	7	3	7	7	7	10	7
NCB (with PreQual)	7	10	7	1	3	2	30	45	45	7	21	14	7	10	7	3	7	7	7	10	7
ICB (with PreQual)	7	10	7	1	2	2	45	70	45	7	21	21	7	10	7	3	7	7	7	10	7
LIB (with PreQual)	7	10	7	1	2	2	45	70	45	7	21	21	7	10	7	3	7	7	7	10	7

Services

Selection Method	No-objection Date			RFP/RCQ Launch Date			Proposal submission deadline			Submission of TER			No-objection Date			Submission of CER			No-objection Date		
	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx
QCBS (w/Shortlist)	7	10	7	1	3	2	45	60	45	14	21	14	7	10	7	7	14	14	7	10	7
FBS (w/Shortlist)	7	10	7	1	3	2	45	60	45	14	21	14	7	10	7	7	14	14	7	10	7
LCS (w/Shortlist)	7	10	7	1	3	2	45	60	45	14	21	14	7	10	7	7	14	14	7	10	7
QBS (w/Shortlist)	7	10	7	1	3	2	21	60	45	14	21	14	7	10	7	0	0	0	0	0	0
CQS (w/Shortlist)	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	0	0	0	0	0	0
ICS (w/Shortlist)	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	0	0	0	0	0	0
QCBS (noShortlist)	7	10	7	1	3	2	45	60	45	14	21	14	7	10	7	7	14	14	7	10	7
FBS (noShortlist)	7	10	7	1	3	2	14	30	21	7	21	14	7	10	7	7	14	14	7	10	7
LCS (noShortlist)	7	10	7	1	3	2	21	30	25	7	21	14	7	10	7	7	14	14	7	10	7
QBS (noShortlist)	7	10	7	1	3	2	21	60	45	14	21	14	7	10	7	0	0	0	0	0	0
ICS (noShortlist)	7	10	7	1	3	2	14	30	21	14	21	14	7	10	7	0	0	0	0	0	0
SSS	7	10	7	1	3	2	7	30	30	0	0	0	0	0	0	7	21	14	7	10	7

Day Ranges

Goods & Works

Procurement Method	Issue of NOITA & Standstill			Date Contract Award			Date Contract Signature			Totals			
	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Approx Months/Days
Single Envelope													
RFQ/Shopping (NS/IS)	0	0	0	1	3	2	1	3	2	24	60	40	1m 9d
NCB (no PreQual)	11	15	12	7	14	7	1	5	2	68	130	96	3m 5d
ICB (no PreQual)	11	15	12	7	14	7	1	5	2	83	155	103	3m 12d
LIB (no PreQual)	11	15	12	7	14	7	1	5	2	83	155	103	3m 12d
NCB (with PreQual)	11	15	12	1	5	5	1	5	2	110	206	164	5m 12d
ICB (with PreQual)	11	15	12	1	5	5	1	5	2	125	231	171	5m 19d
LIB (with PreQual)	11	15	12	1	5	5	1	5	2	123	231	171	5m 19d
Direct Contracting	0	0	0	7	14	7	1	5	2	34	96	45	1m 14d
Two Envelope													
NCB (no PreQual)	11	15	12	7	14	7	1	5	2	78	147	99	3m 8d
ICB (no PreQual)	11	15	12	7	14	7	1	5	2	93	172	117	3m 26d
LIB (no PreQual)	11	15	12	7	14	7	1	5	2	93	172	117	3m 26d
NCB (with PreQual)	11	15	12	1	5	5	1	5	2	120	223	178	5m 26d
ICB (with PreQual)	11	15	12	1	5	5	1	5	2	135	247	185	6m 3d
LIB (with PreQual)	11	15	12	1	5	5	1	5	2	135	247	185	6m 3d

Services

Selection Method	Issue of NOITA & Standstill			Negotiations completed			Submission of Draft Contract and MoN			No-objection Date			Date Contract Award			Date Contract Signature			Totals			
	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Min	Max	Approx	Approx Months/Days
QCBS (w/Shortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	170	283	197	6m 15d
FBS (w/Shortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	170	283	204	6m 22d
LCS (w/Shortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	170	283	204	6m 22d
QBS (w/Shortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	132	259	183	6m 1d
CQS (w/Shortlist)	11	15	12	7	14	14	3	14	4	7	10	7	1	3	2	1	7	7	118	220	152	4m 31d
ICS (w/Shortlist)	11	15	12	7	14	14	3	14	4	7	10	7	1	3	2	1	7	7	118	220	152	4m 31d
QCBS (noShortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	126	205	149	4m 28d
FBS (noShortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	88	173	125	4m 4d
LCS (noShortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	95	175	129	4m 8d
QBS (noShortlist)	11	15	12	14	21	21	3	14	4	7	10	7	1	3	2	1	7	7	88	181	128	4m 7d
ICS (noShortlist)	11	15	12	7	14	14	3	14	4	7	10	7	1	3	2	1	7	7	74	142	97	3m 6d
SSS	0	0	0	7	21	21	3	14	4	7	10	7	1	3	2	1	7	7	49	136	101	3m 10d

Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 8: Project Implementation Manual (PIM)

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Investing in rural people

Republic of Rwanda

Kayonza Irrigation and Integrated Watershed Management Project 2 (KIIWP2)

ANNEX 8: PROJECT IMPLEMENTATION MANUAL (PIM)

TABLE OF CONTENTS

Contents

Table of Contents 2

Table of Figures 4

Table of Tables 5

Acronyms 6

PART I: FRAMEWORK AND RESPONSIBILITIES 9

I.1: Definitions 9

I.2: Targeting strategies 10

I.2.2: GENDER, SOCIAL INCLUSION AND YOUTH 17

I.2.3: NUTRITION AND FOOD SECURITY 24

I.3: Institutional arrangements and responsibilities 29

I.3.1: CONTEXT AND RATIONALE 29

I.3.2: PROJECT GOVERNANCE STRUCTURES 30

I.3.3: LEAD AGENCY AND PROJECT COORDINATION 30

I.3.4: POSSIBLE IMPLEMENTING ENTITIES AND SERVICE PROVIDERS 33

I.3.5: PARTNERSHIPS 34

I.3.6. COOPERATION AND LINKAGES WITH OTHER IFAD PROGRAMMES IN THE AREA 36

PART II: DETAILED IMPLEMENTATION MODALITIES 38

II.1: COMPONENT A: STRENGTHENING RESILIENCE TO DROUGHTS 38

Sub-Component .A.1: Catchment rehabilitation and protection 38

Land husbandry 39

Farm level rainwater harvesting 40

Water for livestock and domestic purposes 41

Community competitions for natural resource management 41

Environmental and Social Management Plans (ESMPs) identified by the ESIAs 43

Grievance redress mechanism 44

Sub-Component A.2: Irrigation development 46

Feasibility studies 49

Carrying out the ESIA studies 49

Carrying out the detailed designs for the schemes that meet the viability criteria (technical, environmental, social and economic) in KIIWP1 50

Construction and supervision of construction works in KIIWP2 51

Infrastructure management institutions 52

Strengthening Scheme and District Steering Committee 55
Strengthening Hydrographic Basin Committees (HBCs). 56
Developing Irrigation Water Users Organisations 57
Developing Water for Livestock Users Organisations 58
Sub-Component A.3: Enhancing climate smart agriculture practices and technologies 59
Climate Smart Agriculture compilation 60
Farmer Field Schools (FFS) 60
Farmers' promoters, demonstration plots and trials 62
Promotion of Climate Smart Technologies 65
Gender Action Learning System (GALS) 65
Climate Information Services 66
II.2: Component B: Support to farm business development 67
Sub-Component B.1: Developing farming as a business (FAAB) skills 67
Capacity building of farmers 67
Capacity building of cooperatives 68
Promotion of mechanization, post-harvest storage and irrigation technologies 69
Sub-Component B.2: Supporting backward and forward market linkages 76
Market access 76
Financial services 76
Agricultural insurance 78
II.3: Component C: Institutional development and project coordination 82
Sub-component C.1: Policy and institutional development 82
Sub-component C.2: Project coordination 82
PART III: PROJECT PROCEDURES AND PLANNING 84
III.1. PLANNING AND SUPERVISION 84
III.1.1. Annual working plan and budget (AWPB) Process 84
AWPB outline 85
III.1.2. Project supervision 85
III.1.3.Mid-term review 85
III.1.4.Project closure 86
III.2: M&E, KM and Communication 86
III.2.1 Monitor and evaluation system 86
M&E structure and processes 86
Physical progress monitoring 88
Outcome and impact monitoring and assessments 90
KIIWP Management Information System (MIS) 92

Reporting and supervision 94
In- country M&E capacity development 94
KIIWP Evaluation Plan 95
III.2.2. Knowledge management and communication 95
III.3: Financial management and disbursement arragements 96
Summary of financial management arrangements 96
Implementing and participating organizations with fiduciary responsibilities 97
Disbursement arrangements and flow of funds 98
Planning and budgeting 99
Statements of Expeditures (SOE) 101
Financial management organization and staffing 102
Internal controls 103
Internal audit 103
III.4: Procurement 107
PART IV: ANNEXES 109
Annex 1: TORs of SPIU staff 109
Terms of Reference for the KIIWP2 Procurement Specialist 109
Terms of Reference: Social Inclusion, Gender and Youth Specialist at district level 112
Terms of Reference for the KIIWP2 Agronomist and FFS Specialist 118
Annex 2: Draft Terms of Reference for consultancy services to conduct a baseline survey for nutrition indicators in KIIWP2 120
Annex 3: IFAD Procumenet Risk Matrix 124
Annex 4: Agricultural insurance 128
Annex 5: Knowledge management plan 131
Knowledge management: Definition 131
Knowledge management: Goal, objective and activities 131
Knowledge management structure 133
Annex 6: Memorandum of Understanding (MoU) template 136
Annex 7: Potential partnership between KIIWP/IFAD and WFP 149

TABLE OF FIGURES

Figure 1. RAB Organigram 31
Figure 2. Organizational structure of Kayonza district 32
Figure 3 KIIWP's institutions at district level 53
Figure 4 KIIWPII Funds flow chart 98

TABLE OF TABLES

Table 1. Targeted households in the Project area, Ubudehe categorization (2016) 11
Table 2. Targeting implementation flowchart 17
Table 3. Gender and youth activities implementation flowchart 24
Table 4. Nutrition activities implementation flowchart 28
Table 5. Complementarity of Component A and phasing with KIIWP1. 38
Table 6. Land husbandry, activities step. 39
Table 7. Farm level rainwater harvesting, activities step 40
Table 8. Land-husbandry-measures for the different slopes 41
Table 9. Carrying out the feasibility studies in KIIWP1 49
Table 10. Flowchart for carrying out ESIA studies under KIIPW1. 49
Table 11. Detailed engineering designs and bills of quantities 50
Table 12. Detailed construction and supervision of works 51
Table 13. Relevant paragraphs to the rules on the composition and responsibilities of the scheme and district-level Steering committees 55
Table 14. Relevant paragraphs to the rules on the composition of the HBCs at district and sector levels 57
Table 15. Research, extension and CSA technologies implementation flowchart activities. 59
Table 16. Example of adapted tools and machines 64
Table 17. Complementarity of Component A and phasing with KIIWP1. 67
Table 18. Details of the cooperatives that could receive KIIWP support 69
Table 19. Detailed mechanisms of these Cat.1 grants 70
Table 20. Detailed mechanisms of these Cat.2 grants 72
Table 21. Detailed mechanisms of this Cat.3 grant 74
Table 22. Sub-component B2 implementation activities flowchart 75
Table 23. Project management implementation flowchart 83
Table 24. KIIWP Evaluation Plan 95
Table 25. Key controls 104
Table 26. NAIS products: cost of crop insurance premiums 129

ACRONYMS

AFR	Access to Finance Rwanda
AGRA	Alliance for a Green Africa
AH	Animal Husbandry
AIDS	Acquired Immune Deficiency Syndrome
AIF	Africa Improved Foods
AMIR	Rwanda Microfinance Association
AWPB	Annual Work Plan and Budget
BDF	Business Development Fund
BDSP	Business Development Service Provider
BNR	National Bank of Rwanda
CAADP	Comprehensive Africa Agriculture Development Programme
CBFI	Community-Based Financing Institution
CESB	Rwanda Capacity Development and Employment Services Board
CEO	Chief Executive Officer
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CGIAR	Consultative Group on International Agricultural Research
CIP	Crop Intensification Programme
CPM	Country Programme Manager
CPP	Constant Purchase Power Parity
CSA	Climate Smart Agriculture
CoEB	Center of Excellence in Biodiversity and Natural Resource Management
CPO	Country Programme Officer
DDP	District Development Plan
DFID	Department for International Development
EDPRS	Economic Development and Poverty Reduction Strategy
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
EICV	Integrated Household Living Conditions Survey
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMF	Environmental and Social Management Framework
FaaB	Farming as a Business
FAO	Food and Agriculture Organization
FE	Foreign Exchange
FFS	Farmer Field School
FIRR	Financial Internal Rate of Return
FMA	Financial Management Assessment
FMD	Financial Management Division
FtMA	Farm to Market Alliance
FO	Farmers' Organization
GALS	Gender Action Learning System
GAP	Good Agricultural Practices
GC	General Conditions
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
ICP	IFAD Client Portal

ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IFMIS	the Integrated Financial Management Information Systems
IMF	International Monetary Fund
IMTA	Irrigation Management Transfer Agreement
INDC	Intended Nationally Determined Contributions
IPM	Integrated Pest Management
IPRM	Integrated Project Risk Matrix
ITCZ	Inter Tropical Convergence Zone
IWUO	Irrigation Water User Organization
KM	Knowledge Management
KWAMP	Kirehe Community-based Watershed Management Project
LTB	Letter to The Borrower
LTR	Land Tenure Regularization
LUCP	Land Use Consolidation Policy
LWH	Land husbandry, Water harvesting and Hillside irrigation project
M&E	Monitoring and Evaluation
MES	Monitoring and Evaluation System
MFI	Micro Finance Institution
MIDIMAR	Ministry of Disaster Management and Refugees Affairs
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Finance and Economic Planning
MINALOC	Ministry of Local Government
MINICOM	Ministry of Trade and Industry
MINIRENA	Ministry of Lands, Environment, Forestry, Water and Mines
MIS	Management Information System
MoU	Memorandum of Understanding
MPCI	Multi-Peril Crop Insurance
MPI	Multi-Dimensional Poverty Index
MT	Metric Ton
MTR	Mid Term Review
MUV	Manufactures Unit Value
NCCLCDS	National Climate Change and Low-Carbon Development Strategy
NAEB	National Agriculture Export development Board
NAIS	National Agriculture Insurance Scheme
NGO	Non-Governmental Organization
NO	No Objection
NRM	Natural Resources Management
OAG	Office of the Auditor General
O&M	Operation and Maintenance
p.a.	Per Annum
PA	Priority Area
PASP	Climate-resilient Post-harvest and Agribusiness Support Programme
PBG	Performance-based Grant
PBGF	Performance-based Grant Facility
PDR	Project Design Report
PEFA	Public Expenditure and Financial Accountability
PFI	Participating Financial Institution
PICSA	Participatory Climate Services for Agriculture
PPP	Purchasing Power Parity
PRICE	Project for Rural Income through Exports
PSC	Project Steering Committee
PSTA	Strategic Plan for the Transformation of Agriculture in Rwanda
4P	Public Private Producers Partnership
RAB	Rwanda Agriculture Board

RAP	Resettlement Action Plan
RB-COSOP	Results-Based Country Strategic Opportunities Programme
RCA	Rwanda Cooperative Agency
RDDP	Rwanda Dairy Development Project
REMA	Rwanda Environment Management Authority
RPHC	Rwanda Population and Housing Census
RGB	Rwanda Governance Board
RNRA	Rwanda National Resources Authority
RPPA	Rwanda Public Procurement Authority
RSSP	Rural Sector Support Programme
RWF	Rwandan Franc
RWFA	Rwanda Water and Forestry Authority
RYAF	Rwanda Youth in Agribusiness Forum
SACCO	Savings and Credit Cooperative
SCC	Sub-Catchment Committee
SDC	Sector Development Committee
SDG	Sustainable Development Goal
SOE	Statement of Expenditure
SPIU	Single Project Implementation Unit
SSIT	Small-Scale Irrigation Technology
STARS	Strengthening African Rural Smallholders
SWC	Soil and Water Conservation
TA	Technical Assistance
TAF	Technical Assistance Facility
TBD	To Be Determined
ToT	Training of Trainers
UNEP	United Nations Environment Programme
USD	United States Dollar
VC	Value Chain
WA	Withdrawal Application
WEAI	Women’s Empowerment in Agriculture Index
WoP	Without Project
WP	With Project
WFP	World Food Programme
WRSI	Water Requirement Satisfaction Index
WLUO	Water for Livestock User Organization
WUO	Water User Organization

PART I: FRAMEWORK AND RESPONSIBILITIES

I.1: DEFINITIONS

1. **Climate Smart Agriculture (CSA)**: comprises the actions needed to transform and reorient agricultural systems to effectively support development and ensure food security under a changing climate. It aims at sustainably increasing agricultural productivity and incomes and adapting and building resilience to climate change. The term covers practices such as: Conservation Agriculture, water and soil management, integrated production systems with efficient use of resources and less external inputs, diversification to increase resilience, etc.

2. **Cooperative**[1] is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise, according to internationally recognized co-operative values and principles. A cooperative:

- It fulfils a social or environmental objective, or is formed to fulfil its members needs
- Its democratic ownership and control
- It has a different way of working and unique legal structure that differentiates it from a conventional business

3. **Farmer Field School (FFS) approach** is a methodology originally developed by the Food and Agriculture Organization (FAO) as a participatory approach for people-centered leading. Practical field exercises using direct observation, discussion and decision making encourage learning-by-doing and participants can exchange knowledge in a risk-free environment. Local knowledge and outside scientific insights are tested, validated and integrated directly in farmers' gardens, under their localized ecosystems and socio-economic settings.

4. **Food insecurity** is the inability to obtain sufficient food (in terms of calories) and other essential goods and services to lead a healthy life.

5. **Partners** of the Project are strategic agencies, entities or organizations who support the achievement of Project objectives, either national, regional or international. While these may be paid for undertaking specific activities or supplying specific services, they differ from implementing agencies in the modalities in which these activities are planned and executed. Financing may not be involved at all.

6. **Project Implementation Manual (PIM):** An annex to the Project Design Report (PDR) provides practical guidance to Project implementers on key implementation aspects. It describes in detail how the programme components and activities outlined in the PDR are intended to be implemented. The PIM outlines the detailed mechanisms, processes and procedures, formats, eligibility criteria etc. which will ensure efficient programme implementation and achievement of the envisaged programme results. The PIM is a living document and may be updated at any time, as needs arise, during implementation.

7. **Time and Labor Saving Technologies (TLST)**: are tools and equipment which reduce the drudgery and/or improve the efficiency of performing various farming, off-farm and household activities, such as the use of draught animals for land preparation, planting, weeding and rural transport, cooking on fuel efficient stoves, harvesting roof water for domestic purposes, agro processing and value addition.

8. **Watershed** is a hydrological unit that discharges rainfall runoff to an outlet (a control point) in the downstream. It has been described and used as a physical-biological unit that could be easily monitored using objectively verifiable indicators and also, on many occasions, as a socio-economic-political unit for planning and management of natural resources.

[1] Rwanda Cooperative Agency (RCA) definition.

9. **Water Users Associations (WUA)** are local institutions established with the objective of supporting the construction of irrigation schemes and managing them after completion. Their major role include, creating enabling environment (incl. community contribution/mobilization) during construction, proper distribution of water after construction, managing water conflicts as well as carrying out the operation and maintenance of irrigation canals and associated infrastructures.

I.2: TARGETING STRATEGIES

10. **Project's goal and outreach**. The Goal of KIIWP is to "Contribute to poverty reduction in the drought-prone Eastern Province of Rwanda". The Project Development Objective is to "Improve food security and incomes of at least 40,000 rural households on a sustainable basis and build their climate resilience".

11. **Geographic targeting and poverty**. KIIWP's intervention area comprises nine drought-prone sectors out of the twelve sectors in Kayonza District, namely Gahini, Kabare, Kabarondo, Murama, Murundi, Mwiri, Ndego, Rwinkwavu and Ruramira. This last sector was not targeted under KIIWP1, and it has been included during the design of the second phase of the Project; only 100 ha in the catchment area of Ruramira sector (under the Kanyeganyenge irrigation scheme) will be targeted.

12. The area has been identified on the basis of its high vulnerability to drought and the poverty and food insecurity level of its population. At the same time, the area offers important and untapped potential of water resources that if fully and sustainably reached would contribute to significantly increase agricultural production, food security and improve people's livelihoods. Out of the nine sectors, Gahini, Murundi and Mwiri are predominantly agro-pastoral areas and will be mainly targeted with water infrastructures aimed at increasing access to water for livestock and domestic purposes (rehabilitation of valley tanks and installation of boreholes, water harvesting infrastructure) and improved rain fed agricultural development; the other sectors will be targeted with the development of irrigation schemes, along with catchment rehabilitation and protection practices.

13. The nine targeted sectors account for 63,177 households or 283,370 individuals (72 per cent of the overall district's population), of which 51.5 per cent are women[2]. In these sectors, 31 per cent of the households is headed by women. About 63 per cent[3] of the resident population is under 25 years old while youth (between 16 and 30 years old) represent more than 30 per cent of the population in the Project intervention area. About 48 per cent of the population is covered by the *Ubudehe*[4] governmental social protection programme: the *Ubudehe* Categories 1 and 2 account for respectively 13 per cent and 35 per cent of the population in the Project area.

14. The **selection of specific sites** will be based on the level of degradation, topography and water availability and viability of the site for development. Sites for the development of the irrigation schemes (irrigation command area) have been already identified in Ndego and Kabare sectors by the Feasibility Study conducted by SMEC during the first phase of the Project. Feasibility studies for Kanyeganyenge and Gishanda irrigation schemes will be finalised before KIIWP2 will begin its operations. Along with environmental and hydrological considerations, it is recommended that the identification of specific sites includes poverty

[2] Data provided by the Government of Kayonza district and based on the latest survey of the district population as part of the Ubudehe programme system (2016). Compared with the latest national population and housing census (2012) the population of the district has increased of about 14 percent (from 344,157 to 392.676 inhabitants).
[3] Rwandan Population Census, 2012.
[4] The national wealth ranking system (Ubudehe system) classifies Rwandan households into 4 categories. The first category (i) includes the very poor who do not have a house or cannot to pay rent; have a poor diet; and can hardly afford basic needs; (ii) the second one includes those who have a dwelling of their own or are able to rent one but rarely get full time jobs; (iii) the third category includes those who have a job and farmers who go beyond subsistence farming to produce a surplus, which can be sold; (iv) the fourth category includes people who own large-scale business. The current Ubudehe categories have been in places since 2016. In 2020, MINALOC has revised the categorization unveiling five new categories (A, B, C, D and special category E) re-distributing households into their socio-economic welfare status. The new categorization system is expected to become effective in 2021.

incidence amongst the main selection criteria. Willingness by farmers to participate in Project's activities will be key.

15. The geographic entry point to select villages will follow a cluster approach, targeting cells and villages served by the same water infrastructure. It is recommended to provide a full package of Project's interventions (access to water, improvement of agricultural production, capacity building, access to market and finance) to villages with high incidence of poverty, in order to boost synergies between the different interventions and ensure improvements in terms of empowerment and poverty alleviation.

16. The selection criteria will focus on poverty rates, food and nutrition insecurity and potential for agricultural production. Priority value chains of the Project include rice, maize, horticulture, soybeans and beans. Other minor value chains in rainfed and catchment areas might include cassava and sorghum and nutrient rich crops varieties.

17. Selection of cells/ villages will also need to take into account areas already targeted by other IFAD-funded projects in the same District (RDDP, PRICE), to avoid overlaps and ensure alignment between the different interventions. Consultations between SPIU, KIIWP staff and Kayonza district authorities will be conducted at the inception phase in order to screen a list of cells and villages where the Project will implement its activities.

Table 1. Targeted households in the Project area, Ubudehe categorization (2016)

Source: District of Kayonza pupulation survey, Ubudhehe categorization (2016)										
Project area: nine drought prone sectors										
SECTORS	**HHs**	**POPULATION**	**CAT1**		**CAT2**		**CAT3**		**CAT4**	
			HHs	POPs	HHs	POPs	HHs	POPs	HHs	POPs
GAHINI	8319	38940	977	3839	4174	19228	3166	15863	3	10
KABARE	9135	39784	829	3029	2208	8429	6097	28322	1	6
KABARONDO	7450	33243	1057	4322	2840	12708	3549	16188	4	25
MURAMA	5155	22105	923	3544	2356	10052	1874	8504	2	5
MURUNDI	9057	43386	1400	6048	3362	15644	4292	21686	3	12
MWIRI	6289	29569	1001	4279	2620	11758	2663	13519	3	9
NDEGO	5422	23526	578	1975	1593	6071	3248	15471	0	0
RURAMIRA	4951	20403	554	1946	1078	3749	3317	14718	0	0
RWINKWAVU	7399	32414	940	3491	1829	7228	4625	21695	1	6
TOTAL	**63177**	**283370**	**8259**	**32473**	**22060**	**94867**	**32831**	**155966**	**17**	**73**
Percentage	*100%*	*100%*	*13%*	*12%*	*35%*	*34%*	*52%*	*55%*	*0,03%*	*0,03%*
Kayonza diistrict	**88081**	**392676**	**11029**	**42879**	**30680**	**130257**	**46334**	**219338**	**38**	**202**
Percentage	*100%*	*100%*	*13%*	*11%*	*35%*	*33%*	*53%*	*56%*	*0%*	*0%*

18. **Target beneficiaries**. KIIWP will reach out to about 40,000 rural households, (about 180,000 household members), of which 7,100 households will participate directly in the irrigation schemes and 11,800 household in rehabilitation and protection of the catchment areas. The Project will focus on poor and food-insecure rural households with economic potential, with the half of the targeted producers being very small and small landowners (less than 0.5 land size average) with special emphasis on the inclusion of women, women-headed households and youth (aged 16-30) often ranking among the poorest and asset less.

19. Targeted households will benefit from the range of Project's activities and services, including Climate Smart Agricultural (CSA) technologies and practices, labour opportunities in irrigation schemes, afforestation/reforestation with the introduction of fruit trees, water points for livestock and human consumption combined with solar energy, cooperative services to ensure access to agricultural inputs, Farmer Field Schools (FFS), Farming-as-a-Business (FaaB) training, matching grants for equipment and investments, financial services and agricultural insurance, potential participation in public-private-partnerships for value chain development. These investments will contribute to a broad local improvement of food and nutrition security, as well as job, enterprise and income generating opportunities. To foster

social inclusion, specific services and activities will be tailored to women, youth and to the most vulnerable households (see, Section I.2.2.)

20. All targeted households will benefit from Project's services that cut across the needs of all types of target groups. These will be channelled through new and existing organisations that will be inclusive of all groups: (i) water infrastructure operation and maintenance and water resources protection and conservation, through Sector and District-level Steering Committees and Sub-Catchment Committees, Water User Organisations (WUOs) and Water for Livestock User Organisations (WLUOs) (ii) market linkages and extension services through commodities-based cooperatives and Farmers Field Schools groups; (iii) linkage with financial services, through the strengthening of Community Based Finance Institutions and their active support to the targeted cooperatives. There will be specific services and activities directly targeted to the most vulnerable households depending on their income levels, overall production capacity and division of role and responsibilities (gender and youth).

21. **Description of the target groups**. Consistent with the national wealth ranking system (*Ubudehe*), and on the basis of access to land and market, KIIWP will directly target 3 different categories of beneficiaries, applying complementary approaches aimed at enabling poor farmers to graduate from poverty:

22. ***Landless, near landless and extremely vulnerable households,*** who have very limited productive assets. Approximately 13 per cent of the population in the Project area would fall under this category (Ubudehe category 1). Those engaged in agriculture have no land or land of small size (less than 0.25 ha), grow fewer crops, are less likely to have a vegetable garden. Households with people with disabilities (PWD) and those headed by women are amongst the most vulnerable ones.

23. At least <u>10 per cent of the targeted households will be amongst the most vulnerable category</u>. It is expected that households ranking among the poorest in the selected communities will be interested in improving their livelihoods by participating in the services promoted by the Project. To this aim, and to tackle the multiple barriers that traditionally prevent very poor and vulnerable households from moving out of poverty, the Project will deploy a social inclusion strategy, directly targeting the poorest households with services and activities, such as: saving and credit/finance literacy, increased production of nutritious foods, alternative income generating activities on farm and off farm for groups of very poor households and especially women and youth. Based on their socio-economic characteristics, it is expected that households from this category will mainly join informal associations (such as Village Saving and Loans Associations, women's saving groups, interest groups), that will be supported by the Project. At the same time, through Project's services and activities, it is foreseen that vulnerable households will gradually increase their production, capacities and income to engage in other Project-supported interventions (e.g., becoming members of cooperatives).

24. ***Subsistence farmers and vulnerable poor*** who have limited land and access to resources and represent approximately 35 per cent of the population in the Project's area (Ubudehe category 2). Poor and food insecure households have an average land size of less of 0.5 ha, few active members, are more often headed by a person with low level of education, or a single or a person with disabilities. They mainly depend on agriculture daily labour, on their own agricultural production, unskilled daily labour, or on external support for their livelihoods. In the area targeted by the development of large scheme irrigation infrastructure, approximately 28 per cent of the households have less than 0.25 ha and 38 per cent less than 0.5 ha (ESIA, 2020). Farmers in this category may be considered borderline poor as they are subsistence farmers, usually already members of cooperatives but still suffering from food insecurity and at risk to slide back into extreme poverty due to stress and external shocks. It is expected that, thanks to Project's services, this category of households will be able to graduate from poverty and to actively engage into market-oriented production.

25. ***Market-oriented producers*** (category 3 Ubudehe), account for approximately 52 per cent of the target population, are less vulnerable and go beyond subsistence farming. These farmers usually have an average of 0.5 ha or more, are already engaged in a more

entrepreneurial logic. In the area targeted by the development of large scheme irrigation infrastructure, more than half of the population owns more than half a hectare with at least a quarter of the households owning more than 1.0 ha each (1.0 to 5.0 ha). This category of producers will be supported through a combination of technical, business and financial capacity building combined with backward and forward market facilitation. Based on their market capacity and income level, it is expected that households from this category will participate in larger number into highly commercial production system and would be linked to formal Financial Institutions and their related products and services.

26. Amongst the target groups, special attention will be provided to women and among those, to adolescent girls and women heads of households; youth will be another priority target group, as well as vulnerable households (category 1 Ubudehe, and households with persons with disabilities).

27. ***Rural women***. Pursuing gender equality, KIIWP will ensure that at least 50 per cent of Project's beneficiaries (90,000 individuals) are women. Adolescent girls are even more vulnerable due to early pregnancy (teenage pregnancy in Kayonza reaches 10 per cent, over the national average)[5]. Women headed households are disproportionally faced with the challenges of poverty and small-sized land (<0.5 ha), compared to male-headed households, which limits their access to productive resources. This category will be directly targeted by Project's interventions; women-headed households are expected to represent 30 per cent of households reached. Through its Gender Strategy, KIIWP will promote gender equality and women's empowerment, channelling activities and services to women and strengthening their decision-making role at community and organization level.

28. ***Rural youth*** (50 per cent women) will represent 30 per cent of the KIIWP's beneficiaries (equal to 54,000 individuals). Youth are found in the above-described target groups, while the higher percentage of them is from the very poor and poor categories. Young people have low rate of education (only primary) and limited skills on financial services. Overall, this target group includes (i) young men and women who are engaged in agricultural activities at subsistence farm level, with an interest to further expand their activities to make it as a business, and (ii) young men and women employed under casual or seasonal work at minimum wage, who can be engaged in service provision (e.g., infrastructure development); (iii) young graduated, interested to apply their skills in the agriculture sectors as service providers. Youth will be targeted as both beneficiaries and service providers of the Project's supported interventions.

29. **Targeting mechanisms.** To reach the expected beneficiary population, KIIWP will apply a combination of self and direct targeting mechanisms:

30. ***Self-targeting*****:** KIIWP applies a self-targeting approach as the activities promoted are expected to be of interest for all target groups, ranging from interventions for the most vulnerable households, aimed at strengthening their resilience and improve food and nutrition security, to the adoption of new technologies with higher capital investment to boost the performance of the agricultural sector, that would be more attractive for market-oriented producers. The Project will provide services according to the different socio-economic characteristics and needs of its targeted beneficiaries. In doing so, implementing partner organizations are expected to adopt a pro-poor focus to ensure the inclusion of the most vulnerable categories in the supported activities. Beneficiary's contribution to the operation and maintenance of the irrigation infrastructures will be tailored to the different productive, economic and financial capacities of the target groups.

31. ***Direct targeting*** of youth, women, vulnerable households (including those headed by women and those with persons with disabilities) will be implemented through established quotas ensuring that all of these groups are represented within the Project's main activities.

- Women will represent 50 per cent and young people 30 per cent of the KIIWP's beneficiaries; the Project will ensure that at least 10 per cent of the targeted households are amongst the most vulnerable category(Ubudehe 1 and including people

[5] Kayonza District, Second District Health Strategic Plan, 2018/19- 2023/24.

with disabilities) and that 30 per cent are headed by women. In the frame of specific activities (such as FFS) the poorest households from Ubudehe category 1 & 2 will be the primary beneficiaries.

- Ubudehe Category 1 households will be directly targeted to benefit from the seasonal and permanent job opportunities created through market-orientated irrigation development.
- Quotas will be also established in the frame of Cooperatives and WUOs to ensure women and youth's representation and participation in decision making processes. It is expected that the water management committees will comprise 40 per cent women and 25 per cent youth. In this context, it is expected that at least 40 per cent of the farmers will be from the poorest categories (Ubudehe 1 & 2) and that at least 10 per cent would be from the most vulnerable one.
- The implementation of kitchen gardens and the production of nutritious food varieties will directly target the most food insecure and the poorest households.
- Grant financing modalities will have a special window for women and youth (with a reduced beneficiary's contribution and a higher grant portion (70% vs 50% for men aged above 30 years) and Project's specific activities will be directed to women and youth (e.g., vocational trainings, income-generating activities attractive for these target groups, etc.).

32. Vocational Education and Training (VET) will direct targeting youth (50% women). Targeting mechanisms will be employed to identify and select NEET (not in employment, education or training) young women and men to receive capacity building and training for the development of specific project-related initiatives (for example, the development of small-scale mechanisation technologies/ youth artisans, in the context of CSA)[6]. KIIWP will also directly targeting young graduates as service providers, in coordination with its partner organizations. The Project will ensure participation of representatives from the most vulnerable households in sub-catchment planning, Farmers' Organizations, FFS and in water infrastructure management committees.

33. Box 1 provides details on the direct targeting mechanisms that KIIWP will put in place according to the specific Project's components and related activities to reach out the priority target groups.

Box 1. Direct targeting mechanisms	
Women	• Project's beneficiaries: 50% of the overall beneficiaries, 30% are women head of HH • Quotas for participation in cooperatives, and in decision-making bodies (e.g., Water Users Organizations): 40% • Quotas for participation in FFS: 50% • Quotas to participate into capacity building and trainings, including financial literacy training and access to financial services: 50% • Quotas to participate into GALS training: 50% • Quota to access to grant: 50% women/ youth with a special financial window of 70% of the grant portion
Youth	• Project's beneficiaries: 30% of the overall beneficiaries • Quotas for participation in cooperatives, and in decision-making bodies (e.g., Water Users Organizations): 25% • Quotas for participation in FFS: 50%

[6] For more details, refer to sub-component A.3 Enhancing Climate Smart Agriculture Practices and Technologies.

	• Quotas to participate into capacity building and trainings, including financial literacy training and access to financial services: 30% • Quota to access to grant: 50% women/ youth with a special financial window of 70% of the grant portion • Quotas for participation in VET: 100% • Quotas in the development of small-scale mechanisation (Climate Smart Agriculture): 100% • Direct support to 12 groups of young agricultural service providers (CSA)
Vulnerable HHs (Ubudehe 1 & 2)	• Project's beneficiaries: at least 40% of the overall beneficiaries, of which 10% will be from Ubudehe 1 category • Quotas for participation in cooperatives, and in decision-making bodies (e.g., Water Users Organizations): at least 40% of the overall beneficiaries, of which 10% will be from Ubudehe 1 category • Quotas for participation in FFS: 100% • Quotas to participate into capacity building and trainings, including financial literacy training and access to financial services: at least 40% of the overall beneficiaries, of which 10% will be from Ubudehe 1 category • Quotas to participate into nutrition-sensitive activities (implementation of kitchen gardens, nutrition education): 100% • Quotas to participate into GALS training: 100%

34. Furthermore, 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.

35. **Eligibility criteria for the selection of Project's beneficiaries**. In the selection of beneficiaries and their representative organizations, KIIWP will adopt eligibility criteria, already in use by other IFAD-funded projects in Rwanda, that take into account both social and economic profile of the target groups, giving priority to the most vulnerable ones, as well as farmer's motivation, commitment and interest in Project's activities.To avoid elite capture and to foster inclusive participation, KIIWP will involve *Umudugudu* committees at village level, ensuring transparency and locally accepted households' selection.

36. The box below provides an overview of the eligibility criteria already in use for the identification and selection of FFS's beneficiaries. Following this model, the KIIWP will provide clear eligibility criteria for the identification and selection of beneficiaries for other project-supported activities.

Box 2. Eligibility criteria for the selection of FFS's beneficiaries
1. Belong to (old) *Ubudehe* category 1 or 2 (*or new categories, D and C*). 2. At least 50% and 30% of the members of the group must be women and youth respectively. 3. Living and working in KIIWP intervention zones (project area). 4. Be a producer of the selected crop related to the specific FFS. 5. Being committed to participate in all FFS groups learning activities. 6. Being active and practicing. 7. Agree to the rules of the group. 8. Willing to share ideas with other farmers, especially non-members. 9. Willing to contribute financially or material inputs to school/ work in consensus. 10. Interested in applying new technologies.

37. The **participatory approach** for the identification and selection of beneficiaries and for the roll out of Project's intervention will comprise the following key steps:

a. Targeting strategy: A strategy document will be prepared by KIIWP at the project inception phase to ensure effectiveness in targeting across different project's interventions.

b. Households' profiling: Profiling of households within the area of the interest (Household headed, household assets, members' affiliation to farmers 'organizations, etc.). Simple questionnaires in local languages will be elaborated to this aim.

c. Community mobilization: a strong community mobilization will be undertaken at the inception phase by KIIWP staff, along with local authorities and community leaders. While mobilizing the communities, direct targeting measures will be applied to ensure that the most vulnerable groups will be reached out, that representation of female and male participants is equal, and that elite capture is avoided. This activity will be undertaken at the village level and will consist of public consultations with the community as a whole and separate interaction with special groups, such as women and youth. The Gender, Youth and Social Inclusion Specialist at KIIWP Project level will be directly responsible for organizing and conducting separate consultation with those groups and their consequent mobilisation within the proposed activities.

d. Participatory methods and tools: the use of participatory methods and tools will help balancing out unequal opportunities to participate in decision-making concerning the identification of community's needs and the development of the proposed Project's activities, including the choice and/or location of water infrastructure. In this framework, in the development of sub-catchment management plans, KIIWP will employ a Community-based participatory planning and community competitions (*Inteko y'Imihigo*), already successfully tasted under KWAMP[7], ensuring that the needs of all communities' representatives are taken into account, including the most vulnerable households, and that women have equal representation in decision making.

38. Selection of cooperatives. A pre-identification of the cooperatives engaged in the main value chains to be supported by the Project (rice, maize & beans, horticulture) was conducted during the design of KIIWP1 (see, Table 13 under Component B.1) A new assessment will be carried out at inception phase (KIIWP2) to: (i) update data on the cooperatives already identified; (ii) identify new cooperatives that might be supported by the Project in the same area. In this context, existing cooperatives in Ruramira sector shall also be identified. As part of their mandate, Cooperatives already integrate mechanisms for social inclusion in Rwanda, with established quotas for the participation of the most vulnerable farmers and women

[7] Further details on community competitions and eligible beneficiaries are available in Part II, Sub-Component A.1

Table 2. Targeting implementation flowchart

Activity	Responsibility	Inception	Y1	Y2	Y3	Y4	Y5	Y6	Outputs
Selection of cells and villages	KIIWP Project coordinator/ SPIU Gender Specialist and district staff authorities								Cells and villages are selected taking into account the above criteria.
Assessment of the cooperatives	KIIWP Cooperative Development Specialist and district staff authorities								List of cooperatives pre-identified is updated/validated and new cooperatives are identified in the 9 targeted sectors
Community mobilization	KIIWP staff, district staff, community leaders								Communities are mobilized using participatory methodologies.

I.2.2: GENDER, SOCIAL INCLUSION AND YOUTH

39. **Gender. Context**. Most of the women in the Project's area are engaged into agricultural activities, however the sector is characterized by low productivity, low earnings and precarious working conditions that hamper their economic empowerment.

40. Despite achievements at the policy level, gender disparities still persist, especially in rural areas, where traditional patriarchal attitudes continue to prevail. Women have equal access to and ownership of land than men[8], however, this doesn't necessarily translate into equal access to assets, decision making on agricultural choices (what to grow) and control over income resulting from the agricultural production. Indeed, women's participation into value chains is found mostly at the production stage. Gender disparities are also evident in the value addition and marketing of agricultural commodities where more economic commodities are controlled by men.

41. In general, women are associated with marketing small quantities of production while larger quantities are marketed by men who also control the income from the sales. Men are more likely than women to make decisions about cash crop farming and livestock raising, and about control over income generated from cash crop farming and non-farm economic activity. The gender inequality in decision making powers over these income generating activities and the inequality in control over income is likely to lead to unequal power relations within households.

42. A Women's Empowerment in Agriculture Index Study[9], carried out in Rwanda in 2020, revealed that Eastern Province has the lowest WEAI score. The biggest constraints to empowerment for women in Eastern province are the lack of access to credit (24 per cent), workload (21 per cent), and purchase, sale and transfer of assets (21 per cent). For the last two indicators, women in Eastern province are much more disempowered than women or men in other provinces.

[8] In Rwanda, the land registration policy and the inheritance law favor equal access to and ownership of land. According to the State of gender equality in Rwanda Report, (2019) women had significant access to land in the country. According to that source, 58.3 percent of land was owned by spouses, 24 percent by only women and 14 percent by only men (2 percent by others).

[9] DFID, 2020, Women's Empowerment in Agriculture Index Study, Final baseline survey. The report has been prepared by IMC Worldwide with the assistance of the DFID and the Rwandan Ministry of Agriculture and Animal Resources (MINAGRI) at the national scale.

43. With low education level and lack of literacy, women are less likely to receive government extension services[10] and financial services which, in turn, limits their opportunity to engage in income-generating activities. Lack of assets challenges women to access financial services and products, as they are often not able to satisfy collateral requirements needed, for example, to receive a loan and start a new business. In this context, unequal control over land and economic resources is also found regarding the possibility of using land for getting loans from financial institutions.

44. Being primarily responsible for household care work, women also face the double burden which challenges their participation into capacity building and trainings and therefore the opportunity to improve their skills. In male-headed households, women work for more hours (15.5 hours) than men (seven hours), spending over three hours more on farming activities than the seven hours worked by men, in addition to five hours on unpaid reproductive and household work[11] ; firewood is the main source of energy in the Project area (93 per cent) and women are the ones responsible for collecting the woods.

45. The WEAI baseline survey found that, currently, men are more likely to serve as active members of agricultural producer groups, credit or microfinance groups, and mutual help groups. Women in female-only households are least likely to belong to these groups, which suggests that they do not receive as much support, particularly in economic activities, as others. When it comes to membership in agriculture cooperatives, the number of women is lower than men (about 38 per cent in the cooperatives pre-identified in the Project's area). This is mainly attributed to the distribution of family responsibilities (multiple roles) which leave women with limited time to participate in other development initiatives. Within the cooperatives, the participation of women in leadership positions is low; when women are into leadership positions, they occupy traditionally designated positions such as secretaries, advisors and sporadically as second vice-chairpersons[12]. Water user associations tend to be predominantly composed of male farmers. Generally speaking, women's involvement in the implementation of infrastructure projects tends to take the form of voluntary labour inputs.

46. The Agriculture Gender Strategy prepared by MINAGRI in 2010 sets clear steps to ensure that 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 Development Plan 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 utilization.

47. **Gender strategy**. To contribute to tackle constraints faced by rural women, KIIWP will adopt an inclusive approach to ensure that women and men equally benefit from Project's interventions. Overall, women will account for at least 50 per cent of the targeted beneficiaries (90,000 female beneficiaries in total overall an estimated 180,000 individuals reached by the Project), and female-headed households and women in male-headed households will be empowered to participate in project activities or engage in economic activities. Young people, (50 per cent women), will represent 30 per cent of the overall number of beneficiaries. Households headed by women will represent 30 per cent of the targeted households (12,000).

48. A Gender and Youth Strategy has been drafted during KIIWP1. The Strategy addresses gender disparities and youth constraints that limit their participation in economic opportunities and provides general recommendations to ensure that women and youth will benefit from equal access to assets, services and capacity building. The Strategy will be revised and updated, integrating social inclusion related issues, revising the expected targets and outcomes and defining specific initiatives that will be promoted during KIIWP2.

[10] The WEAI baseline (2020) found out that only 35% of illiterate female farmers received government extension services and that, in general, only 39% of female farmers benefited from government extension services compared to 52% male farmers.
[11] MINAGRI, Agriculture Gender Strategy, 2012
[12] RDDP, Project gender baseline survey

49. In relation to gender equality and women's empowerment, the Strategy will peruse the following main objectives:

(i) Expand women's economic empowerment through access to and control over assets and resources, enhanced capacities and skills.

(ii) Strengthen women's decision-making role in the community and their representation in membership and leadership of sub-catchment management committees, WUOs and Farmers Organizations.

(iii) Achieve a reduced workload and an improved equitable workload balance between women and men, girls and boys.

50. To achieve these objectives, KIIWP will:

a) Ensure that women and men have equal access to Project's services, targeting women as 50 per cent of direct beneficiaries of all supported activities.

b) Increase women's skills in financial literacy, managing and saving and credit, encouraging the economic empowerment of women. Under Component B.3, KIIWP will support financial literacy trainings, focusing on women (50 per cent of the trainees) and youth (30 per cent of the trainees). Financial services should be tailored to the needs of women: for example, supporting loan provision through informal groups (VSLAs). To this aim, KIIWP would rely upon and strengthening existing VSLA (Village Savings and Loan Association)[13].

c) Increase women's access to and control over assets and resources. The Project will dedicate a special financing window for women and young people (with a reduced beneficiary's contribution) through dedicated grants (component B.2), to enhance the adoption of the Climate Smart Agriculture practices and technologies.

d) Identify income-generating opportunities for women along the supported value chains and promote their participation also in areas that are not traditionally in their domain. Under both components, KIIWP will create new income generating activities, on farm and off farm, suitable for women (and specifically targeting young women), in the frame of catchment rehabilitation and protection initiatives -such as afforestation and reforestation activities, agroforestry practices, beekeeping-, in post-harvest management and processing of food crops, as input dealers, among other areas.

e) Promote female leadership within WUOs and Farmers' Organizations: it is expected that the water management committees will comprise 40 per cent women and 25 per cent youth (component A.3). Gender training to management committees will increase awareness of gender issues in infrastructure management. Leadership trainings in the context of the cooperatives will be aimed at promoting women's role in leading positions within their representative organizations. The inclusion of gender audits in cooperative capacity assessments will be supported; cooperatives will be supported to increase the number of women members and in leadership positions, and to ensure that they have equal access to cooperative services.

f) Improve the nutritious status and well-being of women and of other family members by strengthening their access to nutritious foods and improve their knowledge on good nutrition and practices (Component A.3). With this objective, kitchen gardens, managed by women, will be promoted targeting the most vulnerable households. Nutrition education will be integrated in the Farmer Field Schools' training curriculum. The nutrition module will include training in good nutrition/ dietary knowledge and practices, food handling and storage, cooking classes and practical demonstrations on how to prepare a healthy and balanced meal, along with hygiene practices. It is expected that at least 75 per cent of the

[13] This might be done in partnership with WFP (see, partnership table).

women receiving direct support to enhance their nutrition will improve their minimum dietary diversity at the end of the Project.

g) Employ the Gender Action Learning System (GALS), to address power inequalities between women and men and foster women's decision-making power at the household and community level (Component A.3). To implement GALS, the Project will leverage on the experience gained in applying the methodology in the frame of other on-going IFAD funded projects (details on the implementation of the GALS methodology are provided under Component A.3 of this Manual).

h) Support the development of small-scale mechanisation and promote climate smart and workload-reducing tools (TLST) adapted to the needs of women, thus reducing their labour burden while, at the same time, decreasing impact on natural resources (Component A.3).

i) Train project staff and extension service providers on gender-related issues. It will be ensured that training modules include specific sections related to gender. To this aim, Gender, Youth and Social Inclusion Specialist will be recruited at the Project level to oversee the training modules and curricula that will be delivered (Component C).

j) Ensure that the Project's Monitoring and Evaluation system is gender sensitive and that data are disaggregated (women/youth) and adequately reported (Component C).

51. Preventing gender-based violence in the agricultural sector. KIIWP will contribute to reducing any harmful act based on gender through: (i) sensitization on the importance of addressing GBV, application of IFAD's no tolerance for Sexual Harassment (SH) /Sexual Exploitation and Abuse (SEA) for project staff and project's activities and operations, as part of the gender awareness trainings; (ii) map out and partner with GBV prevention and response actors in project adjoining communities at the district level; (iii) have GBV risks adequately reflected in all safeguards instruments, contracts with suppliers and other third parties to be funded with IFAD funds.

52. Gender awareness trainings to district authorities and implementing partner organizations have been budgeted under KIIWP1 and are expected to be implemented during 2021, and prior to the start of KIIWP2. However, the Project (through the appointed Gender, Youth and Social Inclusion Specialist) will ensure that gender awareness-related topics will be embedded into trainings and capacity building activities aimed at district staff and partners over the course of the Project's implementation. To promote women's leadership in farmer's organizations, KIIWP will organize coaching sessions bringing together women farmers and women already in leadership to serve as role models and encourage other women to apply for leadership positions.

53. **Social inclusion strategy**. Kayonza District has a large number of vulnerable groups, including extremely poor households, marginalised persons, and genocide survivors. There are 3,426 disabled people in Kayonza District, 1,198 of them are children. Amongst the population covered by the Ubudehe governmental social protection programme, 4.2 per cent of the targeted households are headed by disabled people. In the Project area, 20 per cent of the targeted households report having at least one household member living with a disability (mental or physical). The households tend to be more food insecure (27 per cent against 18 per cent for the heads of households without disability).

54. KIIWP will deploy a social inclusion strategy, channelling Project's services to the poorest and most vulnerable households, to ensure that they are no left behind. This will include the provision of pro-poor services directly targeting groups of poor and extremely poor households, and especially women and youth, such as: alternative income generating activities - on farm and off farm- from which near landless farmers will be able to benefit (i.e., afforestation and reforestation activities, agroforestry-related practices, construction works, among others); capacity building on credit and financial literacy; support to informal financial organizations, such as community saving groups, targeting mostly women; the

implementation of kitchen gardens to improve access to nutritious food for household's consumption.

55. The poorest households, young farm workers and women (from Category 1 Ubudehe), will be targeted directly by the Project involving the *Umudugudu* committee at village level to ensure transparent and participative methods of households' selection. The Project will ensure that at least 10 per cent of the targeted households are amongst the most vulnerable category. (Ubudehe 1). This percentage will increase in the context of FFS, where Ubudehe category 1 & 2 will be the main target group. Ubudehe Category 1 households are also expected to benefit from the seasonal and permanent job opportunities created through market-orientated irrigation development. The Project will ensure participation of representatives from the most vulnerable households in sub-catchment planning, Farmers' Organizations, FFS and in water infrastructure management committees.

56. **Youth. Context**. In the Project area, more than 60 per cent of the resident population is under 25 years old. Young people are most amongst the most vulnerable sectors of the population: at the national level, almost 30 per cent of young people (16-30) live in households that are below poverty line. Gender disparities also exist, with more females extremely poor (12 per cent) compared to males (10.4 per cent) in 2016/2017[14].

57. Young rural people in rural areas are mostly literate (83 per cent, with no significant difference between males and females); however, the level of education is low and the percentage of young people attending tertiary education and technical or vocational schools is extremely limited (only 2.8 per cent of the rural youth population)[15] which challenge their involvement in the formal labour market. Indeed, precarious forms of employment with low level of earning is the main employment problem for the youth. It is estimated that in Kayonza District almost 30,000 youth are not in employment, education or training (NEET).

58. More than 60 per cent of young people work in agriculture and its sub-sectors and their main jobs, mostly engaged as independent farmers (45 per cent in total, of which more than 53 per cent are women) than wage farmers (16 per cent). As studies report[16], root causes of unemployment in agriculture for rural youth are mostly related to lack of access to productive assets and natural resources, goods and services; lack of knowledge and technical and business skills; a negative perception of agriculture among youth and a non-conducive environment for youth employment. These constraints limit rural youth's ability to develop successful businesses.

59. **Youth strategy**. KIIWP aims to increase youth's social and economic empowerment by strengthening young women and men's capacities to take part into decision making processes at community and organization levels and to engage into business opportunities. To this aim, the Project will support youth's participation into farmers' organization and WUOs, promote access to financial services and credit, and create new income generating opportunities aimed at youth (e.g., development of small-scale mechanisation).

60. The Project will target different sub-target groups within the young population of the Project's area, as: young men and women engaged in agricultural activities at subsistence farm level; youth employed under casual or seasonal work at minimum wage, who can be engaged in service provision and; young graduated, interested to apply their skills in the agriculture sectors as service providers. Youth will be targeted as both beneficiaries and service providers of the Project's supported interventions.

61. A Youth Strategy has been outlined during KIIWP1. At the light of the activities planned under KIIWP2, the Strategy should be revised and further expanded to address the following issues:

[14] EICV5, 2016/2017, Thematic Report, Youth.
[15] In the Eastern Province of Rwanda, 83% of the rural youth population is literate and more than 90% have attained schools, even from the poorest quintiles; however, only 1.7% attained tertiary education and 2.8% has attained technical and vocational schools. Source: NISR, EICV5, 2016/2017. Education Thematic Report.
[16] IFAD, 2019, Creating Employment Opportunities for Rural Youth in Africa: Support to integrated agribusiness hubs, Grant Design Report.

a) Analyse the main business opportunities for young women and men along the value chains supported by the Project and identify where the main opportunities for youth's employment are found. This assessment would be carried out in collaboration with Kilimo Trust, in the frame of the IFAD funded grant project (R-YES), aimed at creating agribusiness opportunities for young rural people in Rwanda (see, implementation modalities).

b) Identify capacities/ knowledge needs to enable young women and men to join the business opportunities identified and support their participation into vocational trainings and capacity building.

c) Identify selection criteria for young women and men to benefit from VET and capacity building trainings. It is recommended to prioritize NEET (not in employment, education or training) youth, in order to increase employability potential of the most disadvantaged groups. Partnership with Kilimo Trust should be foreseen to this aim.

d) Create ad-hoc income generating opportunities aimed at young people, targeting especially the most vulnerable one (e.g., landless) in the frame of the interventions supported and in areas suitable for them (e.g., afforestation and reforestation activities, agro-forestry practices, construction of infrastructures and the development of small-scale mechanisation targeting youth as main service providers).

e) Promote the hiring of young graduate as service providers, coordinating with service providers and partner organizations (such as RYAF, HoReCo and Kilimo Trust).

f) Set clear and reachable targets, define specific activities and ensure that human and financial resources required to deliver on the Youth's Strategy are in place.

62. **Implementation modalities**. KIIWP will recruit a Gender, Youth and Social Inclusion Specialist that will act at the Project (district) level; this Specialist will work in close collaboration with the Gender & Youth Specialist at the SPIU level. S/he will be responsible to supervise and ensure the proper implementation of the Project's Gender, Youth and Social Inclusion Strategy at the Project/district level, to articulate with local government authorities and to coordinate with different stakeholders at the district level. In order to harmonize with on-going activities on gender and women's empowerment carried out in Kayonza, the Specialist will articulate with local governmental authorities and, in particular, with the Gender and Family Promotion Officers at the district level.

63. At SPIU level, the already appointed Gender & Youth Specialist will be responsible for overall supervision of the Gender, Youth and Social Inclusion Strategy and related Action Plan. The Gender & Youth Specialist will coordinate extra-projects initiatives related to gender equality, women and youth empowerment (for example, learning and sharing events amongst IFAD funded projects), articulate with implementing partner organizations/ service providers (e.g., RYAF, Kilimo Trust) and manage the delivery of GALS trainings to the selected beneficiaries. The SPIU Gender Specialist will be also responsible to maintain and strengthen partnerships with key actors/ stakeholders on gender and youth related issues at the national level.

64. To boost capacity building and employment opportunities for young women and men, KIIWP will coordinate with the IFAD-funded grant "Creating Employment Opportunities for Rural Youth in Africa: Support to integrated agribusiness hubs in Rwanda" (R-YES project). Recently approved, the project has started its operation in late 2020. In Rwanda, R-YES will target 1,200 youth, of which 50 per cent women, identifying opportunities for youth employment along selected value chains, providing capacity building (through VTC and colleges) and linking youth graduated with agribusiness enterprises. A network of sub-Hubs will be established at the provincial level to facilitate these linkages. The project is implemented by a consortium of organizations and institutions and coordinated by Kilimo Trust (see, section on implementing partner organizations and service providers).

65. The SPIU Gender & Youth Specialist is the focal point of the R-YES Project and is responsible to coordinate activities between the IFAD funded loans and the grant. He is also

responsible for coordinating and supervising the implementation of GALS methodologies in the frame of IFAD-funded investment projects. Together with the KIIWP Gender, Youth and Social Inclusion Specialist, he will define tailored implementation arrangements for the delivery of selected interventions with the different partner organizations and service providers.

66. Multi-stakeholder coordination will be promoted both at the district and at the national level. Participation of the Project's specialists in thematic working groups (e.g. Gender sub-sector working group) will ensure coordination and collaboration amongst the different stakeholders to respond to beneficiaries' needs and align with national and district's priorities.

67. **Project coordination and monitoring**. The M&E system will give strong emphasis to monitoring of targeting performance. All implementing partner organizations and service providers will be required to provide disaggregated data on women and youth participation, in relation to overall Project's targets.

68. The M&E system will collect and analyse information about Project outreach, effectiveness of the targeting strategy and specific benefits for women and youth. This will require strong coordination and collaboration between the M&E unit and the Gender, Youth and Social Inclusion specialists at both SPIU and Project level. Impact will be assessed on the basis of methodologically gender sensitive baseline and completion surveys. A gender assessment study has been included in KIIWP1 and will be implemented, as part of the overall Project's baseline study, in 2021; a gender study at completion will assess the effectiveness and relevance of the strategies/mechanisms put in place.

69. Service providers supporting the implementation of activities (particularly those directly dealing with producers and groups) should have a demonstrable commitment to gender inclusive approaches, youth engagement and social inclusion.

70. **Key implementing partner organizations/ service providers**. During the design, a set of key actors have been identified as potential partners or service providers for the delivery of gender and youth related activities.

71. Amongst development partner organizations, it is recommended to seek alignment and synergies with the on-going SMART WFP/KOICA funded project (2020- 2023) in Kayonza district. The Project merges climate resilience with social protection and value chain support, targeting 180,000 individuals from the poorest categories (Ubudehe 1 and 2) and channelling interventions through formal and informal farmers groups. In this framework, the project is promoting the establishment of VSLAs, or strengthening existing ones, and creating linkages between the women's saving and loans groups with financial institutions. With the aim of promoting enabling environments for women's access to finance, KIIWP should leverage on this development project and build on existing VSLAs.

72. Kilimo Trust is an East Africa-based not for profit organization that was established in 2005 to contribute to broad-based wealth creation through agriculture and agribusiness development. In Rwanda, the organization is coordinating the R-YES project, financed by IFAD, providing support to the establishment of agribusiness hubs to create employment opportunities for rural youth. The grant is implemented by a consortium of institutions including the African Agribusiness Incubators Network (AAIN), Rwanda Youth in Agribusiness Forum (RYAF) and Rwanda Polytechnic, through its affiliated Integrated Polytechnic Regional Colleges (IPRCs). KIIWP2 would liaise with the grant to identify job opportunities for young people for the supported value chains and the provision of capacity building and trainings and link to financial services. Graduate youth would be also employed by the Project as service providers.

73. Other service providers focusing on rural youth would include the Rwanda Youth Agribusiness Forum (RYAF) and HoReCo. The first one is a platform established to bring together different youth organizations, individual youth farmers and entrepreneurs. RYAF already engaged in IFAD-supported projects PASP and RDDP in the delivery of training and extension services, and it could be further involved to engage youth in agriculture, as service providers as well as beneficiaries of capacity building, business and financial services. HoReCo

is a business company of professionals in agriculture who were trained in matters of horticulture development and value chain, irrigation and agriculture mechanization as well as building capacity of youth in agriculture. They may be employed as service providers for the delivery of specific capacity building and trainings in areas where the company has recognized professional skills and comparative advantages.

Table 3. Gender and youth activities implementation flowchart

Activity	Responsibility	Inception	Y1	Y2	Y3	Y4	Y5	Y6	Outputs
Revise the Gender and Youth Strategy (KIIWP1), integrating Social Inclusion related issues, revising targets and including KIIWP2 expected interventions.	SPIU Gender & Youth Specialist								The Gender, Youth and Social Inclusion Strategy of KIIWP2 is elaborated.
Prepare a Gender & Youth Action Plan, defining key interventions and implementation arrangements for the delivery of specific services targeting women and youth with partners/service providers	SPIU Gender & Youth Specialist								A Gender & Youth Action Plan is elaborated and implementation arrangements for the delivery of specific interventions aimed at women and youth are defined
Define selection criteria for young women and men to benefit from VET and capacity building	SPIU Gender& Youth Specialist in coordination with the KIIWP Gender, Youth and SI								Selection criteria are defined.
Outline training contents on gender, youth and social inclusion related issues and ensure that they are integrated into the training curricula for project staff, district authorities and implementing partners/ service providers	KIIWP Gender, Youth and SI specialist in coordination with the SPIU Gender Specialist								Gender, youth and social inclusion related issues are embedded into training curricula.

I.2.3: NUTRITION AND FOOD SECURITY

74. **Context**. The District of Kayonza faces important food security challenges. Data show that, compared to 2015, food security highly deteriorated (+21.9 per cent of food insecure households) in the district. After three consecutive years of drought, in 2018 Kayonza registered the highest prevalence of food insecure households (32.8 per cent) of the Province (average 16.2 per cent) and the second highest rate of severely food insecure households (4.8 per cent) of the country[17].

75. The increased food insecurity is linked to a set of inter-related underlying causes: small plot sizes, limited land availability, low productivity in subsistence agriculture and low farmers' purchasing power, exacerbated by erratic weather patterns and recurrent droughts. The

[17] WFP, 2018, Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda.

stability of food throughout the year and at all times remains an important constraint in the Project area. Findings from EICV4 (2014/2014) and EICV5 (2016/2017) show a correlation between poverty rates with the rise in the price of foods (especially staple vegetables and root crops) and the reduction of purchasing power of households. Household food security is strongly related to food prices with poorer households far more vulnerable to fluctuating prices. Food prices for staple commodities, such as maize and beans, are generally increasing at the end of the year, before the harvesting season. This is also the time of the year when household food stocks have run out and market dependency is highest. Food shortages are also attributed to lack of adequate post-harvest storage facilities which are extremely limited in the District of Kayonza.

76. Household's dietary diversity. Most of the households base their diet on legumes (60 per cent) and cereals (56 per cent) as their main food on a daily basis. Tubers (30 per cent), mostly as cassava, are also a main food with a few households reporting consumption of vegetables (17 per cent). There is very low consumption of fruits (0.7 per cent) and animal protein in the form of milk or beef. More specific to the dietary compositions, for many meals most households consume a mixture of beans and maize "imvungure", maize flour porridge, cassava and vegetables including cabbages, eggplants and amaranths "dodo" mainly produced in home gardens. Findings from CFSVA (2018)18 show a significant correlation between the mother's food consumption and the child's food consumption: women's knowledge and education on food diversity has been recognized as a significant factor impacting children's food consumption, especially for achieving the minimum acceptable diet.

77. In the Project area, the prevalence of stunting among children under five age was estimated at 42.4 per cent in 2018[19], higher than the national rate of 37 per cent. The major underlying causes of malnutrition include limited access to nutrient-rich foods, seasonal food unavailability and low agricultural productivity due to climatic conditions and declining soil fertility. In rural areas, households practicing subsistence farming on small plots of land are the most affected by malnutrition. Poor access to safe and clean water, health services and sanitation facilities (WASH), also compromise people's health and their capacity to retain nutrients. Water-borne diseases, such as malaria and intestine parasites, are the most prevalent forms of illness in Kayonza; more than 40 per cent of the population has no access to improved and safe sources of water for domestic use.[20]

78. **Nutrition strategy and related activities**. Nutrition will be tackled mostly through the production pathway, identifying key climate smart and nutrient rich varieties that would be promoted for both household's consumption and sell. KIIWP's nutrition strategy will aim to increase and diversify the production and consumption of nutritious foods to complement the production of agricultural commercial commodities, with particular focus on the most food insecure households and women. With this objective, the Project will:

a) Promote key climate smart and nutrient rich varieties to be grown in kitchen gardens (Component A.3), targeting the most vulnerable and food insecure households and women. The Project would rely upon the experience gained in the establishment of kitchen gardens under the IFAD-funded project KWAMP (already closed and operating in the neighbouring district of Kirehe). Nutrition varieties already identified will include: Orange Fleshed Sweet potatoes (OFSP), iron beans, dark green leafy vegetables[21]. Fruit trees (such as moringa, mango, avocado and citrus trees) will be grown in the agroforestry systems (Component A.1). Other nutrient rich varieties will be identified at inception stage of the KIIWP2[22]. The selection criteria should

[18] WFP, 2018, Comprehensive Food Security and Vulnerability Analysis (CFSVA), Rwanda
[19] Kayonza District, Second District Health Strategic Plan, 2018/19-2023/24.
[20] NISR, 2012, Kayonza District Profile
[21] A separated budget line has been created in the COSTAB under component A.3 for the promotion of nutritious and improved seeds varieties.
[22] For the selection of the nutritious and climate smart food crops to be promoted, KIIWP would be able to rely upon the assessment conducted in the frame of the on-going IFAD funded Nutrition Sensitive Water Productivity (NsWP) project, implemented by FAO in the same district, aimed at identifying those nutrient rich varieties able to tackle micronutrient deficiencies of the targeted population and that also offer market opportunities. Furthermore, linkages will be established with the Home-Grown School Feeding Programme to promote local market for nutritious crops.

consider those crops/vegetables that are included in the food basket for schools, in the frame of the Home-Grown School Feeding Programme, in order explore possibilities to link farmers to public purchases.

b) Implement Climate and Nutrition Smart Technologies (such as storage facilities, dryers, climate resilient drying grounds and warehouses) in order to reduce post-harvest losses and improve year-round availability of nutritious food crops (Component A.3). The introduction of these technologies would be coupled with trainings aimed at strengthening farmers' capacities on post-harvest practices that would help addressing micronutrient deficiencies and provide an additional source of protein consumption on the long term (e.g., drying and milling, sun drying).

c) Enhance access to clean and safe water for human consumption (constructing boreholes and valley tanks to supply water for domestic use, under Component A.1).

d) Provide nutrition education in the frame of Farmers Field Schools (Component A.3) to help orienting farmers' choices towards improved nutrition. Nutrition education will include training in good nutrition/ dietary knowledge and practices, food handling and storage, cooking classes and practical demonstrations on how to prepare a healthy and balanced meal, along with hygiene practices. It is expected that at least 75 per cent of the women receiving direct support to enhance their nutrition will improve their minimum dietary diversity at the end of the Project.

e) Strengthen multi-stakeholder coordination in order to align Project's interventions to the nutrition-related priorities set by the District and reflected into the District Plan to Eradicate Malnutrition (DPEM). The SPIU Nutrition Specialist will be responsible to engage with other key development partners on nutrition at the national level (such as, WFP, FAO, SUN multi-stakeholder platform).

79. Nutrition education. A dedicated module on nutrition education will be embedded into the Farmers Field School's training curriculum. A training module on nutrition education has been already elaborated by the SPIU Nutrition Specialist under RDDP and it is being implemented in the frame of the Livestock Farmer Field Schools (L-FFS) supported by the project in Kayonza District. The curriculum might be adapted to fit KIIWP's purposes. For the development of materials, it is also recommended to liaise with the on-going IFAD funded Nutrition Sensitive Water Productivity (NsWP) project, implemented by FAO in the same district, that will also channel nutrition education through the Farmers Field School's approach.

80. Nutrition education sessions will be complemented by training on gender (GALS, see Component A.3) aimed at both husbands and wives that will address intra-household dynamics (decision-making, sharing of labour): this will help to tackle those challenges that, beyond food, may compromise improvements in diets at the household level (e.g., intra-household food distribution, choices on the use of family's income, etc.).

81. Finally, the promotion of climate-smart labour-saving technologies would contribute to decrease women's workload and, it is expected, to increase their caring capacities. Trainings at the community level will also include raising awareness on the importance of good hygiene and sanitation, including actions to improve the surrounding environment.

82. **Monitoring of nutrition-sensitive interventions**. The SPIU Nutrition Specialist will be responsible to oversee the implementation of the nutrition sensitive activities and follow-up on their progresses, in coordination with the Project M&E unit. The Minimum Dietary Diversity for Women-MDD-W indicator has been introduced at the outcome level to monitor improvements in diets in women in reproductive age, as a direct result of Project's activities. Studies will be conducted at baseline and completion to assess the effectiveness and relevance of the strategies/mechanisms.

83. **Implementation modalities**. To elaborate the contents for the trainings on nutrition education, KIIWP will coordinate with the National Early Childhood Care and Development Programme (NECDP), which operates under the Ministry of Gender and Family Promotion.

The Programme is already partnering with RDDP in the delivery of nutrition education to producers' groups.

84. It is expected that FFS facilitators already trainined on nutrition education, and currenly providing services under RDDP in Kayonza district, will be available to be recruited under KIIWP2. Furthermore, the Project could rely upon FFS facilitators trained on the same subject in the frame of the IFAD funded Nutrition Sensitive Water Productivity (NsWP) project, implemented by FAO in Kayonza district. Whenever neded, KIIWP may decide to outsource technical expertise to deliver nutrition education modules within the FFS. During the project design, the mission interviewed international civil society organizations (such as SNV) with recognized capacities in the delivery of nutrition education, and social behaviour change communication, along with complementary trainings on production of nutritious food crops (implementation of kitchen gardens), WASH, Climate Smart Agriculture, etc.

85. It is therefore reccommended, at the inception stage, to: (i) map the capacities available at the district level to deliver nutrition education, leveraging on existing experiences and projects; (ii) indentify gaps (in terms of human/technical resources, materials, etc.) and; (iii) define tailored implementation arrangements for the delivery of the nutrition trainings, based on the resources (human/tehnical/fianncial) available in house (SPIU level) and external partners that could be mobilized.

86. The SPIU Nutrition Specilist will be responsible to ensure that nutrition is mainstreamed in Project's components and activities, to coordinate the implementation of the nutrition-sensitive interventions planned and to maintain regular communication and coordination with IFAD-funded inititives (loans, grants) on nutrition implemented in the same district. The SPIU Nutrition Specilist will be also responsible for strengthening multi-stakeholder coordination and partnership with different organziations (at the governmental level, as well as with civil society organizations and development partner institutions).

Multi-stakeholder coordination and key partnerships

87. At the district level, in accordance with the National Decentralization Policy, multi-sectoral committees are established to coordinate the implementation of the nutrition programmes. Under the leadership of the District Major, these committees are composed of district directors of health, nutritionists, women and youth' district representatives, agronomists and social protection, veterinary, and hygiene and sanitation officers. The district-level committees oversee the implementation of DPEMs. All districts have developed District Plans to Eradicate Malnutrition (DPEMs) that will be key references for the development and delivery of nutrition-related activities. The SPIU Nutrition Specialist will maintain close communication and coordination with the district-level committee in Kayonza District to harmonize and align the nutrition- sensitive activities planned under KIIWP with the DPEM's priorities and to coordinate for the delivery of nutrition education.

88. Potential partnership with FAO, particularly on technical assistance will be pursued due to FAO expertise on nutrition and social inclusion. FAO together with the World Bank is currently executing the GASFP Sustainable Agricultural Intensification for Improved Livelihoods, Food Security and Nutrition Project (SAIP), covering also Kayonza District and implementing nutrition sensitive interventions. Synergies should be explored, especially in the promotion of nutritious crops and in the implementation of nutrition trainings to communities.

89. The Nutrition-sensitive Water Productivity (NsWP), IFAD funded grant, also implemented by FAO, will be executed during the next three years in the same District. NsWP aims to improve dietary quality by strengthening the capacities of smallholders for the adoption of sustainable water management and nutrition sensitive agricultural practices. This will be achieved through an NsWP methodology that includes the selection of nutrition-smart crops, the delivery of nutrition trainings and the CSA practices through the FFS model.

90. A Focal Point for the NsWP has been appointed in Rwanda. Initial arrangements for the development of the partnership between NsWP and KIIWP have been defined during the project design, including: (i) the adaptation and upscaling of the NsWP methodology and

practices into KIIWP; (ii) the identification of nutritious crops to be promoted in the kitchen gardens, that would respond to micronutrient deficiencies of the targeted population; (iii) the production of contents for the nutrition education modules and; (iv) a list of FFS faciliators trained on nutrition education on whose KIIWP may rely upon. The SPIU Nutrition Specialist will be responsible to maintain close communication wihe the NsWP Focal Point in Rwanda to follow up on the above mentioned arrangements.

91. The World Food Programme will be a key partner to link cooperatives supported by KIIWP with the Home-Grown School Feeding Programme (HGSFP). In this context, partnership would be established to further exchanges on nutrition-sensitive and climate-smart practices, promotion of nutritious foods and market linkages through the HGSFP. It is envisaged that KIIWP maps out, with the support of WFP, the primary schools targeted under the HGSFP to strengthen linkages between the agricultural cooperatives supported by the Project and the Programme for public purchases.

92. Partnership with WFP may be also sought in the provision of capacity building to farmers on nutrition sensitive climate smart practices and technologies to be embedded into trainings at cooperative level (including aflatoxin control, post-harvest practices, such as drying and milling).

Table 4. Nutrition activities implementation flowchart

Activity	Responsibility	Inception	Y1	Y2	Y3	Y4	Y5	Y6	Outputs
Undertake a nutrition assessment to identify key nutritious crops to be promoted in the kitchen gardens (a)	SPIU Nutrition Specialist								A nutrition assessment is undertaken, and a list of nutritious crops defined.
Map the capacities available at the district level to deliver nutrition education, leveraging on existing experiences and projects (b)	SPIU Nutrition Specialist								A list of FFS facilitators trained on nutrition education is available.
Prepare contents for nutrition education module (c)	SPIU Nutrition Specialist								Contents for the delivery of nutrition education are prepared.
Map out the schools supported by the HGSFP at the district level (d)	SPIU Nutrition Specialist								A list of schools included in the HGSFP is available.
Define implementation arrangements with selected partners and service providers for the delivery of NS activities.	SPIU Nutrition Specialist								Detailed implementation arrangements for specific activities are defined and reported in a Nutrition Action Plan.

(a) In partnership with the NsWP project.
(b) In partnership with the NsWP project and RDDP project.
(c) In partnership with RDDP, NsWP project, NECDP.
(d) In partnerhship with WFP.

I.3: INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

I.3.1: CONTEXT AND RATIONALE

93. The institutional arrangements for the Kayonza Irrigation and Integrated Watershed Management Project (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.

94. **Single Project Implementation Units (SPIU)** were created in every line Ministries and Public Agencies, with the overall objective of creating an effective institutional framework that will guide the process of designing and implementing projects that are earmarked to fast track realization of development targets envisaged in the various sector strategic plans, the Seven Year Government Program and the EDPRS, all drawn from the Rwanda's Vision 2020.

95. The SPIUs are strategically positioned to manage the ongoing and planned as well as future projects identified in the course of translating sector strategic plans into development results. It further serves as repository of knowledge on lessons of experience accumulated in the course of implementing and closing the completed projects. The 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.

96. The Lead Project Agency[23] has been shifted from the Ministry of Agriculture and Animal Resources (MINAGRI) to Rwanda Agriculture Board (RAB) for the implementation of RDDP and PASP, and to National Agricultural and Export Development Board (NAEB) for the implementation of PRICE. Effective from July 2017 and following the official letter from MINECOFIN to IFAD dated 27 March 2017, it was decided that the MINAGRI will have the role of making policies while implementation, management and monitoring of projects and programs will be transferred to the implementation agencies such as RAB and NAEB.

97. The **Rwanda Agriculture Board** (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, fiber and fuel wood production and processing.

98. The **National Agricultural Export Development Board** (NAEB) is registered under the MINAGRI. Rwanda Tea Development Authority (OCIR THE), Rwanda Coffee Development Authority (OCIR CAFE) and Rwanda Horticulture Development Authority (RHODA) were merged in 2011 to form NAEB. The formation of the NAEB is aimed to improve the balance of payment of the Rwandan economy through increased agricultural exports and import substitution. NAEB was set up by bringing together three government agencies responsible for the entire Agriculture Export and cash crop base under one management

[23] Lead Project Agency means the entity designated as such in an Agreement, which has overall responsibility for the execution of a Project

I.3.2: PROJECT GOVERNANCE STRUCTURES

99. **The Project Steering Committee (PSC)** KIIWP2 will use the same PSC as KIIWP1.It is headed by the permanent secretary of the Ministry of Agriculture and Animal Resources and will include, the chair person of RAB, the Mayor of Kayonza, the Director General RCA, the Deputy Director General of RAB in charge of agricultrue and technology transfer, the Head of Departement for activity on Irrigation RAB, other representatives of MINAGRI such as the Director General of Agricultural Development, the Ministry of Local Government (MINALOC), the Representative of MINICOM, MINICOFIN, the Representative for the MoE, the Representative of Rwanda Development Board, the SPIU coordinator as the secretary of the PSC. The PSC with this configuration will ensure the project oversight for a sound and integrated implementation as well as will approve the AWPB before seding it to IFAD for the No-Objection and will meet twice a year.

100. The PSC will be also active during the year and will invitemembers of the District Council, members representing the farmers, Farmers' Organizations (FOs), WUOs, LWUOs, NGOs and local institutions from the public and private sectors' participating. This steering committee configuration is due to meet at least three times yearly, once to review the draft Annual Work Plan and Budget (AWPB) and again 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, as well as ensuring also sectoral and implementation coordination.

I.3.3: LEAD AGENCY AND PROJECT COORDINATION

101. The Lead Project Agency for KIIWP will be the Rwanda Agriculture Board (RAB) which will have the overall responsibility for the coordination and execution of the project. Though the MINAGRI 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.

102. KIIWP will be integrated within the Single Project Implementation Unit (SPIU) of IFAD projects (PASP and RDDP) that are under RAB. The SPIU Coordinator will also oversee and coordinate KIIWP2 activities that will be implemented at both the central and district level.

103. The SPIU will be responsible for the overall planning of project activities; guiding, supporting and supervising project implementation; procuring goods and services; financial management of the project resources; and monitoring and reporting on implementation and financial progress. It will work with MINAGRI and other line ministries and government services; and through RAB will collaborate with smallholder dairy farmers, dairy processers and other value chain actors, service providers and relevant development initiatives. It will play a leadership role in terms of the project's private sector orientation and will be an advocate for a more private sector-friendly investment climate; it will ensure the project's commitment to poverty targeting, and –in particular –to involving women and youth in project activities; and it will also support climate-smart approaches for dairy development.

Figure 1. RAB Organigram

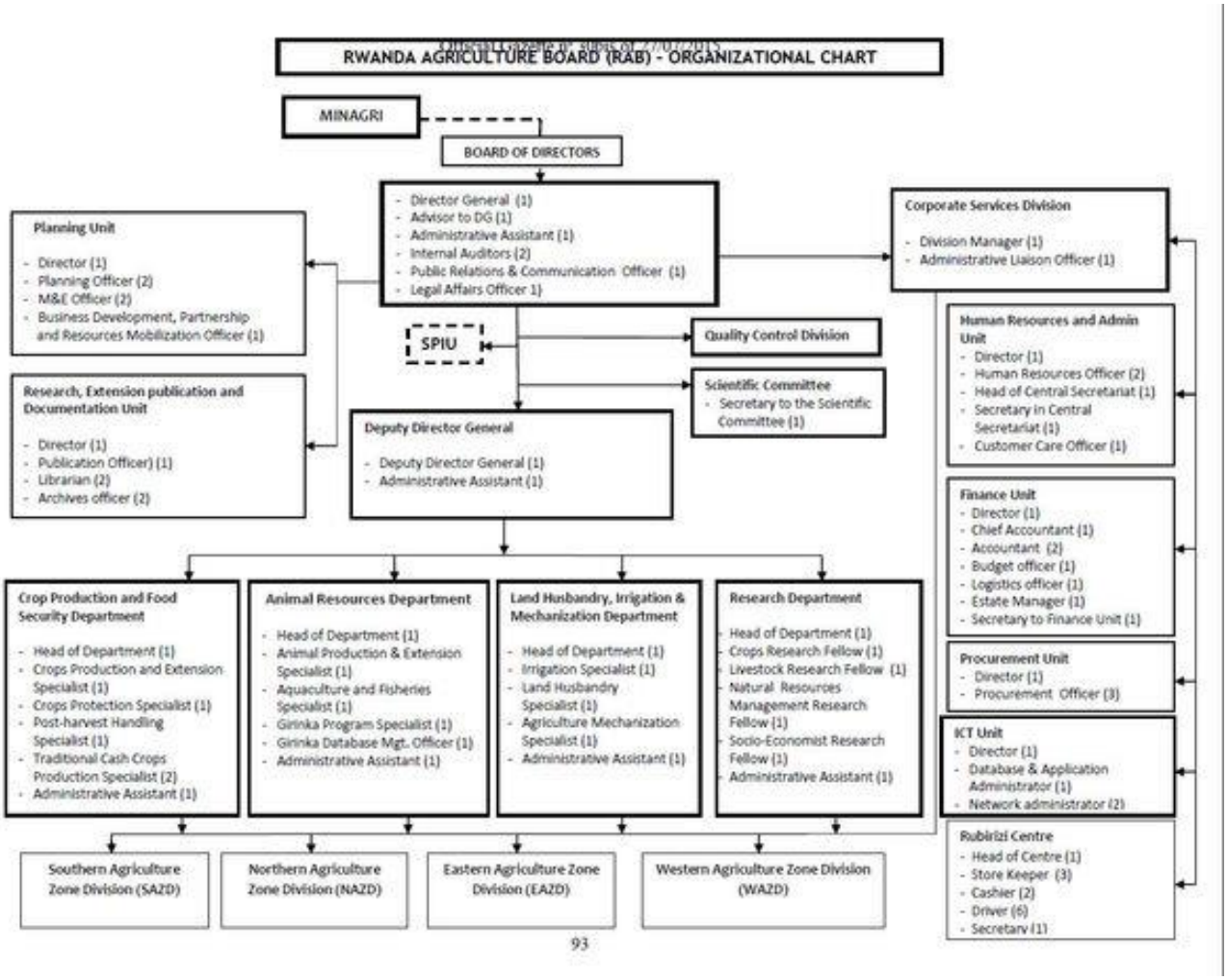
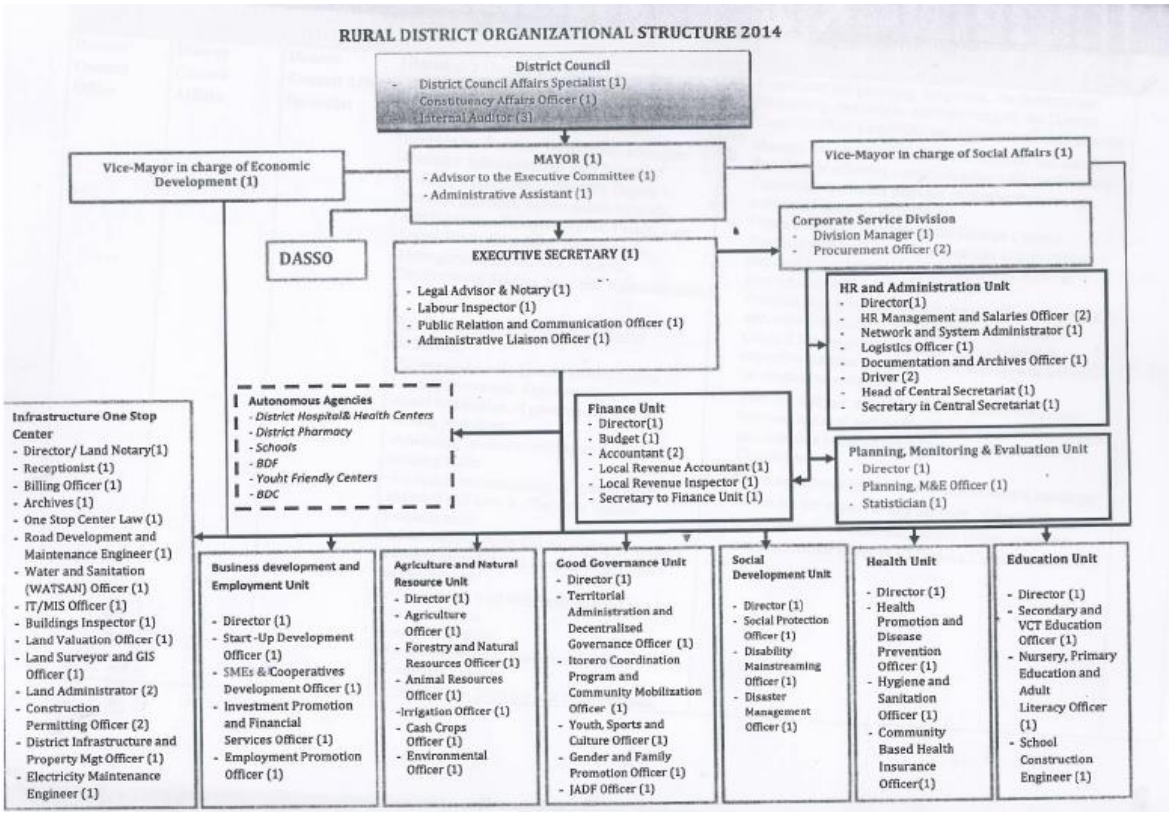


Figure 2. Organizational structure of Kayonza district



104. **Staffing** At Central SPIU level, KIIWP1 already existing personnel and additional personnel (*) will be the same for KIIWP2 plus new extra staff required to support the project:

a. A KIIWP Programme Manager;
b. A KIIWP Accountant;
c. An M&E Officer;
d. An Irrigation Engineer Specialist;
e. A Procurement Specialist*.
f. Climate and Environment Specialist
g. Civil Engineering Specialist
h. Cooperative Development Specialist
i. Social Safeguard and Compliance Specialist
j. Access to Finance Specialist
k. GIS Specialist*
l. Drivers

Additionally, a Procurement Assistant and a GIS Specialist will be added as cross cutting member of SPIU staff. The terms of reference for both positions are included in annex 1 below.

105. At the district level, implementation will be monitored by the Director in charge of agriculture in collaboration with existing staff. The following existing and additional staff (*) will be recruited by the project in order to support the district:

a. Watershed Management Officer
b. Value Chain Development/Agribusiness Specialist
c. Electromechanical Engineer Specialist
d. Senior Agronomist and FFS Specialist*
e. Land Husbandry Specialist
f. Accountant for KIIWP transaction at District
g. Irrigation Technitian
h. Irrigation Technitian
i. Water Users' Association Officer
j. Horticulture Specialist
k. Social Inclusion, Gender and Youth Specialist*

106. 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.The project distirct unit will work hand in hand and integrate district level staff in implementation activities and coordination as well as in capacity building needs in order to ensure a sound exit strategty and sustainability of interventions These arrangements are line with current implementation arrangements of IFAD-supported projects (namely PASP and RDDP) under the SPIU that pay directly the salaries of their field staff attached to the districts.

I.3.4: POSSIBLE IMPLEMENTING ENTITIES AND SERVICE PROVIDERS

107. **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;

108. The SPIU will establish partnerships and service provision agreements trough Memorandums of Understanding (MoU) (see Annex 5) that will include budget allocations, activities and responsibilities on the project of each entity.

109. The following are the pre-identified implementing entities:

110. **Rwanda Cooperative Agency (RCA)** promotes, regulates and supervises the grouping of a large number of 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.

111. With respect to KWIMP implementation, the RCA will be responsible for several activities connected with the creation and supervision of cooperatives including: registering, regulating and supervising cooperatives; assisting with capacity building through training and seminars.

112. **Rwanda Capacity Development and Employment Services Board (CESB)** established under the Law Nº43/2016 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 (CD) 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.

The Rwanda **Center of Excellence in Biodiversity and Natural Resource Management** (CoEB)[24] would be a partner for monitoring the ecosystems and landscape restoration and rehabilitation measures. The CoEB would provide technical backstopping to enhance the knowledge of biodiversity and natural resource management for sustainable development and community resilience. As per its mandate, the CoEB would support the Project to implement the catchment management plans and all mitigations measures listed under the ESMPs and hence contribute to the SDG 15, to ensure conservation, restoration and sustainable use of terrestrial and freshwater ecosystems and their services.

113. Other partner entities and service providers will be identified during the project implementation.

I.3.5: PARTNERSHIPS

114. **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 center of its interventions. AFR supports the development and provision of financial services including savings, credit, insurance, payments and remittances. AFR is funded by DFID, Sweden, USAID, the MasterCard Foundation and KfW. 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.

115. **ICCO:** A partnership with ICCO, as potential co-financier of KIIWP2, would mainly scale-up Component B. The collaboration would allow leveraging the support to MFIs in Kayonza (Umutanguha, RIM, Goshen, Duterimbere, etc.), to SMEs, cooperatives and private value chain actors. ICCO has prepared a concept note on partnering with KIIWP2 with innovative proposals on: (i) access to equipment, (ii) mobilizing youth for equipment maintenance; (iii) access to agricultural finance with a focus on digital agri-credit assessment tool and capacity building of financial institutions; (iv) agri-innovation challenge fund to stimulate innovation in agricultural sector; (v) value chain development including capacity building of farmer organizations and business development service; (vi) digital solutions for agriculture; (vii) strengthening of VSLAs with focus on women and youth; and (viii) program embedded reflection and learning. ICCO Cooperation/CORDAID is prepared to cofinance KIIWP2 for an amount of USD 500,000. In addition, ICCO submitted a proposal to the IFAD SSTC-China grant window and if successful, the grant (USD 500,000) is expected to complement KIIWP2. Finally, ICCO's partners such as FarmFit Fund and Rabobank are organized to support SMEs and MFIs, respectively, through loans with a tentative value of USD 400,000 from each partner. In total, the partnership with ICCO Rwanda could potentially add approximately USD 1.8 million to the KIIWP2 funds.

116. **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

[24] CoEB functions as a consortium of governmental and non-governmental research and higher learning institutions in Rwanda called nodes, coordinated by the central hub office at University of Rwanda in the College of Science and Technology.

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 The BDF would be a potential partner to manage the grant windows foreseen in KIIWP2, given its thorough experience, outreach capacity (through district offices) and recently digitalized application process.

117. **One Acre Fund** have a strong presence in Kayonza and activities that could complement KIIWP2. Entry points for cooperation, synergies and complementarities could include: irrigation pump provision model piloting and scale-up; value chain development: agro-dealer credit provision and agronomic training, market creation, for some value chains they aggregate produce and bring to off-takers; extension services training with RAB. They have four key programmes. Through the core programme which has large outreach in Kayonza, One Acre Fund has field officers in every cell, each cell having 300 to 400 farmers enrolled into groups. It providers different inputs such as seed and fertilizer on credit, the cost of which are protected with agricultural insurance. Extension services including in agronomy and post-harvest storage are provided by the field officers. In addition, One Acre Fund sometimes act as an aggregator of produce to and deliver to buyers. The Extension Programme of One Acre Fund is a cooperation with RAB's extension service programme, focused on training activities. Within the Rural Retail Programme, One Acre Fund provide credit and agronomic training with agro-dealer shops. Lastly, One Acre Fund have been working on provision of solar PayGo technology, and in 2021 will start piloting a PayGo model for irrigation pumps.

118. **Africa Improved Food/DSM:** is a public-private partnership involving DSM, Government of Rwanda, IFC, CDC Group and FMO. Partnership will be sought under Subcomponent A4 and B3 by proving agriculture inputs and knowhow to prepare ToT for FFS, as well as possible agribusiness agreements with cooperatives to purchase maize and soybean.

119. **World Food Program (WFP)**. Potential partnerships include the SMART project and Farm-to-Market-Alliance (FtMA) plus complementarity of intervention at district level (for more details of the potential partnership see Annex 6). The SMART WFP/KOICA funded project (2020- 2023) is scaling up interventions carried out in western and southern provinces since 2012. The project merges climate resilience with social protection and value chain support, targeting 180,000 individuals from the poorest categories (Ubudehe 1 and 2) channelling interventions through formal and informal farmers groups and linking farmers to the Home-Grown School Feeding Programme (HGSFP). It is implemented in Kayonza and specifically in Murama sector. FtMA works through a demand-led approach to sustainably improve farmer livelihoods and develop commercial viability of value chain stakeholders. FtMA promotes the growth of viable smallholder facing business models through strategic partnerships and catalyses farmer-friendly investments into crop value chains. A partnership with WFP can further be explored in the context of KIIWP2 in relation to access to savings, credit and insurance, as well as capacity building of cooperatives, post-harvest capacity, linkage with buyers/financial sector. Potential synergies could be linking financial products of MFIs and SACCOs with Village Savings and Loan Associations (VSLAs) within the targeted cooperatives, facilitated by WFP, as well as creating links between SMEs crowded into the FtMA and matching-grants under KIIWP2. Other possible partnership areas include Nutrition sensitive and climate smart practices, promotion of nutritious foods and market linkages through the HGSFP, community mobilization and engagement approach and linking to finance support. Overall complementarities and scaling-up of interventions are as follows :

- Sub-component A1. Community-driven development approaches;
- Sub-component A3. Exchanges on nutrition-sensitive and climate-smart practices, promotion of nutritious foods and market linkages through the HGSFP, community mobilization and engagement approach and linking to finance support.;
- Sub-component B3. Market analysis and selection of nutrient rich crops with potential for local market and public procurement;

- Sub-component Access to quality seeds and improved seeds, coupled with insurance (potential facilitation by WFP in coordination with RAB;
- Sub-component B1, B3. (a) capacity building of cooperatives, post-harvest capacity, 4Ps; (b) synergies to link financial products of MFIs and SACCOs with VSLAs within the targeted cooperatives, (c) linkages between SMEs crowded into the FtMA and Matching Grants.

120. **Food and Agriculture Organization (FAO).** Potential partnership with FAO, particularly on technical assistance will be pursued due to FAO technical expertise on various key aspects of KIIWP2 such as CSA, sustainable mechanization, FFS, nutrition and social inclusion aspects. FAO together with the World Bank is currently implementing a GASFP project Sustainable Agricultural Intensification for Improved Livelihoods, Food Security and Nutrition Project (SAIP), covering also Kayonza district and addressing several common areas with KIIWP2, such as irrigation, WUAs capacity building, and CSA. FAO Rwanda has also the Technical Assistance to Sustainable Agriculture Intensification

121. The **World Bank Group** is planning a USD 300 million nationwide investment to start in September 2021 (pending design validation and approval). Approximately USD 80 million is planned to de-risk the agricultural sector in order to support value chain development. The World Bank have already carried out an assessment of NAIS and has been discussing options for support. Five pillars of support have been proposed to be further defined: 1. Establish an appropriate institutional framework for NAIS: 2. Collect and manage data for agricultural insurance; 3. Adopt a smart premium subsidies regime; 4. Expanding investments in financial education and awareness creation; and 5. Supporting the scale-up of digital services for insurance. The planned investments of KIIWP2 in insurance would benefit the development of NAIS. The proposed insurance activities therefore contribute to the planned support, whilst further partnership could ensure KIIWP2 beneficiaries and cooperating institutions would benefit from some of the planned support.

122. Programme and the implementation of the Nutrition-sensitive Water Productivity (NsWP) grant, piloting the NsWP methodology from which KIIWP2 could leverage on.

123. **Alliance for a Green Revolution in Africa (AGRA).** AGRA works with partners and the Government of Rwanda to increase incentives for private sector participation and investment into the sector while also enhancing access to finance and markets; the adoption of climate smart technologies and use of inputs (seeds and fertilizer). AGRA has also supported policy development on seed sector as well as capacity building. Possible areas of partnership are on capacity building on government staff, farmers' linkages with markets and the private sector, as well as access to inputs and financial services.

I.3.6. COOPERATION AND LINKAGES WITH OTHER IFAD PROGRAMMES IN THE AREA

124. The **IFAD-funded "Climate Resilient Post-Harvest and Agribusiness Support Project" (PASP)** is also implemented in Kayonza and has co-financed seven post-harvest structures in the dairy, maize and bean value chains. KIIWP will ensure beneficiaries are connected to these structures, and build on lessons learned on post-harvest management, cooperatives capacity building and forage production.

125. The **IFAD-funded Rwanda Dairy Development Program (RDDP**) is operational in 12 districts of four Provinces of Rwanda: East (Nyagatare, Rwamagana, 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.

126. The **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.

127. **IFAD grants with FAO and Kilimo Trust.** The Nutrition-sensitive Water Productivity (NsWP) IFAD funded grant, implemented by FAO, was launched in Rwanda on November 2020 and will be executed during the next three years in the frame of KIIWP. The project aims to improve dietary quality through agricultural production, by strengthening the capacities of smallholder farmers for the adoption of sustainable water management and nutrition sensitive agricultural practices. This will be achieved through the adoption of an NsWP methodology and guidelines that will include the selection of smart crops, the delivery of nutrition trainings and the CSA practices through the FFS model. In this context, KIIWP2 will be able to rely upon and upscale the NsWP methodology and practices in the FFS.

128. The R-YES project is coordinated by Kilimo Trust and implemented by a consortium of institutions including RYAF, the African Agribusiness Incubators Network, the Rwanda Polytechnic (RP) with affiliated vocational Training Centres (VTCs), Integrated Polytechnic Regional Colleges (IPRCs) and Business Incubation Centres (BICs) among others. Overall, the grant intends to target 1,200 youth, of which 50 per cent women. The project will identify opportunities for youth employment along selected value chains and provide capacity building (through VTC and colleges) to enable young women and men to join employment opportunities and will identify strategic partners to link youth graduated with agribusiness enterprises and BDFs. A network of sub-Hubs will be established at the provincial level to facilitate these linkages. KIIWP2 will liaise with the grant to identify job opportunities for young people for the supported value chains and the provision of capacity building and trainings and link to financial services. Graduate youth would be also employed by the Project as service providers.

PART II: DETAILED IMPLEMENTATION MODALITIES

II.1: COMPONENT A: STRENGTHENING RESILIENCE TO DROUGHTS

129. The expected Outcome for Component A is **to strengthened farmers resilience to drought**.This component will invest in catchment rehabilitation and infrastructure development that will improve water supply for intensive smallholder agriculture and livestock, in addition to those financed under KIIWP1.

130. KIIWP1 will undertake the feasibility studies and ESIA of the irrigation schemes, as well as the major part of catchment rehabilitation and protection (Sub-component A.1), while supporting the establishment and initial training of the infrastructure management institutions (Sub-component A.2). KIIWP2 will build further on these achievements and will finance the irrigation works (Subcomponent A.2), as well as the promotion of climate-smart agriculture practices and technologies (Sub-component A.3). KIIWP2 will continue strengthening the infrastructure management institutions.

Overall coordination and implementation arrangements

131. The Component will be coordinated by the SPIU/RAB irrigations specialist in close collaboration with the land husbandary specialist —who will coordinate Sub-component A1— as well as the Senior Agronomist, the FFS Specialist —who will coordinate Sub-Component A.3 — and the Water Users' Association Officer — who will coordinate Sub-component A.2. The irrigation technical assistant (TA) to be recruited for sub-component A2, the Climate and Environment Specialist and the Social Inclusion, Gender and Youth Specialist, will take a key role in supporting the implementation of the component activities. At district level, the District Watershed management field officers (DWMO); Land husbandry supervising engineers and the Irrigation Engineer (IE), cell tehnitians and Agronomists, will facilitate the implementation of the component.

Table 5. Complementarity of Component A and phasing with KIIWP1.

Component A / Sub-components	KIIWP1	KIIWP2
Component A: Strengthening Resilience to Drought		
A1: Catchment Rehabilitation and Protection	USD 7.05 mio	USD 0.72mio
A2: Irrigation Development	USD 6.93 mio	USD 33.6 mio
A3: Infrastructure Management Institutions	USD 0.27 mio	USD 1 mio
A4: Enhancing Climate Smart Agriculture Practices and Technologies		USD 2.7 mio
A5: Environnemental Management Plan	USD 0.47 mio	USD 0.823 mio

SUB-COMPONENT .A.1: CATCHMENT REHABILITATION AND PROTECTION

132. This sub-component will support the implementation of participatory and comprehensive land husbandry practices in a sub-catchment setting. It will support nvestments 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.

Sub-component A.1 activities and phasing	KIIWP1	KIIWP2
ESIAS and Feasibility Studies		
Community-based participatory sub-catchment management planning involving Hydrographic Basin Committees (HBCs		
Establishment of exact boundaries of the catchments and sub-catchments in Kayonza District through Geographic Information System (GIS) mapping.		

Sub-component A.1 activities and phasing	KIIWP1	KIIWP2
20 solar-powered boreholes and 15 valley tanks in Ndego, Mwiri, Gahini and Murundi sectors.		
Land husbandry investment, including reforestation and afforestation		
Community competition (Inteko y'Imihigo)		

133. 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.

Overall coordination and implementation arrangements

134. **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.

135. **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

136. The project will introduce land husbandry investment in addition to those under KIIWP1, more specifically :

a. In Kanyegenyege and Gishanda catchments;

b. in 1400 ha command area catchment in Kibare, ihema and Nasho;

c. and reforestation as upstream protection for Gishanda and Kanyegenyege dam.

137. Farmland protection and rehabilitation techniques will reduce runoff of rainwater and stimulate infiltration. This will be combined with land husbandry practices geared towards increasing vegetative cover and soil fertility. The recommended technologies include drainage, land levelling (terracing), contour buffer strips, contour ditches, contour bunds, contour ploughing, silt traps and application of lime, mulching and compost. Where needed, slowing down runoff by construction of check dams, gabions, and side drains will be implemented. These will be complimented with agro-forestry, including planting of trees, shrubs and grasses as well as pastures.

Table 6. Land husbandry, activities step.

No.	Activity	Responsibility
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
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

No.	Activity	Responsibility
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

Farm level rainwater harvesting

Table 7. Farm level rainwater harvesting, activities step

	Activity	Responsibility
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: • 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
10	Continuous monitoring of operation, maintenance and sustainability of ponds and irrigation systems	Sub-catchment Committees

Table 8. 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/compose 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

Water for livestock and domestic purposes

138. The supply of water for livestock and domestic purposes will be improved through the development of valley tanks and drilling and equipping boreholes under KIIWP1. 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.

a. Drilling of boreholes and construction of valley tanks are technical activities for which the SPIU will hire services providers as follows:

b. A drilling contractor with capacity to undertake hydro-geological investigations and experience in drilling and equipping of the boreholes;

c. A consultancy firm with experience in design and supervision of construction of valley tanks; and

d. A contractor with experience in valley tanks construction.

Community competitions for natural resource management

139. The community competition (**Inteko y'Imihigo**) is a tool for mobilizing the community for a better involvement in the development and sustainable management of

watersheds. The competition aim at encouraging farmers to mobilize and become key actors in the development and implementation of projects in line with the priority interventions identified in the catchment management plans and which will have a significant impact in coping with the effects of climate change and protecting and conserving their ecosystems. Potential projects include beekeeping, provision of energy saving stoves, rainwater-harvesting infrastructures (e.g. ferro-cement boreholes), sustainable production of charcoal as a youth business, eco-tourism, and biodiversity conservation through plantation of endemic trees species in their farm plot.

Eligible beneficiaries

140. Two types of actors can participate in these competitions: (i) groups/associations engaged in agricultural value chains and (ii) villages located in the hydrographic basin targeted by KIIWP project.

Number of grants	50
Financing rule	- IFAD grant 70% - Beneficiary contribution 30% (in cash)
Max grant ceiling	US$ 5,000
Overall project budget	175,000 USD (70% of IFAD investment)

Steps for implementing the community competition

141. **Group discussion on ideas on natural resource managemnt**. A group/ association or a village will gather and discuss about ideas for improving the management of their natural resources and ecosystems in their sub-catchment area. The simplified Business Plan proposal shall clearly state the priorities identified within the catchment management plan. When finalised, it shall be submitted to the hydrographic basin committee for endorsement. The group/ association or village shall provide a proof of their legal existence (certificate for groups and stamps from village authorities on the proposal).

142. As per the Ministerial Order, the hydrographic basin committee meets once per quarter and when never necessary. As such, the community competition will be organised in line with the hydro-graphic basin committee meetings. The competition shall be planned on the agenda of the committee.

143. The proposal shall be publicly presented to the District level committee. The elaboration of the proposal shall be participatory and inclusive. As such, it shall include handmade sketching of the area that will be targeted (mapping depicting the natural resources in their areas, the status of the ecosystems, the rationale of the BPs, etc.).

144. The hydrographic basin committee at sector level, which include representative of farmers, private sector, youth, women, and sector officials, will review proposals during hydrographic basin committee meetings.

145. The role of hydrographic basin committee is to assess the economic viability of the BPs and endorse it for potential financing via MG scheme within BDF. The sub-catchment committ eewill provide an endorsement letter to be attached to the proposal.

146. After that, the BDF will review and assess the BPs in coordination with KIIWP district staff. The list of successful BPs shall be shared with to the hydro-basin committee for public announcement.

Environmental and Social Management Plans (ESMPs) identified by the ESIAs

147. Under this Sub-component, Environmental and Social Management Plans (ESMPs) Nidentified by the ESIAs[25] for Kibare, Nasho, Ihema, Kanyeganyenge and Gishanda command areas will be implemented.

148. Overall, the ESMP for the full project recommends to: i) conduct rapid site biodiversity survey prior to construction of irrigation infrastructure to ensure that the Project will not have any negative impact on ecosystems (flora and fauna); and ii) elaborate an Integrated Pest Management Plan for the entire Project as part of the detailed design of each irrigation scheme. Specific ESMPs were developed for each command areas to tackle the following key adverse impacts associated with design and management of irrigation system. Below are common and budgeted activities (further detailed within the cost tables for each command area:

Activity	Quantities	Y1	Y2	Y3	Y4	Y5	Y6
Preparation of Environmental management and Rehabilitation Plans for quarries, borrow pits and working areas	4 plans						
Preparation and Implementation of employment and recruitment Policy including code of conduct	1 policy						
Provision for workers occupational health and safety hazards	1 plan						
First aid Kits and first aid helper will be provided at each working area	1						
Training of drivers and preparation of traffic management plan	1 plan						
Sensitization on methods of HIV/AIDS prevention	3 workshops						
Rapid identification survey of nesting habitats and relocation areas	1 survey						
Preparation and implementation of borrow pits management plan	1 plan						
Specific area restricted to only authorize personnel, should be allocated for fuel storage	1 plan						
Alternative water points for livestock and domestic uses	4 water points						
Sensitization on the importance of wild animals protection and reporting mechanism	4 workshops						
Sensitization of community on ownership, sustainability and vandalism of infrastructure	4 workshop						
Control of spread of water borne diseases (bi-annual survey in project sites)	10 surveys						
Provision of though for cattle in case of damages during the construction phase	1 plan						
Control of water weeds (mechanical and manual removal of weeds)	4						

149. The already developed Feasibility Studies and ESIAs for Ihema, Kibare and Nasho command areas have identified that no physical involuntary resettlements are expected, but around 200 households will lose part of their land and another more than 1,200 households will lose income during land husbandry work, as they may miss one or more agriculture seasons. The Resettlement Action Plans (RAPs) shall be prepared, implemented and all compensation measures provided prior to the construction works or land take. The final

[25] ESIAs and feasibility studies were prepared during KIIWP1.

budget for resettlement compensation will be confirmed after detailed engineering design and detailed resettlement action Plan.

150. The Project shall implement the Free, Prior and Informed Consent (FPIC) Plan procedures developed in 2018, as Annex 5 of the PDR, within the Environmental and Social Management Framework (ESMF) to guide the various and required consultations processes (RAPs) and ensure proactive approach to identify development pathways with local communities and build ownership on project initiatives.

151. At the time of the design, feasibility studies as well as ESIAs for Kanyeganyenge and Gishanda command areas were not finalised. Therefore, specific activities to be implemented will be integrated in the cost tables as well as PIM during the start-up of KIIWP phase II.

152. In addition, all ESMPs include no-budgeted activities that shall be mainstreamed in the Annual Work Plan and Budget and integrate in the action plan of the project. During the design of the irrigation schemes and dams, the SPIU shall make sure that the contract of the contractors are aligned with the recommendations of the specific ESMP.

Grievance redress mechanism

153. Establishment of irrigation schemes may raise complaints among local communities mainly due to conflict water users, from resettlement, conflict between workers and local community. In this situation, Grievance procedures are required to ensure that PAPs are able to lodge complaints or concerns, without cost, and with the assurance of a timely and satisfactory resolution of the issue. The procedures also ensure that the entitlements are effectively transferred to the intended beneficiaries. Stakeholders will be informed of the intention to implement the grievance mechanism, and the procedure will be communicated at the time that the RAPs are finalized. Grievances may arise from members of communities who are dissatisfied with eligibility criteria use, community planning and actual implementation or compensation. In addition, the project will ensure that any issues related to child labour, forced labour and discrimination are carefully considered and addressed throughout the project lifecyle.

154. The overall process of grievance is as follows:

1. Local community through water users association, Resettlement committees and local authorities will be given copies of grievance procedures as a guide on how to handle the grievances.
2. The process of grievance redress will start with registration of the grievances to be address for reference, and to enable progress updates of the cases.
3. 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.
4. The response time will depend on the issue to be addressed but it should be addressed with efficiency.
5. Compensation will be paid to individual PAPs only after a written consent of the PAPs, including both husband and wife.

Specific procedures:

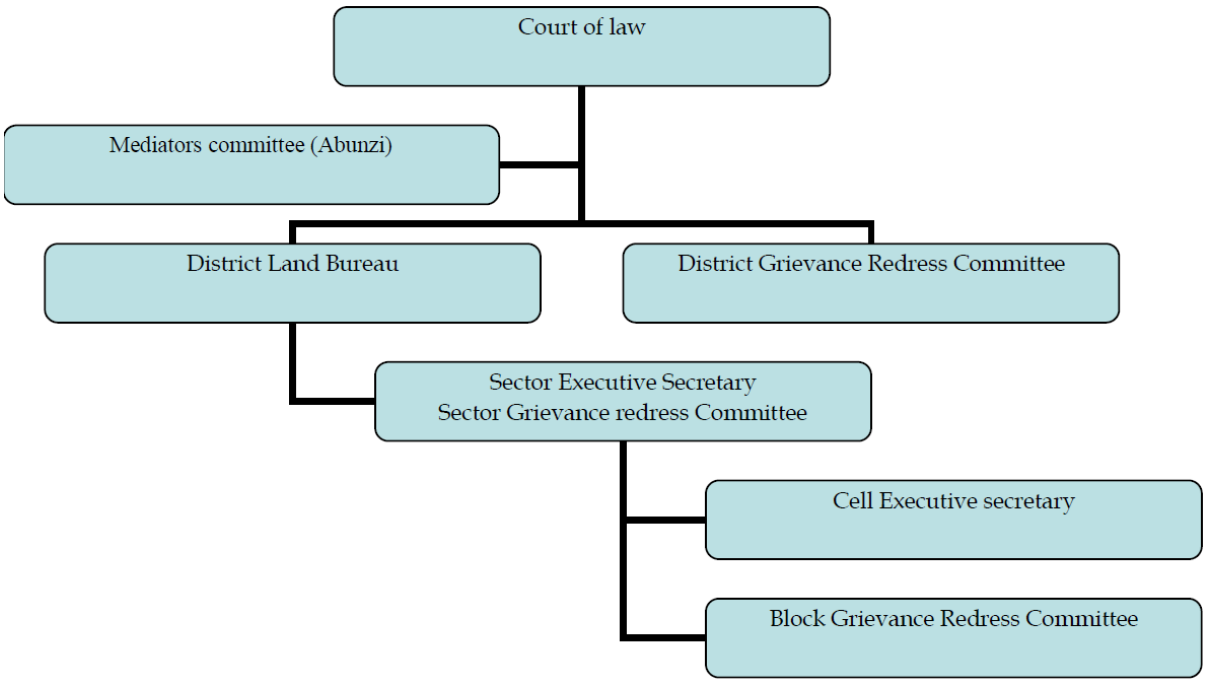
155. The aggrieved person should file his/ her grievance, relating to any issue associated with the resettlement process or compensation, in writing to the block Grievance Redress Committee (GRC). The grievance note should be signed and dated by the aggrieved person. The designated RAB officer and the GRC will consult to determine the validity of claims. If valid, the Committee will notify the complainant and s/he will be assisted. GRC will respond within 7 days during which time any meetings and discussions to be held with the aggrieved person will be conducted. If the grievance relates to valuation of assets, a second or even a third valuation will be undertaken, until it is accepted by both parties. These should be undertaken by separate independent valuers than the person who carried out the initial valuation.

156. If the aggrieved person does not receive a response or is not satisfied with the outcome within the agreed time, she/he may lodge his/her grievance to the relevant local administration such as the District Land Bureau, also mandated to help resolve such matters. If requested, or deemed necessary by the subproject Committee, the District Project Coordination officer will assist the aggrieved person in this matter.

157. The relevant Local Administration will then attempt to resolve the problem (through dialogue and negotiation) within 30 days of the complaint being lodged. If no agreement is reached at this stage, then the complaint is dealt with through the local courts (Abunzi) where possible. Where matters cannot be resolved through local routes, the grievance will be referred to higher authorities at the national level. The Resettlement and Compensation Committee will provide assistance at all stages to the aggrieved person to facilitate resolution of their complaint and ensure that the matter is addressed in the optimal way possible.

If administrative ways of grievance redress is not enough to address the complaint, then the unsatisfied person may refer to judicial system. Based on the nature of complaints, the process will start from mediators for assets below 3 million Rwandan francs and if the value is more than three million, the process will start from intermediate courts, high court and to Supreme Court. The proposed grievance redress system is as illustrated follows:

Figure 40: Proposed GRM flow chart



158. **Grievance log.** At each level, GRC will ensure that each complaint has an individual reference number, and is appropriately tracked and recorded actions are completed. The log will contain record of the person responsible for an individual complaint, and records dates for the following events:

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

159. The District Project Coordination officer will be responsible for:

- Providing the resettlement and compensation committee with a weekly report detailing the number and status of complaints;
- Any outstanding issues to be addressed; and
- Monthly reports, including analysis of the type of complaints, levels of complaints, actions to reduce complaints and initiator of such action.

160. Composition of GRC

- Grievance redress committee should be inclusive and should include representative from:
- Representative from sectors
- Representative of cells that are affected
- Representative from any other key sector office involved in the project;
- Two representatives of PAP by cells (equal gender representation).
- Court of law
- District Land Bureau
- Sector Executive Secretary
- Sector Grievance redress Committee
- Cell Executive secretary
- Mediators committee (Abunzi)
- Block Grievance Redress Committee
- District Grievance Redress Committee
- Representative of different water users(cattle keepers, Fishermen, farmers, Water users association etc)
- Representative of women and youth
- Contractor representatives etc

In the case an agreement was not reached through the project-level GRM and national authorities (RAB and MINAGRI), the PAPs may contact IFAD via the following email address (SECAPcomplaints@ifad.org) or send a complaint form to IFAD headquarters physical address. IFAD complaints mechanism are further explained on the IFAD website[26]. ***Estimated budget for ESMPs implementation and monitoring***

161. The most important aspects of the implementation are the appointment of the Environmental Specialist to oversee the implementation of the environmental mitigation measures incorporated in the design and contract specifications. Development and delivery of an environmental training program for selected staff and Project coordinators responsible for overseeing the construction contracts can commence immediately thereafter. This will be an on-going process since contracts will be awarded over a period stretching over many months. Most of the planned mitigation measure will be implemented along with project activities and is provided in specific Environmental Management Plan and environmental monitoring Plans.

SUB-COMPONENT A.2: IRRIGATION DEVELOPMENT

162. This Sub-component will support smallholder farmers with water for irrigation[27]. The proposed irrigation infrastructure is made of two categories; i) large pumped irrigation systems abstracting water from Kibare and Nasho Lakes in Kayonza District; ii) irrigation in marshlands and neighboring hillsides, which will require damming to harvest enough water for off-season supplementary irrigation. Expected outputs will also be the required operational Infrastructure Management Committees, including Scheme Steering Committees (SSCs),

[26] https://www.ifad.org/en/accountability-and-complaints-procedures
[27] The feasibility studies will be financed under KIIWP1.

Hydrographic Basin Committees (HBCs)[28], Irrigation Water Users Organizations (IWUOs) and Water for Livestock Water Users Organizations (WLUOs). After irrigation schemes completion and fulfilling all conditions, the IWUOs and WLUOs[29] would sign an Infrastructure Management Transfer Agreement (IMTA) with RAB and co-signed by Kayonza District Authorities.

163. Subject to confirmation of the development costs and feasibility assessment of irrigation schemes (financed under KIIWP1), KIIWP2 will implement 2,285 ha of irrigation command area[30] as follows:

Scheme	Sector	Command Area	Sub-Schemes (block)	Type	Water Source
Kibare Irrigation Scheme	Ndego	570 ha	Kibare 1 – 219 ha	Pumped irrigation	Lake Kibare on Akagera River
			Kibare 2 – 112 ha		
			Kibare 3 – 239 ha		
Ihema Irrigation Scheme	Ndego	700 ha	Ihema 1 – 85 ha	Pumped irrigation	Lake Kibare on Akagera River
			Ihema 2 – 188 ha		
			Ihema 3 – 161 ha		
			Ihema 4 – 266 ha		
Nasho Irrigation Scheme	Kabare	740 ha	Nasho 1 – 309 ha	Pumped irrigation	Lake Nasho on the Akagera River
			Nasho 2- 218 ha		
			Nasho 3 – 114 ha		
			Nasho 4 – 99 ha		
Kanyeganyenge Dam and Irrigation Scheme	Kabarondo and Ruramira	150 ha		Dam irrigation	Kanyeganyenge River
Gishanda Dam and Irrigation Scheme	Rwinkwavu	125 ha		Dam irrigation	Rwinkwavu River

Note: *Feasibility studies will determine the size of the reservoirs, but they are expected to be above one million m³ each.*

164. *Large pumped irrigation schemes*: Three irrigation schemes (Kibare, Ihema, Nasho) are envisaged to be constructed in KIIWP2. The three irrigation schemes are divided into 11 sub-schemes. The 11 sub-schemes will be implemented as individual (where possible) standalone schemes that can be individually managed. As far as possible, each sub-scheme will be supplied by its individual pumping station and if not, one pumping station will supply more than 1 sub-schemes but with individual pipeline from the balancing reservoir. The infield irrigation technology to be used in Ihema, Kibare and Nasho schemes will be selected by the farmer's cooperatives in a participatory manner that may include a full pressurized irrigation system with Center Pivot Technology and Dragline Sprinklers. The preliminary rationing of the command area covered with pivots or dragline sprinklers is 60% and 40% respectively as an indicative figure. The detailed design will be free to optimize and recommend a suitable rationing based on prevailing conditions towards optimizing the project profitability. The pumping station, water supply mains, distribution submains as well as the farm road, will be considered as public investments, while infield distribution system (pivots and dragline sprinklers) will be investments with famers' contributions.

165. Once the detailed design for the 2,285-ha net command area completed, the SPIU will start the tendering for the works to contractors with demonstrated experience in carrying out such works. The procurement of works will be divided into two categories or two lots. Lot one will be made of all civil works and installations required to supply bulk water till the farm edge. This will include but not limited to the pumping stations, main supply pipelines,

[28] Former Sub-catchment Committees (SCCs)

[29] Water for Livestock Users Organizations (WLUOs) were established under KIIWP1 to manage and ensure sustainability of the 35 boreholes and valley tanks.

[30] Overall 35 per cent of land owners have not finalized the land title process. The Project will need to support a land management plan as part of the start-up phase, especially as land titles can be used as collateral for accessing loans.

balancing reservoirs as well as farm roads and preliminary land preparation. Lot two will include the infield installations comprising the pivots and sprinklers as well as the distribution sub-mains. The infield installations have to be done with specialized companies. Internationally well-known pivots supply companies with experience in the region will be shortlisted and requested to present their offers and provide guarantee for the total lifespan of the equipment as well as after-sale services.

166. In terms of financing, KIIWP2 will finance the construction of the three schemes with beneficiary contribution of 10 per cent on infield installation cost to enhance the ownership of the equipment. The farmers' contribution will be made both in kind and cash. The in-kind contribution will cover the opportunity loss during 2 years (4 cropping seasons) of construction activities. The Project will finance 100 per cent all bulk infrastructures to the farm edge and 90% the in-fields installations. In-cash contribution from farmers will therefore be made of 10 per cent of the in-field installations as well as the operation and maintenance cost which is of course not part of the investment cost

167. Irrigation development cost recovery model. KIIWP2 will pre-finance 100 per cent of Sub-component A2 cost and 10 per cent farmers' contribution to in-field installations will be recovered in a period of 4 to 5 years only after the famers have started producing and selling their crops. This fund will be collected by the WUOs and kept in a RAB special account designated for "Irrigation Development Recovery Fund" in one of the financing institutions in Rwanda. KIIWP2 will encourage the GoR to apply the same model for other irrigation projects to allow RAB starts building financial capacity towards irrigation infrastructure financing.

168. The management models for irrigation systems will include 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. In terms of infield water distribution systems, the project will encourage partnership with local representative of the dealer to provide after sale services to WUOs.

169. *Dam irrigation projects*. As far as Gishanda and Kanyeganyege schemes are concerned, KIIWP2[31] will implement the construction of the two dams, as well as required distribution system including canals, hydraulic structures, pipes, small pumping, access road etc.

170. With KIIWP2, the SPIU will hire qualifies consultancy company (ies) for supervision of construction works. The Supervision will also be a participatory process involving the consultants providing the day-to-day technical supervision with the SPIU, the District and the community institutions put in place in Sub-component A.3.

171. Irrigation schemes that are identified to be environmentally, socially, technically and financially viable may 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.

Overall coordination and implementation arrangements

172. **At SPIU level:** The irrigations specialists and The irrigation technical assistant (TA) to be recruited for sub-component A2 will take the lead in the construction and supervision of irrigation activities. They will be responsible for managing all contractors and supervisors involved in sub-component A2 as well all the quality control in terms of delirables of sub-component A2. 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

[31] KIIWP1 will finance the feasibility and detailed design studies as well as the ESIAs for the two dam projects. The Project will recruit a qualified consultancy firm to carry out feasibility and design activities for both dam projects. The consultancy firm will design projects to optimise the available water resources and available command area with no limit to the proposed command area in the ToRs.

work plans and budget as well as different documents as required in field of Water users organizations.

173. **At district level:** Irrigation technicians will be recruited by SPIU/RAB and these will be responsible for day to day supervision of the construction activities. They will ensure synergy among key stakeholders including district, RAB and IWUO as well as all beneficiaries in general. Irrigation technicians will work hand in hand with the contractor and supervisor to make sure beneficiaries (IWUOs and Cooperative members) are fully involved in construction activies from the very inception of the project. 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. 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.

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

Feasibility studies

Table 9. Carrying out the feasibility studies in KIIWP1

No	Activity	Responsible
1	Prepare the tender documents for carrying out the feasibility studies for Kabare, Kanyeganyege, and Gishanda 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:	Consultant
	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	
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

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

Carrying out the ESIA studies

Table 10. Flowchart for carrying out ESIA studies under KIIPW1.

No	Activity	Responsible
1	Prepare the tender documents for carrying out the ESIA studies for Kabare, Kanyeganyege, and Gishanda 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:	Consultant
	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	

No	Activity	Responsible
	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);	
	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

Carrying out the detailed designs for the schemes that meet the viability criteria (technical, environmental, social and economic) in KIIWP1

176. The SPIU will engage a consultancy firm to carry out the detailed engineering design as follows:

Table 11. Detailed engineering designs and bills of quantities

No	Activity	Responsible
1	Prepare the tender documents for carrying out the detailed engineering designs for 2285 ha 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:	Consultant
	a) For the pumping Kibare, Nasho and Ihema schemes and any of the pipeline schemes that will require pumping, carry out the designs and BOQs for the irrigation infrastructure including: • 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 damming and gravity flow, carry out the designs and BOQs for the irrigation infrastructure including: i. Dam works: • Embankment; • Spillway; • intake chamber; and, • Upstream and downstream protection. ii. Irrigation infrastructure: • main conveyance system, • secondary canals,	

No	Activity	Responsible
	• on farm application structures, • all necessary appurtenances; and, • access road works	
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
7	External review of detailed engineering designs	Technical Panel/Consultants/IFAD

Construction and supervision of construction works in KIIWP2

177. For the schemes that are ready for construction the SPIU will engage qualified supply/construction companies to carry out supply/installation and construction of irrigation systems. SPIU also engage qualified firms to supervise construction works as follows:

Table 12. Detailed construction and supervision of works

No	Activity	Responsible
1	Prepare the tender documents for carrying out construction works for 2285 ha irrigation schemes that are approved for implementation	SPIU
2	Prepare the tender documents for carrying out supervision works for 2285 ha irrigation schemes	SPIU
3	Carryout the tender process up to award for construction and supervision	SPIU
4	Implementation of RAP	SPIU
5	Carry out design review, actual construction and supervision of works of the pipeline projects including:	Contractor and Supervisor in close collaboration with the SPIU-TA
	c) For the pumping Kibare, Nasho and Ihema schemes and any of the pipeline schemes that will require pumping, carry out designs review and construction including: • intake structures civil works; • pumping station(s); • power supply system(s) and connections; • main conveyance system; • secondary distribution network; • on farm application systems; • all necessary appurtenances; • access road works; • preliminary field preparation; and • Periodic construction and supervision reports	
	d) For the Kanyeganyege, Gishyanda and any of the pipeline schemes that will require damming and gravity system, carry out the designs review, construction and supervision of works including: iii. Dam construction works: • Embankment; • Spillway; • intake chamber; and, • Upstream and downstream protection. iv. Irrigation infrastructure: • main conveyance system, • secondary conveyance system, • on farm application system, • all necessary appurtenances; • access road works; • preliminary land preparation; and • periodic construction and supervision reports.	

Infrastructure management institutions

178. The Infrastructure Management Institutions will ensure long-term sustainability of the irrigation schemes play an active role in the planning, design, construction and operation and maintenance of infrastructures developed in the catchments. They will also develop drought contingency plans for the catchment and sub-catchment areas. They will be central in ensuring inclusive and equitable access to water for all members, including farmers and livestock keepers.

179. KIIWP1 will establish the required Infrastructure Management Institutions and initiate capacity building, which will be continued under KIIWP2. Capacity building will cover three areas: (i) governance; (ii) water management and maintenance; and (iii) monitoring and exchange of experiences. Capacity building will be based on an FFS-type approach.

180. Four types of infrastructure Management Institutions would be required:

i. *Scheme and District Steering Committees*. As per Ministerial Instructions (2017 draft[32]), Scheme and District Steering Committees support and oversee the functioning of WUOs and ensure optimal use of developed land at irrigation scheme and District levels.

ii. *Hydrographic Basin Committees (HBCs)*. In line with the national policy, Hydrographic Basin Committees[33] (former Sub-catchment Management Committees) will be set up in each watershed. These committees will put in place regulations on the 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 the sub-catchment plans, together with the Scheme and District Steering Committees. They will also be responsible for safeguarding communal areas with soil and water conservation measures, monitor implementation of reforestation and safeguard newly reforested areas.

iii. *Irrigation Water Users Organisations (IWUO)* for the selected schemes will be further strengthened under KIIWP2. The IWUOs will adopt guidelines for O&M and ensure payments for water, if required. Women's participation and decision making in the management of water supply infrastructure will be mandatory.

iv. *Water for Livestock Users Organisations (WLUOs)*[34] for developed boreholes and valley tanks will be established and strengthened under KIIWP1. The WLUOs will adopt guidelines for O&M and ensure payments for water, if required. Women's participation and decision making in the management of water supply infrastructure will be mandatory.

181. Overall, KIIWP will support the formation and strengthening of the required Infrastructure management institutions in the Project intervention area. These will include:

a. 13 Irrigation Water Users Organisations

b. 10 Sub-Catchment Committees (SCCs)

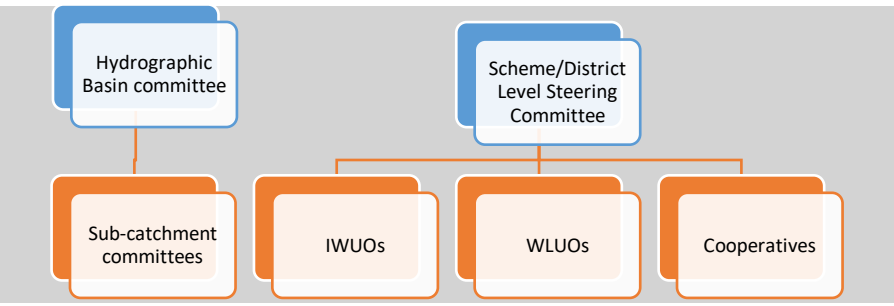
c. 5 Scheme Steering Committees

d. 35 Water-for-Livestock User Organisations (20 boreholes and 15 valley tanks

182. 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.

[32] Draft Ministerial Instructions on Land Development, Conservation and Exploitation of Developed Land. 2017
[33] A catchment is an area from which rainwater flows into a watercourse or infiltrates into a groundwater body.
[34] Water for Livestock Users Organizations (WLUOs) were established under KIIWP1 to ensure the management and sustainability of the 35 boreholes and valley tanks.

Figure 3 KIIWP's institutions at district level



Sequence in Formation & strengthening of Infrastructure Management Institutions

No.	Activities	Responsible
1	The Monitoring department in SPIU will perform baseline survey of Water Users Organizations 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
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 the 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 the lead the process formal elections of WUO committee that will be responsible for sustainable O&M of the constructed infrastructure	SPIU

No.	Activities	Responsible
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
Planning and design phase		
	Detailed design shall confirm water availability, water requirements and environmental flow and assess any potential impact of climate change scenarios and future irrigation development	Contractor/SPIU/RAB
	Detailed design should provide water management and monitoring tools such as irrigation calendar, water monitoring system and efficient irrigation systems/technologies to ensure that all users are served and ecological functions are maintained	Contractor/SPIU/RAB
	Detailed design shall identify quarry sites/ borrow pits to prevent uncontrolled sourcing of construction material	Contractor/SPIU/RAB
	Detailed design shall also identify suitable locations for construction work camps, stockpile areas, storage areas and disposal areas and other facilities near to the project location	Contractor/SPIU/RAB
	Water abstraction permit should be obtained from Rwanda Water board and environmental flow instructed by the authority should be complied with	Contractor/SPIU/RAB
	Detailed design shall confirm water availability, water requirements and environmental flow and assess any potential impact of climate change scenarios and future irrigation development	Contractor/SPIU/RAB
	Detailed design should provide water management and monitoring tools such as irrigation calendar, water monitoring system and efficient irrigation systems/technologies to ensure that all users are served and ecological functions are maintained	Contractor/SPIU/RAB
	Planning and construction phase:	
	Proper compensation measures and livelihood restoration programme should be discussed and agreed with affected community in compliance with existing regulations	Contractor/SPIU/RAB

No.	Activities	Responsible
	Conduct consultation with local communities who have grazing areas and cattle sheds in command areas and agree on the relocation outside command area	Contractor/SPIU/RAB
	A livelihood restoration including cash for work program will be prepared and affected should be given an affirmative priority in employment	Contractor/SPIU/RAB
	A clear implementation programme indicating areas to be levelled and portioned dates when they will occur and monitoring exercise involving project staff, sector agronomist and established cooperative committees.	Contractor/SPIU/RAB
	Child labour, forced labour, discrimination and abusive dismissal shall be careful be considered	SPIU/District/RAB
	To avoid air pollution, during construction work, worker shall spray water regularly when clearing land to reduce the dust, especially under roads work	
	Works shall be executed during daytime, i.e from 7 am to 18 pm	
Operation phase		
	All grazing areas shall inside the command areas will be identified and relocated in consultation with local communities	SPIU/RAB/District
	Training of scheme users on maintenance of irrigation, land husbandry infrastructures, access roads and post-harvest infrastructures (PHIs)	SPIU/RAB/District
	Frequent inspection and repairs of leaking infrastructure is necessary to reduce on losses of water through leakages	SPIU/RAB/District
	Regular inspection of balancing reservoir and canal to detect possible leakages early enough and make repairs if required in order to reduce avoidable water losses	SPIU/RAB/District
	Child labour, forced labour, discrimination shall be careful be considered	SPIU/District/RAB

Strengthening Scheme and District Steering Committee

183. The SSCs will be formed and strengthened to be the institutional bodies responsible for inforcing the optimal use of developed land and facilities at district and sector levels. The SSCs at sector and district levels will oversee the activities of IWUOs, WLUOs as well as cooperatives where applicable.

184. A total of 5 SSCs are expected to be formed, trained during KIIWP1 and strengthened in KIIWP2. The following paragraph explains in details composition and responsibilities of the SSCs

Table 13. Relevant paragraphs to the rules on the composition and responsibilities of the scheme and district-level Steering committees

Article 10: Steering Committee for infrastructures and optimal use of developed land at the scheme level

The Committee at the scheme level is 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;
f) The representative of stakeholders in the developed scheme
g) Representatives of farmers' cooperative operating in watersheds around the developed scheme.

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

Article 11: Responsibilities of the Scheme Steering Committee At the scheme level, the Steering Committee is in charge of:

a) Approving the action plan of water user association and Cooperative operating in the scheme;
b) Following up the use of resources/property of Cooperative and water user association operating on developed land;
c) Monitoring the use of infrastructures in the developed schemes;
d) Enforcing the laws and regulations governing the management and conservation of natural resources;
e) Following up all erosion control activities on watersheds around the developed scheme;
f) Preventing and solving conflicts that may rise among land and water users.

Article 12: Scheme Steering Committee at District level

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;
a) RAB Staff;
d) District officer in charge of irrigation program;
e) Officer from "One Stop Center";
f) Executive Secretaries of sectors where the infrastructures are located;
g) Chairperson of cooperative/ or representative of farmers operating on the developed land,
h) Representative of irrigation water user association on the developed land with irrigation canals;
i) Representatives of stakeholders, development projects and Government entities operating in the District in land development, conservation and optimal use programmes.

Article 13: Responsibilities of Scheme Steering Committee at District level

a) Mobilising the users of developed land to adhere to cooperative or irrigation water user associations when developed land is equipped with irrigation infrastructures;
b) Approving the action plan of cooperative or irrigation water user associations operating on developed land in the District;
c) Monitoring the use of infrastructures available in developed schemes of the District;
d) Advising on management and use of cooperative and irrigation water user association resources on developed land;
e) Monitoring the law enforcement with regard to management and conservation of natural resources on developed land;
f) Preventing and solving conflicts that may rise between land and water users;
g) Following up erosion control activities on watersheds around the scheme;
h) Reporting to competent Government authorities.

Strengthening Hydrographic Basin Committees (HBCs[35]).

185. The HBCs will be formed, trained in KIIWP1 and strengthened in KIIWP2 to be the institutional bodies responsible for planning and managing the hydrological watersheds. 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 HBCS/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.

[35] Ministerial Order determining the organization and functioning of hydrographic basin committee. Official Gazette nº Special of 30/05/2013, Ministerial order nº005/16.01 of 24/05/2013 determining the organisation and functioning of hydrographic basin committees

186. The expected sub-watersheds to be delineated are estimated at 10 and the expected HBCS/SCCs are therefore 10. The management of hydrographic basin Committees shall be composed of five (5) members: The President, the Vice President, Secretary and two (2) Advisors. At the Sector level, the Executive Secretary of the Sector shall convene the first meeting of hydrographic basin committee at the Sector level in which Committee management members shall be elected.

Table 14. Relevant paragraphs to the rules on the composition of the HBCs at district and sector levels

Article 3: Hydrographic basin committee at District level

The Committee at the district level is composed of:

a) **The District Vice Mayor in charge of economic affairs;**
b) **the in charge of water at the District level;**
c) **the in charge of agriculture, animal resources, land, urbanization, urban development, forests, infrastructure and environment at the District level;**
d) **a representative of hydrographic basin committees at each Sector of that District;**
e) **a representative of National Women Council at the District level;**
f) **a representative of the National Youth Council at the District level;**
g) **two (2) representatives of farmers at District level;**
h) **a representative of water user organisations in the field of agriculture at District level.**
i) **a representative of water users in domestic activities at the District level;**
j) **two (2) representatives of non-government organizations operating in the field of water in the District;**
k) **a representative of the Private Sector at the District level;**
l) **one staff of the National Authority in charge of Natural Resources operating in that hydrographic basin**

Article 4: Hydrographic basin committee at Sector level

The Committee at the sector level is composed of:

a) the executive secretary of the **sector**
b) **the in charge of water at the Sector level;**
c) **the in charge of agriculture, animal resources, land, settlement, urbanization, forests, infrastructure and environment at the Sector level;**
d) **a representative of the Executive Committee of each Cell in the Sector elected by his/her peers;**
e) **a representative of the National Women's Council at the Sector level;**
f) **a representative of the National Youth Council at Sector level;**
g) **two (2) representatives of farmers at the Sector level;**
h) **a representative of water domestic users at the Sector level;**
i) **two (2) representatives of non-governmental organisations working in the field of water resources at the Sector level;**
j) **a representative of water user organisations in the field of agriculture at the Sector level;**
k) **a representative of the Private Sector at Sector level.**

Developing Irrigation Water Users Organisations

187. The IWUOs will be formed for each of the schemes and subchemes and their capacity will be built to manage the operations and maintenance of the irrigation schemes. The members of the committees will be elected from among the users of each of the scheme keeping in mind the need for gender inclusion. The Steering Committee, which is already established at sector level is responsible for guidance and oversight of all the IWUOs in that sector. The District level steering committee will oversee the functioning of all the WUOs in the district.

188. It is expected to establish 13 IWUOs grouped on the main 5 schemes as follows:

Scheme	Sector	Command Area	Sub-Schemes (block)	Number of IWUOs
Kibare Irrigation Scheme	Ndego	570 ha	Kibare 1 – 219 ha	3
			Kibare 2 – 112 ha	
			Kibare 3 – 239 ha	
Ihema Irrigation Scheme	Ndego	700 ha	Ihema 1 – 85 ha	4
			Ihema 2 – 188 ha	
			Ihema 3 – 161 ha	
			Ihema 4 – 266 ha	
Nasho Irrigation Scheme	Kabare	740 ha	Nasho 1 – 309 ha	4
			Nasho 2- 218 ha	
			Nasho 3 – 114 ha	
			Nasho 4 – 99 ha	
Kanyeganyenge Dam and Irrigation Scheme	Kabarondo and Ruramira	150 ha		1
Gishanda Dam and Irrigation Scheme	Rwinkwavu	125 ha		1

189. Each scheme or sub-scheme will elect a committee of 7 members to manage the scheme. The organisations will be set up and guidelines established for proper O&M of Irrigation Water supply and distribution system. Increasing membership by women and youth will be jighly encouraged.

190. To implement this activity, qualified Service Providers (SPs) will be recruited. To complement their works, young professional organizations, such as the Rwanda Youth in Agribusiness Forum (RYAF)[36], and the Horticulture in Reality Cooperative (HoReCo)[37] could be mobilized by the Project as service providers whenever the need and opportunities arise.

Developing Water for Livestock Users Organisations

191. WLUOs will be formed for each of the 15 valley dams and 20 boreholes and will be capacity built to manage the operations and maintenance of the water source. 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 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 WUOs.

192. On average, one valley dam benefits 89 male, and 15 female livestock keepers and 1,523 cows. Some of these dams have Water User Committees, and these organisations would also need to be further strengthened. In total 15 WLUOs will be established and strengthened to manage 15 valley tanks and a total of 20 WLUOs will be established, trained and stregthened to manage 20 boreholes within KIIWP1.

193. Each valley dam will electe a committee of 5 members to manage the scheme. The organisations will be set up and guidelines established for proper O&M of Water for Livestock facilities in the Cattle Corridor, as well as connected domestic water supply systems. The WLUOs will involve livestock keepers. Increasing membership by women will be encouraged. The role of youth will also be encouraged, who could for example perform the role of Water point manager collecting water fees and ensuring hygienic conditions, possibly in combination with establishment of tree nurseries in the vicinity of dams or boreholes.

[36] http://www.ryaf.rw/spip.php?article1
[37] http://horecorwanda.com/background/

194. Synergies will be created in dairy development and water for livestock to build on lessons leant from RDDP.

SUB-COMPONENT A.3: ENHANCING CLIMATE SMART AGRICULTURE PRACTICES AND TECHNOLOGIES

195. This Sub-component aims to improve the production and productivity of the target groups in a sustainable manner, ensuring their resilience and adaptation to climate change. The proposed activities are based on a participatory approach of skills transfer, capacity building and participatory research to ensure, on the one hand, the dissemination of adapted technologies and, on the other hand, the adoption of these technologies and sustainable agricultural practices. The agricultural technical proposal aims to achieve integration and efficiency in the use of resources while having a strategy of diversification and adaptation to climate change using innovations adapted to the socio-economic context.

Overall coordination and implementation arrangements

196. **At SPIU level**: SPIU staff will be in communication and coordination with RAB staff (sustainable mechanization experts, Master Trainers and FFS experts) for overall implementation, specially for Y1 (FFS facilitators training, manuals preparation, youth arstisans training, development of sustainable mechanization). Moreover, the coordination will ensure the development of research plots, seed production and distribution as well as other inputs distribution.

197. **At district level:** a Senior Agronomist and FFS expert will be recruited at district level to ensure overall coordination of the sub-component and sound technical quality of activities implementation. Cell level technical staff will be in charge of supervising the implementation of activities from their administrative sectors and villages

Table 15. Research, extension and CSA technologies implementation flowchart activities.

Activity	Responsibility	KIIWP1	Y1	Y2	Y3	Y4	Y5	Y6	Outputs
CSA technologies, practices and sustainable mechanization baseline study	RAB and SPIU								CSA baseline study
Inputs, including technologies for trials in research stations and cells	RAB and district level staff								Knowledge products, and trial plots active for facilitators and farmers promoters exchanges and visits
FFS Farmers Facilitators training and module development.	RAB with technical service provider/partner (for e.g. FAO)								Adapted modules developed FFS facilitators trained on CSA and related practices.
FFS village, plot and thematic selection	FFS facilitator with decentralized extension service and technical partner								550 FFS will be roll out thought the project implementation
Farmers promoters training and input delivery for demonstration plots	RAB and decentralized extension service								315 Existing farmer promoters will be trained on new technologies and innovative practices and supported to roll out demonstration plots in each village

Identification of ToT manufacturers and training course preparation	RAB and international TA								Training modules developed
Support research and construction of best adapted tools	RAB and international TA								Prototypes developed for trials and for trainings
Training of youth artisans	RAB, SPIU staff and service provider								SMEs of youth artisans in each sector
Training to youth groups service providers (production and post-harvesting services)	RAB, RCA and service provider								SMEs / Cooperatives of youth artisans in each sector
Promotion of Climate Smart Technologies									

Climate Smart Agriculture compilation

198. A baseline study on CSA existing practices and technologies in Rwanda and in the region will be undertaken by KIIWP1. A short-term expert in consultation with national experts from RAB and the MINAGRI, private sector as well as international specialized entities such as FAO, will compile and propose potential best practices and technologies, prioritizing those existing in Rwanda. This will set the base trials and mainstreaming adoption and adaptation of innovations on CSA with the active participatory role of farmers, that can be revised and adjust as a result of farmers experiences and FFS. The study will have to include an analysis on sustainable mechanization, including time and labour saving technologies (TLST), available and of potential interest. Technologies and improved tools must be adapted to farmers' needs and production systems, affordable, will have to help reduce burden and help increase productivity.

Prioritized crops

- In irrigated areas would include rice, maize, beans, soybean, and horticulture crops.

- For rainfed agriculture, the Project will prioritize crop diversification and intercropping, including staple (such as cassava and sorghum), forage crops (e.g. Elephant grass or *Brachiaria grass*) and nutritious crops (e.g. iron beans, orang-flesh sweet potato, leafy green vegetables, moringa, and fruit trees).

Farmer Field Schools (FFS)

In order to ensure the adoption of sustainable and climate resilient agricultural practices on both rainfed and irrigated lands, the project will support the establishment of Farmer Field Schools (FFS) as the main method of agricultural extension, giving priority to commercial crops as well as staple and nutritious crops. The technical itineraries will include the following: Integrated Pest Management (IPM), climate-smart agriculture with a strong emphasis on soil conservation and fertility, including agroforestry and Conservation Agriculture, the introduction of small-scale adapted mechanization and TLST, the SRI system and the efficient use of chemical and organic fertilizers.

199. **Roll out of the FFS**. adaptation of existing training materials. The existing teaching material will be adapted and translated into local languages by RAB experts, Master Trainers in consultation with the SPIU for discussion on project needs and using the CSA baseline and conclusions.

200. **Training of facilitators**. RAB in consultation with the MT will identify and train new facilitators in the district. With the help of decentralized extension service staff from the cells, they will identified needs of refreshment trainings of existing facilitators in the project area. It is expected that at least 30 facilitators out of the 46 existing in the district will receive a refresh training, particularly on the new technical intineraries that will be introduced by the project. New facilitators will ideally be model producers and already farmers promoters who will be identified.The technical itineraries by crops will be chosen according to agroecological zone. Extension agents from the 33 cells (1 staff from each cell)will received a 1 week training(in total, the will participate to the FFS facilitators training), in order to be able to follow up on FFS technical itineraries. In all cases, the project will select at least one-third women.

201. The training and refreshment trainings will be done in year 1. The duration of the training will last a whole croping season and will be done at district level. The refreshment trainings will last only two weeks and can be done together with the facilitators' training as a way to exchange also experience fo existing facilitators.

202. **Meetings village level for FFS implementation.** The FFS will be implemented taking into account the phasing of Component A in the different intervention sites in order to ensure proper integration of activities and following irrigation infrastructure and land husbandry. FFS participatory planning meetings will be organized selected villages that are part of the intervention sites before FFS implementation in order to present the approach, agree on which producers will participate, on which plot of land the school field will be installed and which themes and issues will be included. All proposed sites will be visited and evaluated according to selection criterias: accessibility (especially to accommodate visitors during the rainy season), closeness to village so women with family can participate and land status.

203. **FFS implementation.** Trained facilitators will facilitate farmer field school sessions for two cycles and, if possible, they will facilitate two FFS (depending on the proximity of the FFS plots, the time to be devoted to them, etc.).

204. Government extension agents will supervise and provide technical support to the FFS facilitators. The project will provide the necessary inputs for the FFS (via the implementing partner or SPIU and RAB) with a focus on local supply (agro-dealers and local artisans trained by the project), in order to promote sustainability and relations with FFS members. For new inputs promoted by the project, such as improved seeds and some fertilizers that may be not available in the area, KIIWP2 partners and interested private partners (4Ps under Component B) will be put in relation by the SPIU decentralized team in order to facilitate supply as well as technical assistance when necessary.

205. KIIWP2 will implement, the 550 FFS, 323 on the irrigated areas and 227 on rainfed areas and will involve a total of 12,100 producers. The duration of the FFS and technical itineraries will vary depending on the crops selected. Meetings will take place once a week for annual crops. For FFS with perennial crops (agroforestry and fruit trees), meetings will be held on average once every three to four weeks less for one year when no annual crops are planted.

206. **The Participatory Integrated Climate Services for Agriculture (PICSA)** approach will be integrated within the FFS module. The PICSA approach aims to facilitate farmers to make informed decisions based on accurate, location specific, climate and weather information; locally relevant crop, livestock and livelihood options during the process of planning their agricultural season and other livelihood activities. The training will be conducted by the International Centre for Tropical Agriculture (CIAT) with proven experience in the delivery of PICSA methodology in Rwanda. Divided into twelve steps, PICSA approach and its process includes, Training of Trainers (ToTs) who thereafter train their fellow farmers with the supervision by the CIAT team. The Training of trainers (ToT) will target one member of each FFS group (227 farmers to be trained). The training will consist of 4 days, with accommodation.

207. The PICSA methodology will be applied to disseminate weather and climate services information to farmers, through better understanding, access, use and uptake of the climate information package.

Farmers' promoters, demonstration plots and trials

208. KIIWP2 will support RAB decentralized research stations for trials of promoted technologies and practices for later dissemination. To reach more farmers an enhanced the already farmers promoters established system, the FFS approach will be combined with demonstration plots with farmer promoters to promote and disseminate innovations and practices.

209. Currently there are 315 Farmers' promoters in the project area (one per village). These existing promoter will receive refreshment trainings to introduce and disseminate KIIWP2 newly introduced innovation and practices. The refreshment trainings last up to 3 days and are given by the FFS facilitators with the participation of extension service staff. A group of 30 farmer promoters will be gather at each time to do the training. The trainings will be done before the start of the season and in accordance to the project phasing by sector. Additional trainings, visit and exchanges are envisaged to continue reinforcing farmers' promoters capacities. In particular, additional technical assistance for areas such as GAP will be ensured through 4Ps agreements by private sector specialists.

210. In addition, the research center test plots will also serve as a gateway for the dissemination of innovations to test different climate-resilient agricultural technologies and practices. These will in turn be used for visits and exchanges with producers, farmer promoters and FFS facilitators to promote participatory adaptation and dissemination of these technologies.

Development of adapted farm mechanization

211. KIIWP2 will support the development of small-scale mechanization (power tillers, manual drafted tools) and workload-reducing tools adapted to the needs of the targeted producers, while promoting soil conservation practices and Climate Smart Agriculture. Assessment and dissemination will be developed under FFS and demonstration plots, access to these technologies will be provided together with Component B through: (i) groups of young agricultural service providers (under component B.1); (ii) support to local handicrafts to be trained by manufacturers' trainers[38] and exchanges with other countries; (iii) individual farmers and cooperatives investing in sustainable mechanization (See Subcomponent B.2).

212. In order to achieve sustainable adoption of the technologies proposed by KIIWP2, the implementation of the activity will have to be integrated with research and extension activities. The different stages of its implementation are as follows:

213. Results from baseline study on CSA practices and technologies (under KIIWP1) will set the base for applied research and technology dissemination. An international expert consultant will for assessment of availability and adapted machines identified by study, TA support for implementers and RAB.In addition, the expert consultant[39] will provide support to the Model Workshops for the manufacture of the first "model" tools that will be tested on year 1 in the research centre for Kayonza and in cells with farmer promoters participation and trials. A at least 20% of women farmer promoters will participate in order to ensure that tools are also adapted for them. The tools and machines, will then scaled up later on during project implementation.

214. **Support to young local handicrafts**. The development of local production of adapted agricultural tools and machinery has to two main objectives: their availability in local market at lower prices and the creation of jobs for young existing or potential artisans. The implementation of this activity will be done in consultation and in parallel with research and extension, with a participatory approach through FFS and with demonstrations plots, in order

[38] ToT for manufacturer is planned in Rwanda, with exchanges to Zimbabwe, that then could trained of local youth manufacturers.
[39] Could be probably supported through a partnership with FAO.

to produce tools adapted and requested by producers. Tools such as the manual weeders (particularly for SRI), direct seeders with animal or manual draught, the manual combine harvester and other tools that promote minimum tillage (Conservation Agriculture) and reduce the workload, especially for women.

Training of young artisans

215. Model workshops and trainers. Workshops with quality artisans capable of making the different proposals of tools and machines on demand as well as training groups of young artisans will be identified (at least one workshop). These tool manufacturers will be selected by RAB and will probably be the manufacturers under the ToT programme exchange to Zimbabwe, which then will train the local youth manufacturers. With the help of the international expert, they will make the first models that can be tested in research centers and in some FFS as well as in the facilitators' trainings.

216. In a second stage, groups of young artisans will be formed (about 6 young people per group, a total of 8 groups) and they will be encouraged to set at least one workshop per sector. The trainings will also include spare parts production. The young artisans groups will be identified by the implementing partner of sub-component B.1. Once the young artisans' workshops are in place, they will continue production and adjustments on initial models if necessary based on the results of the field tests. These tools will need to be considered for possible use and adaptation by women producers, especially for the tasks they primarily perform (such as weeding).

217. Further exchanges between groups of artisans and with experts workshops will be promoted, in order to reinforce the learning acquired and the homogeneity in the quality of the tools produced.

218. International exchanges for ToT manufacturers will be enhanced during year 1 and 2 for further specialization on identified tools and machines by the study and international expert.

219. **Support to groups of young agricultural service providers**. KIIWP2 will support at least 12 groups of 6 young entrepreneurs or cooperative members for in the provision of small mechanization services (mainly power tillers in addition to the possibility of coupling different implements, see Table 19):

- Identification of interested youth groups and or cooperatives (sub-component B.1). The main selection criteria will be based on an expressed interest to start an income-generating activity in the project area. Existing youth groups will be given priority.
- Training BDS (see sub-component B.1), including development of curricula, training and implementation covering technical and managerial skills as well as practical training in the use and maintenance of machines/tools. Investment will be financed under Sub-component B.2.

Table 16. Example of adapted tools and machines

Example of manual tools	Example of small machines (tiller)
   Manual weeder for paddy rice and horticulture	 Cutting machine for harvesting
Conservation agriculture farming tools: digger and seeder 	Tiller with different attachments Min-harvester

Soil cultivation and sowing in one pass with a mechanical seed drill (Photo : E.M. Haque, CIMMYT Bangladesh)

Promotion of Climate Smart Technologies

220. KIIWP2 will support the promotion of rainwater harvesting technologies (water storage tanks/ponds at household level, drip irrigation and treadle pumps). In addition, the Project will support Climate and Nutrition Smart Technologies such as storage facilities, dryers, climate resilient drying grounds and Warehouses, which will be promoted and financed under Component B (see sub-component B.2 for detailed implementation modalities). These technologies will help extending shelf life of nutritious foods and increase their year-round availability for enhanced food security. The promotion and financing of these technologies will also go under the community competition modalities (see sub-component A.1 for detailed implementation modalities).

Gender Action Learning System (GALS)

221. To foster behavioural change and gender equality, KIIWP will introduce and implement the GALS methodology in the context of FFS. Rwanda has developed considerable expertise in the use of GALS within IFAD-supported projects and grants. In fact, the use of the GALS methodology has been successfully promoted in IFAD funded programs (RDDP, KWAMP) as well as in UN joint programmes[40], as a sound participatory and gender sensitive practice, producing sustainable development outcomes at household and community level.

222. The methodology will offer a framework to implement gender transformative approaches by addressing power inequalities between women and men and foster women's decision-making power at the household and community level. To implement GALS, the KIIWP will rely upon the capacities installed at the district level under the on-going IFAD funded RDDP (GALS Master Trainers and Facilitators already trained and able to provide services), where the methodology is being implemented in the frame of the Livestock Farmers Field Schools supported by the project.

223. Two service providers (civil society organizations), with proven experience in the delivery of GALS methodologies in Rwanda, have been identified and are being currently recruited by RDDP to scale out the methodology and reach the expected target beneficiaries in Kayonza District. KIIWP will be able to rely upon the provision of services of the selected organizations; this will help accelerating the procurement process – which usually takes up to one year- and timely implement the methodology. The presence of the two organizations in the district of Kayonza will also help significantly decreasing costs for GALS implementation.

224. **Proposed framework for GALS dissemination**. The GALS methodology will primarily target rural households from the most vulnerable and poorest categories. It is expected that at least 5,000 poor households will be reached. Thirty-one GALS Master Trainers, already trained by RDDP, will be able to train about 250 Facilitators to reach the

[40] FAO, IFAD WFP and UN Women Joint Programme on "Accelerating progress towards rural women economic empowerment.

same number of groups and 5,000 households (20 people per group). Trainings will be organised per sector. The training location will be the same location as the FFS training.

225. A GALS training methodology has been elaborated, as part of the above-mentioned projects and programmes. The SPIU Gender & Youth Specialist will be responsible to revise the training methodology to fit KIIWP's purposes and targets; he will also responsible to supervise the implementation of the GALS methodology by the service providers and to coordinate with KIIWP staff on its delivery.

Climate Information Services

226. 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 agro-meteorologist 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 for each value chain. The bulletins will be distributed to all relevant project stakeholders at sector, district, cooperative and community levels.

227. The climate information services will be coupled to the PICSA training modules to be conducted as part of the FFS modules (see above). In addiiton, The project will create synergies with ongoing climate information services initiatives such as Rwanda Meteorological Agency toll free number and what's app group that provides hourly message; ii) USAID daily SMS and audio services; and iii) CICA calling centre, which provides RMA weather information coupled with agricultural advisory services.

II.2: COMPONENT B: SUPPORT TO FARM BUSINESS DEVELOPMENT

229. The expected Outcome for Component B will be: "Farm business development with increased sales and linkages of farmers and cooperatives to services and markets".

Expected outputs of Sub-component B1 are: (i) 8,000 FFS members received FaaB training, (ii) 500 FFS members and 50 cooperatives received business development coaching and have bankable business plans. The cooperatives and FFS will be entry points to provide business development services (BDS); (iii) 480 individual smallholders (at least 50 percent women and 30 percent youth) access farm equipment and tools; (iv) 25 cooperatives access appropriate post-harvest management facilities; (vi) three (3) joint ventures are created between cooperatives and private sector companies to invest in larger storage/processing facilities under contractual arrangements.

Table 17. Complementarity of Component A and phasing with KIIWP1.

Components / Sub-components	KIIWP1	KIIWP2
Component B: Support to Farm Business Development		
B.1: Developing Farming as a Business Skills.		
B.2: Promotion of Farm Mechanization and Post-harvest Facilities		
B.3: Supporting Backward and Forward Market Linkages		

Overall coordination and implementation arrangements

230. Component B will be coordinated under the overall responsibility of the MINAGRI SPIU and the direct coordination and supervision of the Program Manager. At SPIU level, KIIWP2 will lean on the Farmer Organization Specialist recently hired by RDDP, as well as the Market Support Specialist already assisting other ongoing IFAD-funded projects.

231. Component B will benefit from the experience of partner ICCO in Kayonza District. ICCO will leverage on its STARS Project to spur the development of an entrepreneurial farming mind-set among KIIWP beneficiaries.

SUB-COMPONENT B.1: DEVELOPING FARMING AS A BUSINESS (FAAB) SKILLS

Overall coordination and implementation arrangements

232. A FaaB training module will be developed by ICCO and incorporated in the FFS curriculum The FaaB training will then be imparted along FFS by specialized service providers[41] recruited by the Project on a competitive basis. 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.

233. Based on experience from PASP and PRICE, KIIWP2 will ensure that all grants are duly implemented within the first years, so that proper monitoring and follow up of grant beneficiaries can be done, and the real impact of such important investments can be measured. No grants should de facto be disbursed in the last year of the Project.

234. An MoU could be signed between RAB/SPIU and Business Development Fund (BDF) at the onset of KIIWP2 to manage the grant windows, given its thorough experience, outreach capacity through district offices and recently digitalized application process. BDF has been managing all grants financed by the recent IFAD-funded projects PASP, PRICE and RDDP.

Capacity building of farmers

235. A FaaB training module will be developed by ICCO and incorporated in the FFS curriculum, so that FFS members can acquire Farming-as-a-Business Skills.

[41] Examples of such service providers are HoReCo and RYAF, whose mandate is to encourage the involvement of young professionals in implementing programs/projects that support agricultural transformation.

236. The FaaB skills training will follow business planning templates agreed upon with SACCOs and MFIs for loan applications. The aim is to improve smallholder skills on (i) input and output markets and marketing, (ii) production planning, (iii) gross margin calculations, (iv) loan investment and repayment, and (iv) business plan.

237. To raise awareness on the principles of FaaB, ICCO and the KIIWP2 District team, will organize introduction workshops targeting Project beneficiaries. The RAB and District frontline staff, as well as FFS Facilitators, will be systematically involved in the FaaB training to ensure a spill-over effect and sustainability beyond the Project's life.

238. To implement BDS, Business Development Service Providers (BDSPs) will be recruited. To complement their works, young professional organisations, such as the Rwanda Youth in Agribusiness Forum (RYAF)[42], and the Horticulture in Reality Cooperative (HoReCo)[43] could be mobilized by the Project as service providers whenever the need and opportunities arise.

239. BDSPs will be recruited to organize the capacity building sessions on FaaB.

240. BDSPs will also support farmers to prepare their business plans.

Capacity building of cooperatives

241. Based on existing materials, KIIWP2 in partnership with ICCO will develop manuals and templates for Cooperative Business Planning, in consultation with local micro-finance institutions (MFIs).

242. 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).

243. The BDSPs will strengthen the organizational and technical capacity of both new and existing cooperatives will be strengthened. The capacity of the cooperatives will be built for efficient governance, management, internal organizational, membership policies, management procedures, and internet control processes. The leadership will be supported in maintenance of records, asset registers, cash books and other cooperative documents.

244. Other specialized institutions identified as implementing partners include the Rwanda Cooperative Agency (RCA) and NAEB (especially for horticulture export crops.

Activity	**Quantities**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
Capacity building of farmers							
- Inception Workshop	1						
- Preparing Farming as a Business Curriculum	1						
- BDSP services for capacity building on Faab integrated in FFS sessions	1800						
- Support to prepare Business Plans	480						
Capacity building of cooperatives							
- Organizational development of existing cooperatives	50						
- Support TA for external relationships of cooperatives	150						
- Exchange visits and study tours	300						
- Support to prepare Business Plans	50						

245. During the BDS sessions, the smallholder farmers and the cooperatives will complete their business plans. From among the business plans, those with implementation potential will be selected for Matching Grant financing (see component B2 below). After the Matching Grant disbursements, the SACP district team and the recruited BDS consultants will provide

[42] http://www.ryaf.rw/spip.php?article1
[43] http://horecorwanda.com/background/

additional services to the APG groups and the Microenterprises, including (i) technical support for the investment implementation, (ii) monitoring of the disbursements and utilization of the Matching Grants, and (iii) facilitation of access to markets and financial services.

246. The table below summarizes the existing cooperatives of the Project which could benefit from support.

Table 18. Details of the cooperatives that could receive KIIWP support

Sector	Total Nr. of coops	Total Nr. of HH	Total Nr. of members	Males	Females	% Females
Rice value chain						
Murundi	1	1 567	1 567	964	603	38%
Gahini		0	0	0	0	
Mwiri	1	1 324	1 324	764	560	42%
Rwinkwavu	1	1 838	1 838	1 096	742	40%
Karabondo	1	456	456	218	238	52%
Murama	0	0	0	0	0	
Kabare	1	515	515	250	265	51%
Ndego						
sub-total	**5**	**5 700**	**5 700**	**3 292**	**2 408**	**42%**
Maize & beans value chain						
Murundi	12	4 864	4 864	2 965	1 899	39%
Gahini	4	587	587	321	266	45%
Mwiri	2	146	146	109	37	25%
Rwinkwavu	7	3 012	3 012	2 145	867	29%
Karabondo	3	108	108	79	29	27%
Murama	1	2 013	2 013	1 367	646	32%
Kabare	3	2 845	2 845	1 752	1 093	38%
Ndego	2	234	234	187	47	20%
sub-total	**34**	**13 809**	**13 809**	**8 925**	**4 884**	**35%**
Horticulture Value Chain						
Murundi	0	0	0	0	0	
Gahini	4	42	42	22	20	48%
Mwiri	3	104	104	53	51	49%
Rwinkwavu	4	2 131	2 131	1 155	976	46%
Karabondo	2	93	93	28	65	70%
Murama	1	26	26	18	8	31%
Kabare	1	20	20	13	7	35%
Ndego	0	0	0	0	0	
sub-total	**15**	**2 416**	**2 416**	**1 289**	**1 127**	**47%**
Grand total	**54**	**21 925**	**21 925**	**13 506**	**8 419**	**38,4%**

Promotion of mechanization, post-harvest storage and irrigation technologies

247. All activities related to Promotion of Farm Mechanization and Post-Harvest Facilities will be placed under the direct supervision of the Access to Finance Specialist at SPIU who will also be in charge of the financial services under SC B.2. He/she will work in close coordination with (i) the Agronomist supervising the activities meant to enhance climate smart agriculture practices and technologies under SC A.3 and (ii) the Agribusiness and Cooperative Specialists supervising the delivery of farming-as-a-business skills to individual smallholder farmers and cooperative members under SC B.1. Business planning to support the grant applications will be provided by the Business Development Service Providers mobilized through ICCO.

Category.1 grants for small equipment and tools

248. This grant category is meant to facilitate the access to on-farm equipment and tools for smallholder farmers, further to the adoption of the Climate Smart Agriculture practices and technologies they have been exposed to along their FFS training delivered under SC A.3. The peculiarity of this grant category is that it will be tied to a loan representing the full investment sought, and the grant will only be disbursed upon the satisfactory repayment of the loan portion. Such performance-based grant (PBG) will thus involve 'Participating Financial Institutions (PFIs)' who will be selected along the same principle as the ones used in PRICE project.

249. Women and youth will be given an advantage by being allocated a higher grant portion (70% vs 50% for men aged above 30 years). The beneficiaries of this grant category will also have the possibility to use a portion of their grant to acquire an agricultural insurance that will curb their risk of crop failure and thus also reduce their risk of loan default. Priority will be given to such applicants who use agricultural insurance.

250. A total of 480 grants will be availed under this category, half of them being specifically for women and youth. The maximum ceiling for grants will be USD 2,500 for men >30 and USD 3,500 for women and youth. No individual will be able to access a KIIWP2 grant more than once, and priority will be given to applicants who have never benefitted from other grant facilities under other IFAD-funded projects (e.g. PASP, RDDP or PRICE).

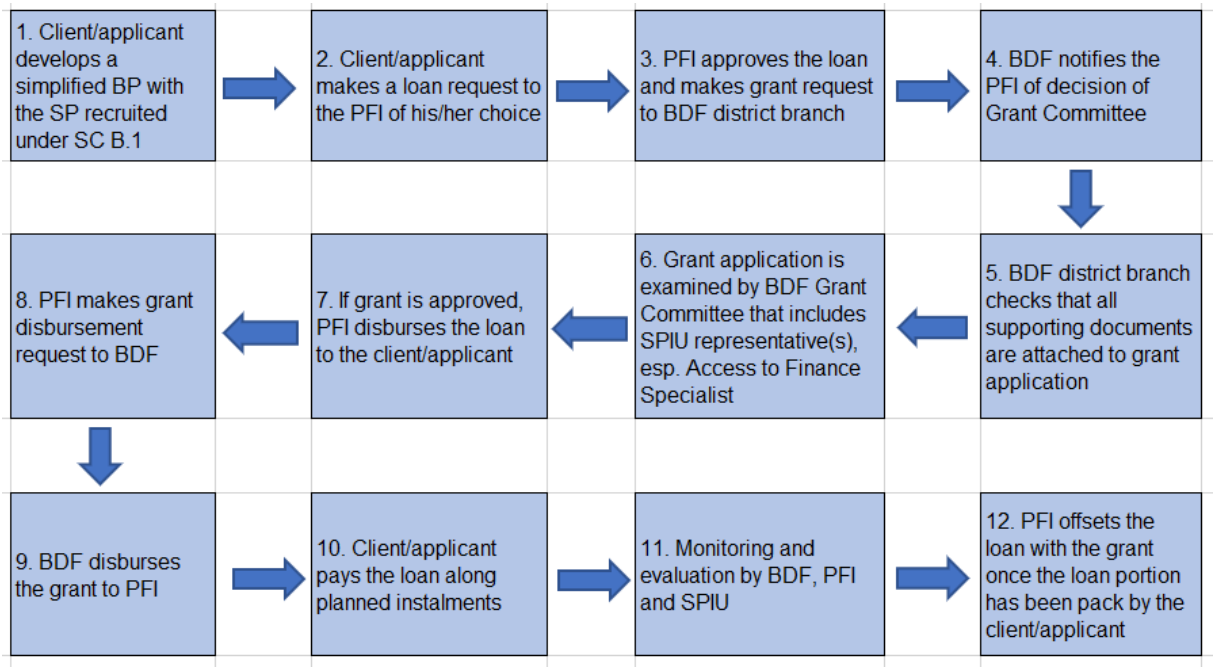
Table 19. Detailed mechanisms of these Cat.1 grants

	Category 1a: Small Equipment Grants for individual men (> 30)	**Category 1b: Small Equipment for individual women and youth (< 30)**
Eligible investments	SSIT kits using solar pumps, power tillers, sprayers, agricultural insurance premium (for the 1st season only)[44], etc. (possibility to combine several types of equipment)	
Eligible beneficiaries	Individuals farmers, males, aged above 30, and who have been attending KIIWP FFS	Individuals farmers, women or youth (i.e. aged below 30), and who have been attending KIIWP FFS
Financing modality	Performance-based grant facility (based on PRICE model): - A simplified BP will support grant application, outlining in particular market outlet, expected productivity increase and loan repayment schedule - Loan to be taken by beneficiary on full investment sought, through PFI - BDF disburses the grant amount to PFI once the loan has been disbursed and grant application has been approved - Grant is disbursed to beneficiary by PFI once the full loan portion has been paid back by the beneficiary *- Note: interest is charged by PFI on full investment loan*	
Financing rule	- IFAD 50% - Beneficiary 50%	- IFAD 70% - Beneficiary 30%
Max grant ceiling	USD 2,500	USD 3,500
Number of grants	240	240
IFAD Budget	USD 600,000 (total 50% of investment)	USD 840,000 (total 70% of investment)
Beneficiary contribution	USD 600,000 (total 50% of investment)	USD 360,000 (total 30% of investment)
Total Budget	USD 1,200,000	USD 1,200,000
Objectives	Smallholder CC resilience, improved productivity and product quality, enhanced nutrition and food security	
Climate Change Adaptation	Small Equipment investments adopt CSA technology solutions	
Nutrition and food security	Commodities with proven positive nutritional impact are preferred	

[44] With grant portion in lieu of non-government subsidized premium portion

	Category 1a: Small Equipment Grants for individual men (> 30)	Category 1b: Small Equipment for individual women and youth (< 30)
Risk management	Priority will be given to grant applications that consider solutions for risk management, including but not limited to agricultural insurance	

251. The Cat.1 grant application process is schematized as follows:



Category.2 grants for cooperative micro-projects on post-harvest management

252. This grant category is meant to facilitate the access to small/medium sized post-harvest management facilities for cooperatives involved in KIIWP target value chains, further to the increase in production triggered by the irrigation development and catchment rehabilitation undertaken under component A. Unlike Cat.1 grants, this grant category will not be necessarily tied to a loan; the beneficiary cooperatives may also raise their contribution through their own resources. The grant model under this category will draw from modalities used in PASP and RDDP (cooperative-led model).

253. The cooperatives benefitting from this grant category will also have the possibility to get an additional grant to acquire an agricultural insurance (optional) that will curb the risk of crop failure among member farmers who are to use the facilities the cooperatives will invest in. Priority will be given to such cooperatives who use agricultural insurance.

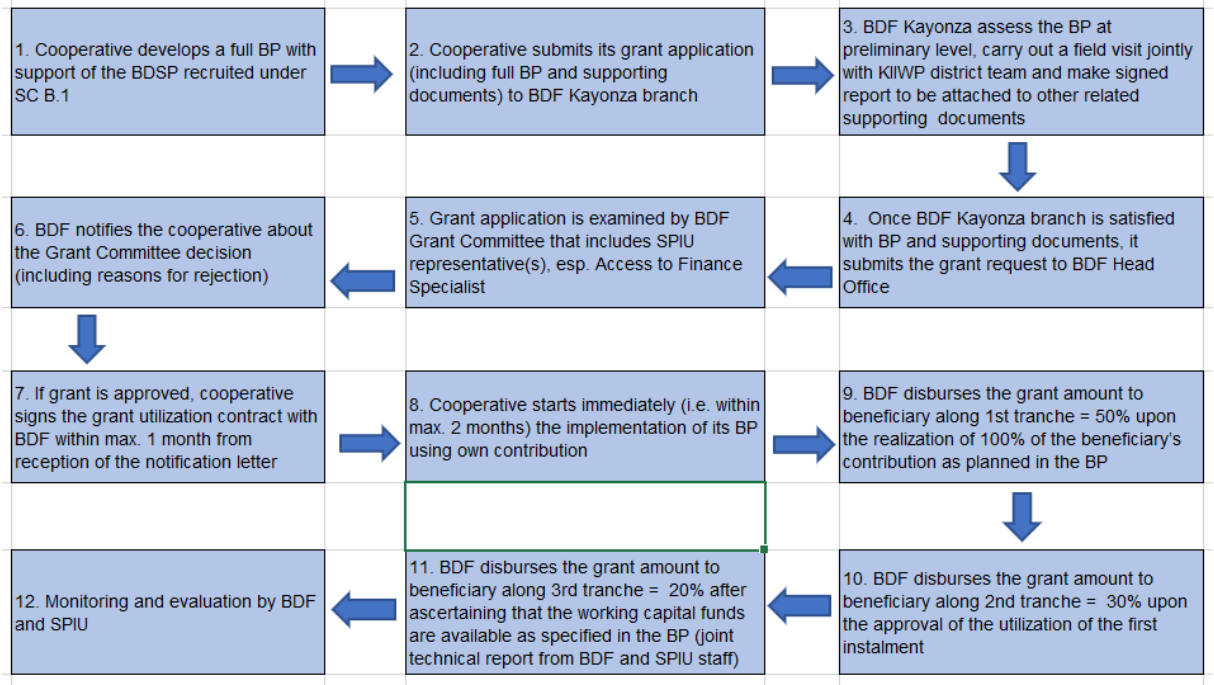
254. A total of 25 grants will be availed under this category. The maximum ceiling for grants related to post-harvest management facilities for cooperative micro-projects will be USD 15,000. An additional grant of up to USD 5,000 will be availed for agricultural insurance. No cooperative will be able to access a KIIWP2 grant more than once, and priority will be given to cooperatives who have never benefitted from other grant facilities under other IFAD-funded projects (e.g. PASP, RDDP or PRICE).

Table 20. Detailed mechanisms of these Cat.2 grants

Category 2: Grants for cooperative micro-projects on post-harvest management	
Eligible investments	Drying ground, dry storage facility, cold room, maize cribs, etc.
Additional investments (optional)	Agricultural insurance premium[45] for cooperative members related to the planned other investments
Eligible beneficiaries	Registered cooperatives operating in KIIWP target value chains (i.e. rice, maize, beans, soybeans, horticulture)
Financing modality	Cooperative-led grant facility (simplified from PASP model): - Full BP to be developed, including marketing arrangements, working capital needs (not eligible to grant), and realistic income and cashflow statements - BDF disburses the grant amount to beneficiary along 3 tranches: 50% upon the realization of 100% of the beneficiary's contribution as planned in the BP; 30% upon the approval of the utilization of the first instalment; 20% after ascertaining that the working capital funds are available as specified in the business plan
Financing rule	- IFAD 50% - Beneficiary 50% (can be from loan or from own resources)
Max grant ceiling	USD 15,000
Number of grants	50
IFAD Budget	USD 375,000 (total 50% of investment)
Beneficiary contribution	USD 375,000 (total 50% of investment)
Total Budget	USD 750,000
Additional agricultural insurance premium (optional)	
Max grant ceiling insurance	USD 5,000
Number of grants insurance	25
IFAD Budget insurance	USD 125,000 (total 50% of investment)
Beneficiary contribution insurance	USD 125,000 (total 50% of investment)
Total Additional Budget insurance	USD 250,000
Total Budget including optional insurance premium	
IFAD Budget	USD 500,000 (total 50% of investment)
Beneficiary contribution	USD 500,000 (total 50% of investment)
Grand Total	USD 1,000,000
Objectives	Smallholder CC resilience and commercialization. Achieved through improved farmers' productivity and product quality, nutrition and food security, pre-processing and marketing capacities.
Climate Change Adaptation	Priority will be given to post-harvest management investments that include climate-resilient technologies/processes (e.g. rainwater harvesting system included in infrastructure, solar powered cold room, etc.)
Nutrition and food security	Commodities with proven positive nutritional impact are preferred
Risk management	Priority will be given to grant applications that consider solutions for risk management, including but not limited to agricultural insurance

[45] With grant portion in lieu of non-government subsidized premium portion

255. The Cat.2 grant application process is schematized as follows:



Category.3 grants for joint ventures between cooperatives and private sector companies

256. This grant category is meant to support the development of contractual arrangements between cooperatives and key off-takers to store/process crop surpluses generated by irrigation development in Kayonza district, particularly in Ndego and Kabare sectors. Unlike Cat.1 grants, this grant category will not be necessarily tied to a loan; the beneficiary cooperatives and private sector companies may also raise their contribution through their own resources. The grant model under this category will draw from modalities used in PASP and RDDP (joint-venture model).

257. The cooperatives benefitting from this grant category will also have the possibility to get an additional grant to acquire an agricultural insurance (optional) that will curb the risk of crop failure among member farmers who are to use the facilities the cooperatives will co-invest in. Priority will be given to such cooperatives who use agricultural insurance.

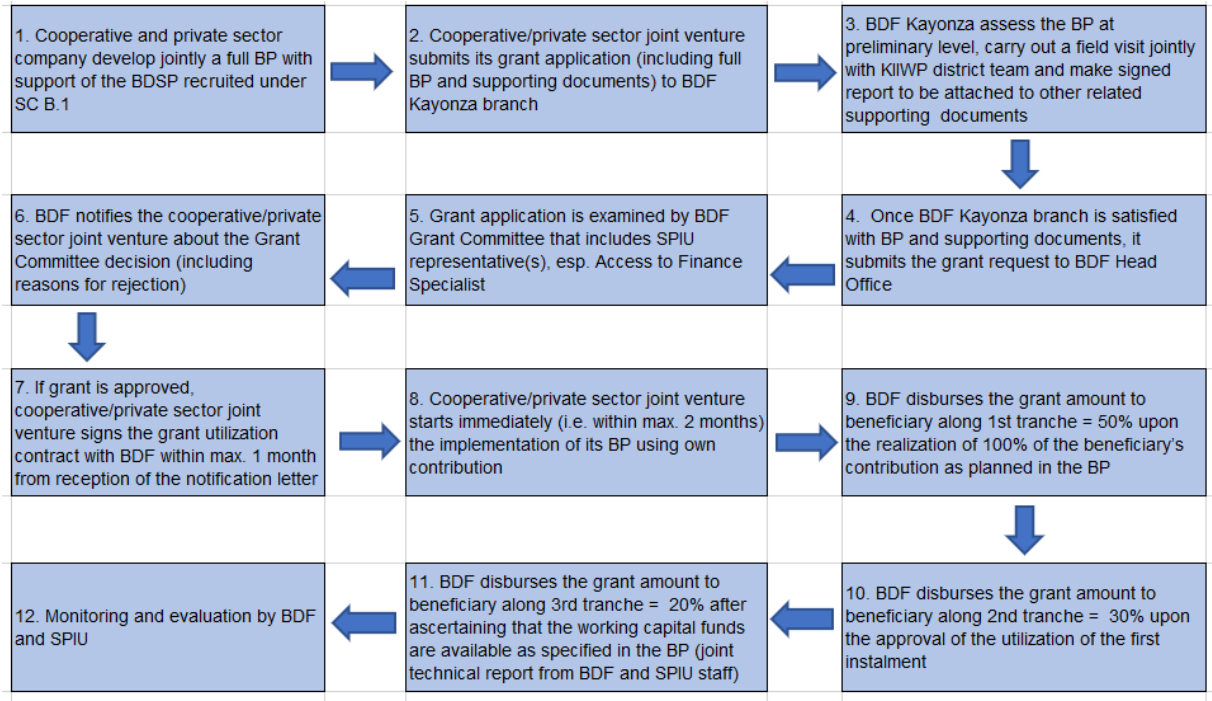
258. A total of 3 grants will be availed under this category. The maximum ceiling for grants related to medium/large storage/processing infrastructure for joint ventures between cooperatives and private sector companies will be US$ 120,000. An additional grant of up to US$ 4,000 will be availed for agricultural insurance. No cooperative will be able to access a KIIWP2 grant more than once, and priority will be given to cooperatives who have never benefitted from other grant facilities under other IFAD-funded projects (e.g. PASP, RDDP or PRICE).

Table 21. Detailed mechanisms of this Cat.3 grant

Category 3: Grants for joint ventures between cooperatives and private sector companies	
Eligible investments	Large warehouses, rice processing facilities, etc.
Additional investments (optional)	Agricultural insurance premium[46] for cooperative members related to the planned other investments
Eligible beneficiaries	Registered cooperatives and private companies operating in KIIWP target value chains (i.e. rice, maize, beans, soybeans, horticulture)
Financing modality	Joint venture grant facility (simplified from PASP model): - Full BP to be developed, including marketing arrangements, working capital needs (not eligible to grant), and realistic income and cashflow statements - BDF disburses the grant amount to beneficiary along 3 tranches: 50% upon the realization of 100% of the beneficiary's contribution as planned in the BP; 30% upon the approval of the utilization of the first instalment; 20% after ascertaining that the working capital funds are available as specified in the business plan
Financing rule	- IFAD 40% - Cooperative 20% (can be from loan or from own resources) - Private sector 40% (can be from loan or from own resources)
Max grant ceiling	*USD 200 per coop member engaged as shareholder and in contractual relationship with the private company*, with a maximum of 120,000 USD
Number of grants	3
IFAD Budget	US$ 360,000 (total 40% of investment)
Beneficiary contribution	- cooperative US$ 180,000 (total 20% of investment) - private sector US$ 360,000 (total 40% of investment)
Total Budget	US$ 900,000
Additional agricultural insurance premium (optional)	
Max grant ceiling insurance	US$ 4,000
Number of grants insurance	3
IFAD Budget insurance	US$ 12,000 (total 40% of investment)
Beneficiary contribution insurance	- cooperative US$ 6,000 (total 20% of investment) - private sector US$ 12,000 (total 40% of investment)
Total Additional Budget insurance	US$ 30,000
Total Budget including optional insurance premium	
IFAD Budget	US$ 372,000 (total 40% of investment)
Beneficiary contribution	- cooperative US$ 186,000 (total 20% of investment) - private sector US$ 372,000 (total 40% of investment)
Grand Total	US$ 930,000
Objectives	Smallholder CC resilience and commercialization. Achieved through improved farmers' productivity and product quality, nutrition and food security, (pre-processing and marketing capacities.
Climate Change Adaptation	Priority will be given to post-harvest management investments that include climate-resilient technologies/processes (e.g. rainwater harvesting system included in infrastructure, use of renewable energy)
Nutrition and food security	Commodities with proven positive nutritional impact are preferred
Risk management	Priority will be given to grant applications that consider solutions for risk management, including but not limited to agricultural insurance

[46] With grant portion in lieu of non-government subsidized premium portion

259. The Cat.3 grant application and disbursement process is schematized as follows:



260. **Note:** full details on the grant implementation arrangements will be provided in the KIIWP Grant Implementation Manual that will be prepared by the SPIU at the onset of KIIWP2 and shared with IFAD for No Objection.

Grant management

261. The management of all grant facilities will be carried out in collaboration with the Business Development Fund, building on the structures and mechanisms already established for similar funds under other IFAD-funded projects in Rwanda. A specific MoU will be signed between RAB/SPIU and BDF at the onset of KIIWP2. The project will strive to establish a thorough grant monitoring system so as to closely follow up and guide the business promoters and then draw the impact of these specific interventions in terms of improved productivity, food security and income.

262. The management of all three grant facilities foreseen in KIIWP2 will require extensive upstream engagement with both applicants (to check their compliance/eligibility) and participating financing institutions (PFIs) in the case of a grant tightened to a loan (Cat.1 grants). It also requires thorough follow-up, monitoring and evaluation once the grants have been disbursed, to ensure that the projects financed are not deviated and the grant tranches are disbursed according to the set procedures. A grant management fee of USD 170,000[47] will thus be availed by the project to BDF, in order to cover such expenditures.

Table 22. Sub-component B2 implementation activities flowchart

Activity	Responsibility	Y1	Y2	Y3	Y4	Y5	Y6	Outputs
Draft comprehensive KIIWP2 Grant Implementation Manual	SPIU, BDF							Grant implementation modalities in KIIWP2 are clearly set
Sign MoU with BDF	SPIU, BDF							Grant Management MoU is signed with BDF
Launch call for expression of interest to apply for KIIWP2 grants – support it through	SPIU, district team							KIIWP target group is well aware of various opportunities made available to support their

[47] BDF grant management fee equivalent to about 7% of total grants managed by the BDF (including the grants allocated through the community competition under SC A.1)

Activity	Responsibility	Y1	Y2	Y3	Y4	Y5	Y6	Outputs
information/mobilization campaign								investments, as well as eligibility criteria and application process
Implement Cat.1a grants	SPIU (led by AFS), BDF, PFIs		20	40	80	100		240 small individual farmers (males >30) access on-farm equipment to enhance their use of CSA practices and technologies promoted by KIIWP
Implement Cat.1b grants	SPIU (led by AFS), BDF, PFIs		20	40	80	100		240 small individual farmers (women and youth <30) access on-farm equipment to enhance their use of CSA practices and technologies promoted by KIIWP
Implement Cat. 2 grants	SPIU (led by AFS), BDF			5	10	10		25 cooperatives in KIIWP target VCs enhance their post-harvest management facilities to cope with surplus production generated by the project
Implement Cat. 3 grants	SPIU (led by AFS), BDF			1	1	1		Crop surpluses are stored/processed in adequate infrastructure through 3 contractual arrangements between cooperatives and key off-takers
Grant management fee to BDF	SPIU		¼	¼	¼	¼		BDF has appropriate financial capacity to manage KIIWP2 grants
Follow up and Monitoring of KIIWP2 grants	SPIU, BDF, PFIs							All KIIWP grants are closely monitored and their impact can be measured

SUB-COMPONENT B.2: SUPPORTING BACKWARD AND FORWARD MARKET LINKAGES

263. Expected outputs of the Sub-component will include: ((i) 8,000 cooperative members and smallholders have improved access to markets, (ii) 10,000 smallholders have improved access to financial services, and (iii) 2,500 smallholders use agricultural insurance products.

Market access

264. Pre-season meetings for cooperatives will be organized to exchange with prospective buyers, help farmers assess market opportunities, and plan their production accordingly. The BDSPs will facilitate marketing arrangements with traders, processors and/or major off-takers through improved communication, market-based production programming and joint marketing. Market exposure of cooperatives will be enhanced by participation in trade fairs or agricultural shows.

265. Horticulture exporters operating in the intervention area will be linked to the Horticulture Export Guarantee Facility (currently set at USD 500,000) that has been piloted under PRICE in collaboration with Rwanda Development Bank (BRD). Opportunities to complement the guarantee fund with additional financing from other development partners will be looked at during the course of the Project, if demand exceeds current capacities.

266. In the case of pumped irrigation that is intended to develop highly-commercial smallholder production systems, 4P-like arrangements with the private sector will be developed whenever feasible, in particular for vegetables, maize and soybeans. 4P partnerships between cooperatives and private sector companies will be fostered through joint-venture grants planned under SC B2.

Financial services

267. To facilitate the targeted communities' access to inclusive financial services, KIIWP2 will: (i) support the quality and outreach of local financial services, and (ii) build the capacity of the target groups in use of financial services. These interventions will be aligned with the

above described BDS and MG, so to ensure bankability of the business plans and to facilitate the in-cash beneficiary contributions of MG investments.

268. **Step 1: Selection of Partner Financial Institutions.** The offer of partnership with local Financial Institutions will be announced publicly by KIIWP2, and expressions of interest are collected from FIs (Financial Institutions). Subsequently, Participating Financial Institutions will be selected using pre-agreed criteria, which include but are not limited to: (i) FI strategy to increase agrifinance, (ii) FI presence in Kayonza, (iii) FI overall financial standing and institutional capacity to service KIIWP2 clients in Kayonza, (iv) FI appetite to adopt innovative financial products and tools suitable for the smallholder and agribusiness SME sectors active in Kayonza district.

269. It should be noted, the KIIWP2 design mission has identified and discussed with potential partner financial institutions, who have confirmed their interest to join KIIWP2 activities: (i) four Kayonza based SACCOs, (ii) most potential Microfinance Institutions: Duterimbere, RIM and Umutanguha, all of which operate in Kayonza through their district-branches in or next to Kayonza, and have the appetite to strengthen their outreach and products in line with KIIWP2 targets, and (iii) additional possible partner MFIs: Goshen and Copedu.

270. **Step 2: Financial literacy trainings.** To strengthen the KIIWP2 target groups' financial literacy skills, KIIWP together with ICCO, AMIR (Rwanda Microfinance Association) and the locally present Financial Institutions will provide targeted trainings to the smallholder households. This activity will include support in the opening of bank accounts and training on basic banking skills and concepts such as "Saving for a Purpose", borrowing, interest rates, collateral, bank transactions, payments, and use of mobile and digital banking. Focus will be given to women (minimum 50 per cent), youth (minimum 30 per cent). To enable increases in savings among target groups, KIIWP2 would benefit from WFP VSLA (Village Savings and Loan Association) development programme.

271. **Step 3: Development of tailored agrifinance products with PFIs**. KIIWP2 in partnership with ICCO and AFR will work with the PFIs to develop and strengthen their innovative and client-oriented agri-finance products for MSMEs and smallholders, suitable for possible new clients in Kayonza, including equipment leasing and value chain finance.

272. **Step 4: Development of institutional capacity of Kayonza district PFIs.** locally present Kayonza district branches of PFIs including especially the SACCOs and MFIs receive institutional capacity building to strengthen their local agri-finance capacities, use of client assessment and monitoring systems, and proactive identification and risk assessment of new potential client pipeline. Furthermore, the project will support the PFIs in scoping for demand and potential establishment of agent network in immediate vicinity of the KIIWP2

273. **Step 5: ICT4D solutions for the PFIs.** KIIWP2 in partnership with key players, including ICCO, AGRA, and AFR will also promote the digitalization of financial services for smallholders and cooperatives in order to reduce transaction costs, increase efficiency and sustainable access to finance. Through competitive selection, a financial support package is made available for the PFIs for their proposed and preferred ICT4D solution procurement, R&D, installation and training costs.

274. **Step 6: Access to credit lines.** KIIWP2 in partnership with ICCO, AFR and IFAD will facilitate the MFIs and SACCOs to access credit lines by IFAD's partner institutions, including potential candidates IFC, WBG, ABC Fund and Rabobank, to meet their growing financial needs. This entails organization of workshops, identification of financier interest and requirements, identification and preparation of summary notes on potential pipeline investments, negotiations and preparation of full proposals by the PFIs supported by ICCO. During the design mission, discussions were held with IFC, WBG and ABC fund and each of them are in principle interested to invest into the MFI sector in Rwanda through their existing investment instruments.

275. In addition, the above described Matching Grants (Sub-Component B2) will be implemented so that they leverage and stimulate commercial rural finance in the target areas,

co-finance strategic investments with the local FIs, and establish a sustainable long-term access to financial services. As successfully implemented in IFAD's PRICE programme, the individual household-targeting grants under Categories 1a and 1b are made to the households through Partner Financial Institutions, against good performance of smallholders in repayment of loans. The implementation steps of this scheme are explained in the above sections.

Agricultural insurance

276. KIIWP2 will support understanding of and access to agricultural insurance products offered under Rwanda's National Agricultural Insurance Scheme (NAIS). It will support activities at demand, supply, and enabling environment levels. NAIS works on agricultural microinsurance.[48] The purpose of working with this level of agricultural insurance in the project, is to improve resilience of KIIWP2 beneficiaries by both protecting their livelihoods, and by taking away one of the barriers they have in accessing finance to invest in their production. As expressed in the IPRM, it will also help to protect the sustainability of some KIIWP2 investments.

277. Lessons from NAIS and RDDP were built on in KIIWP2 design, as they are relevant for both livestock and crop insurance. RDDP producers now recognize the value of highly-productive livestock and the role of insurance within this. RDDP helped crowd in insurance stakeholders, connect them with farmers' groups and distribution channels offering other services, and provide public goods like insurance education. There was no livestock insurance available for project beneficiaries before KWAMP and then RDDP. As a result of these projects, beneficiaries increased their understanding of insurance, insurers became interested in the market, and GoR has set-up the NAIS for livestock and crops. NAIS has also recognized the need to link a variety of programmes and entities working with farmers, and the importance of further developing insurance awareness and understanding at all levels of the market. Other lessons from RDDP on agricultural insurance relate to targeting, and activities to overcome affordability constraints for some target groups. Linked to social protection, for Girinka[49] beneficiaries, RDDP has been phasing out project-funded premium subsidies and been educating producers on saving for insurance, as well as working with an insurance partner to offer different coverage levels and therefore premium cost options. Also, Milk Collection Centres (MCCs) can pre-finance insurance and then deduct premium payments from payments of collected milk. Similar models will be explored in KIIWP2 for other aggregators.

278. The primary beneficiaries of KIIWP2 agricultural insurance activities will be farmers already targeted by the project and who are involved in the value chains covered by NAIS insurance products.[50] They will be reached directly through education and awareness raising on agricultural insurance, contribution to insurance premium within the context of business plans linked to matching grants (Sub-component B.2), as well as indirectly through building capacity of NAIS stakeholders (NAIS project management unit, insurers, existing distribution channels) and other entities mobilizing or working with farmers within KIIWP2. Additional agricultural insurance activities are planned under Component C.1 which aim to support policy dialogue to improve access to NAIS products for all KIIWP2 target groups in the long-term.

[48] While IFAD is exploring ways to partner with the African Risk Capacity (ARC), this is not yet operational in Rwanda and its future progress is dependent on several factors. ARC is a macro-level agricultural insurance mechanism which protects against sovereign risk mainly in the event of very infrequent, high impact droughts at country level. All levels of agricultural insurance can co-exist in a country as part of a risk-layering approach, as they have different features, purposes, and targets. Rwanda is a member of ARC and the Government of Rwanda, and, under MINAGRI leadership, has signed a memorandum of understanding with ARC and has formed a technical working group that is customizing indices. However, onboarding of a country is a lengthy process that requires substantial training and index customization. Notably, there may be some challenges in the hazard modelling/index customization compared to other countries considering Rwanda's substantial geographic rainfall variability due to its diverse topography. Index insurance (at micro level) based on only rainfall information has a history of failure in Rwanda, which indicates some of the potential difficulties.

[49] Girinka: One Cow per Poor Family

[50] Currently crop insurance products offered under NAIS are: maize, rice, chilli, French beans, Irish potato. NAIS is planning to add: banana, cassava, beans and soya beans. All crop products are subsidized by NAIS at 40 per cent. Other commodities may be added depending on demand and government priorities. Livestock insurance is available for dairy cows, pigs, and poultry.

279. The planning and implementation for all activities related to agricultural insurance in B.3 and C.1 will be decided in collaboration with NAIS project management and technical staff. To ensure linkages with other KIIWP2 activities, the guidance and oversight of SPIU experts in climate, access to finance, and market access would be especially important. Joint planning with NAIS will ensure the financing, approach and information are in-line with current Government strategy and plans. In addition, this will allow NAIS to coordinate with leverage any other industry or development actor partnerships it has or may develop, such as planned technical support by the World Bank Group, potential future WFP activities in insurance, NAIS partner insurers and the Rwanda Insurers Association (ASSAR). It is the preference of GoR to internalize and develop capacity on agricultural insurance within the NAIS structure and the Rwandan insurance sector. As such, some of the World Bank Group planned funding in agricultural insurance will be complementary and focus on further developing NAIS technical and operational structures, as well as other sector development support (Annex 4 on insurance).[51] Recognizing both the existing capacity within NAIS, but at the same time the requirements under KIIWP2, some financing has been made available in activities to allow for hiring of additional technical or implementation support as appropriate. KIIWP2 management and NAIS can also take advantage of implementation support from the INSURED programme on request. An INSURED expert supported the design. It is a technical assistance programme for the IFAD-financed portfolio which is financed by Sida and housed in the Platform for Agricultural Risk Management (PARM), at IFAD.

280. On the demand-side, KIIWP2 will support education and awareness raising for smallholders to improve the understanding of targeted producers about agricultural insurance. Lack of awareness and understanding is a reported constraint by all stakeholders spoken to as part of the design mission, and something which there are plans to partially test with some producer groups within KIIWP1. The primary ToT targets for farmer education under KIIWP2 support will be threefold, although it can depend on needs at the time of implementation: cooperative leaders; extension officers; and distribution channels (financial and non-financial). Relevant district officers, such as those with a role to support producer cooperatives, or extension services, should also be included within the same or separate trainings. As a result, it is expected at least 5,000 farmers will be trained on agricultural insurance.

281. So far, education in NAIS has been mainly targeted at some producer cooperatives, for which the NAIS project management unit already have a module developed and experience in delivering. KIIWP2 will expand on this to train more producer cooperative leaders and members within the value chains targeted by NAIS products in the KIIWP2 project areas. It will also support ToTs and farmer education with other individuals, groups, and aggregators linked to the project, such as but not limited to : extension officers and farmers receiving FFS training in Component A ; MFIs and SACCOs and their clients/members in B.3 ; farmers linked to business development plans and to SMEs financed under B.2.

282. It is expected that as a result of this support, 8 ToT sessions will be conducted, and 200 farmers education sessions will take place for a total of 5,000 farmers. This will be achieved through financing the adjustment of ToT materials as required (depending on ToT target), production and printing of manuals, delivery of ToTs, and funding farmer-level training sessions.

283. As a complement to the ToT and farmer education sessions, KIIWP2 will work with NAIS to develop awareness raising campaigns and materials, which will be disseminated in Kayonza. Depending on what is available at the time, and where there are needs and gaps, this could include development and dissemination of simple pictorial farmer pamphlets, radio spots, and/or roadshows[52].

284. Education and awareness raising on agricultural insurance are important public goods to be provided by the Government. As such, the focus should be on improving understanding

[51] The final design of the WBG project is pending validation and has a tentative start-date of end-2021.
[52] To support the use of agricultural insurance as part of production investments, matching-grant recipients in Sub-component B.2 will also be eligible for a contribution to the insurance premium for one season.

about how agricultural insurance works in general, its role in risk management and development, and helping farmers to take informed decisions as to whether or not they want to buy it, their rights, product options, and how to proceed should they want to. KIIWP2 and NAIS should aim to collaborate with World Bank SPIU to coordinate and get additional technical inputs, as well as any other donors who may have a role in education and awareness raising of other farmers in Kayonza, such as WFP plans. To ensure convergence of messages and plans, it is also important that private insurers and the Insurance Regulator (who has a role in consumer protection), have the opportunity to comment on and be aware of new materials and plans.

285. To address some supply-side constraints, KIIWP2 will support capacity building of NAIS stakeholders (NAIS project management unit, insurers, distribution channels) on i. Climate information; and ii. Bundling distribution models for agricultural insurance.

286. KIIWP2 will support training on climate variability, climate information tools, and interpretation. The climate information training will build on a partnership of KIIWP1 with MeteoRwanda, and the suggested target audience is NAIS project management and technical staff, insurance technical staff involved in NAIS, and potentially other insurers through ASSAR. One training session on this topic is foreseen. Some agricultural insurance expertise should be financed to adjust the training for the insurance audience.

287. The main purpose is to help insurers understand in more depth about climate and weather patterns and risk occurrence in Kayonza and encourage continued outreach in the district, and satisfaction of smallholders. One reason is that in some interviews carried out during the design mission, it was reported that some insurers were struggling with high claims ratios, and therefore had to compensate more than the profit brought in by the premium. If this was a long-term issue, there would need to be other technical adjustments to products, or some areas might not be suitable for insurance. However, mission meetings suggested in some cases, for crop insurance in some sectors in the district, it could be a short-term issue, with the first year of NAIS coverage coinciding with a loss year. In 2020, extreme flooding was experienced in non-irrigated marshlands, however it does not usually happen every year. As a result, one insurer reported reluctance to continue insuring farmers non-irrigated marshland. There are also other benefits of insurance stakeholders having their capacity build in climate and weather issues to improve product and scheme performance for smallholders.

288. The training content should therefore aim to raise awareness and improve understanding of using climate information tools of insurance stakeholders to track long-term trends, seasonal forecasts, and actual weather/climate-related risk events. This improves insurance stakeholders understanding of insurance products on offer, when they should be prepared for claims, and also helps them advocate for any necessary adjustments to product design and/or pricing, for example if shifts are observed in start and end of season, if climate and weather risk occurrences are more or less prevalent in some areas, or if some risks have occurred which the index did not capture (known as basis risk). Lastly, it can highlight the model in some insurance schemes, whereby farmer-level climate and weather information tools, such as forecasts and related advice via SMS can be offered as a service to insured farmers. The insurer or NAIS might be responsible for creating partnerships to add this service. The advantages are that farmers can become more aware of climate risk management and linked production practices (e.g. when to plant according to the weather forecast), and they can see the value of insurance, even in years where there are no payouts.

289. The training on bundling distribution models for agricultural insurance KIIWP2 together with NAIS, will finance and support the technical development of a training module, as well as organization and delivery of at least 4 sessions for 4 different sets of participants (although the audience can be combined from different types of stakeholders). The aim of the training is to improve the development of the partner-agent model of insurance delivery - whereby insurance is bundled or packaged directly with other products offered by financial and non-financial service providers like credit, inputs, small-scale technology, off-taker contracts - capacity building workshops will take place at the national and district level on bundling and distribution options.

290. The workshops will be targeted at insurers and financial service providers accompanying other activities in Component B, but with some opportunity for interested non-financial service providers to benefit as well (e.g., off takers, SMEs offering small-scale irrigation on pay-as-you-go credit). The audiences should mainly be technical and business development staff. The workshops will also form a basis for matchmaking between insurers and distribution channels interested in developing a bundled approach. As such, it will be important to consult and coordinate with other KIIWP2 implementation stakeholders overseeing related activities such as ICCO and AMIR in the case of training of MFIs and SACCOs. It would also be important to verify with NAIS project management and technical staff that there have been no changes since the design of KIIWP2 to insurance regulation which might prevent the bundling of products. To create use cases of agricultural insurance linked to other business models, cooperative and private sector company matching-grant recipients in sub-component B.2, will also be eligible for a matching contribution to the insurance premium for their members/customers.

291. The objective being that if bundling was used for delivery of agricultural insurance, farmers have one point of contact and would be able to pay in more manageable instalments along with the loan repayments, or in some cases, the distribution channel might pay some or part of the premium cost if it addresses their business interest. For distribution channels it protects their lending risk and allows them to serve more rural clients. For insurers and NAIS, it becomes more achievable and efficient to reach people and achieve scale. So far, financial service providers mainly refer the farmer to the insurer, rather than entering into direct education or selling on behalf of the insurer. One MFI reported to already offer direct bundling of agricultural insurance with their loans, but it was not clear to what extent.

292. The training content should cover aspects including rationale, benefits, and opportunities of bundling for all stakeholders (insurers, distribution channels, clients); examples of existing bundling models with financial and non-financial service providers (within and outside Rwanda); roles and responsibilities in insurance delivery in a bundled model (distributor Vs insurer); voluntary Vs compulsory bundled approaches; needs and gaps to develop more bundled approaches; existing and potential challenges in bundling. On the latter, whilst most MFIs and SACCOs, as well as some non-financial service providers like AIF expressed an interest in bundling, it was reported by an MFI during the design mission that one challenge is the speed of payouts by the insurer. This is a critical issue not only for the insured farmer, but also for the distributor. In the case of credit-linked insurance, the payout is linked to the operations of credit-provider and is supposed to protect against default. Another issue that might need additional attention is how distributors could plan for and manage pre-financing of the premiums. This is a requirement in agricultural insurance since all premiums for crop insurance must be paid before the start of the growing season to avoid adverse selection, whereby individuals could choose to buy insurance only if they know it will be a bad season. In partner-agent models, the distribution channel is required to pay the premium costs upfront to the insurer and the client pays back in instalments (or it is sometimes partially or entirely financed by the distribution channel as a business and marketing strategy, e.g., to avoid side-selling in the case of off takers, or to promote the use of certain seeds).

293. Sustainability and scaling-up of agricultural insurance is at the heart of the related activities proposed in KIIWP2. There is a direct link to NAIS priorities and plans, with KIIWP2 both benefitting from the presence of NAIS, its services, products, and partial subsidy, and also contributing to its scale-up through support to farmer education, capacity building of NAIS stakeholders and KIIWP2 distribution channels, and policy dialogue. The agricultural insurance activities within KIIWP2 also represent innovative approaches to delivery of education and the products themselves. In particular the approach to train extension workers in insurance would be an innovation within Rwanda and it would be a good international practice. The effort to increase bundling of insurance with the credit and potentially grants under KIIWP2 would also represent an innovation within Rwanda. Innovation and scaling-up of agricultural insurance will also come through NAIS collaboration with other donors, particularly the World Bank. KIIWP2-NAIS collaboration in Kayonza can inform some World

Bank-funded activities for scale-up (e.g., extension officer training, bundling approaches). At the same time, the presence of World Bank-funded activities will be important for helping to create a more conducive enabling environment, bring in other innovations such as digital solutions, and build sector sustainability.

II.3: COMPONENT C: INSTITUTIONAL DEVELOPMENT AND PROJECT COORDINATION

294. The objective of this sub-component is to 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

295. **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:

a. Support to national policy on contract farming;
b. Support to law on financial lease for agricultural equipment (e.g. "special registry" requirement in the law that is yet to be effective);
c. Discussion on Value Added Tax (VAT) in rice processing that makes Rwandan rice less competitive with regional products;
d. Current issues of availability and quality of seeds, including multiplication.

Gender and youth mainstreaming

296. **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

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

298. The institutional arrangements for KIIWP2 will remain aligned to the current implementation framework of IFAD-funded projects in Rwanda. The Lead Project Agency will be the Rwanda Agriculture and Animal Resources Development Board (RAB), an implementing agency of MINAGRI. The Chief Finance Officer of RAB will consequently become the Chief Budget Holder for the project as it is currently for other on-going projects under the SPIU for IFAD-funded projects.

299. The current Operations Manager for KIIWP1 will also assume the same functions for kIIWP2. At the completion of KIWP1, all staff will be transferred to KIIWP2 in order for a smooth implementation of both phases plus additional staffthatwill be recruited by the SPIU (see institutional arragements). international technical assistance will be recruited in order to support the project team to implement a project with high technical complexity (possibly areas such as irrigation development, agribusiness specialist, CSA and GAP specialist). These TA will be recruited by the SPIU.

300. At an operational level, the SPIU will:

a) take overall responsibility for the planning, management and supervision of all three project components and the activities under them;

b) assist the districts to prepare AWPBs for the project, consolidate these and submit the project AWPB to MAINAGRI and IFAD for comment and approval;

c) conduct project-level procurement of good and services, and support district-level procurement as appropriate;

d) in collaboration with participating districts, disburse and control the flow of funds for various contractual and partnership agreements, and ensure timely submission of supporting documentation;

e) manage relationships with, and backstop implementation by, the districts and with other partners e.g. research and training institutions, and service providers;

f) develop and implement a communication and knowledge management strategy to manage relations with the public, project partners, civil society and farmers;

g) establish arrangements for actively collaborating with other relevant development initiatives in the dairy sector;

h) prepare implementation progress reports, based on a participatory monitoring and evaluation (M&E) system and a synthesis of all district reports, and submit these and financial reports to local governments, MINAGRI and IFAD in a timely manner.

301. At the district level, implementation will be monitored by the Director in charge of agriculture in collaboration with existing staff. In line with the practice for other IFAD-funded projects in Rwanda, a Project Steering Committee (PSC) will be in place. The one put in place by MINAGRI for KIIWP1 will also assume the same functions for KIIWP2.

Table 23. Project management implementation flowchart

Activity	KIIWP1	**PY1**	**PY2**	**PY3**	**PY4**	**PY5**	**PY6**	**Project**	**Responsibility**
Appointment of project staff								KIIWP1/2	HRD
Procurement of office equipment								KIIWP1/2	ADM
Supervision visits								KIIWP2	SPIU
Baseline study								KIIWP1	SPIU M&E Officer
COI Surveys								KIIWP2	SPIU M&E Officer
Mid-term Review								KIIWP2	Project manager and M&E Officer
Project Completion Report								KIIWP2	SPIU Coordinator and project manager NPCO - Project Manager
Installation of M&E system								KIIWP1	SPIU – M&E Senior Officer
Installation of FM systems								KIIWP1	SPIU – Financial Controller

PART III: PROJECT PROCEDURES AND PLANNING

III.1. PLANNING AND SUPERVISION

302. **Activities prior to effectiveness.** The Project will be a continuation of KIIWP1, including the implementation structures. Critical start-up activities are financed under KIIWP1 (see table X for complementary activities between KIIWP1 and 2). This includes: (i) re-appointment of all staff in accordance; (ii) continuation and use of the management system; (iii) preparation of the first AWPB including initiation of major procurement, as a minimum finalization of bidding documents; (iv) finalization of MoUs with intra-Government and other strategic partners; and (v) recruitment of TA to be ready at project start-up.

303. **Planning**. Planning will be guided by the project's strategy, log-frame and broader results framework which will inform the development of annual work plans oriented towards planned results with clear identification of how planned activities are expected to lead to those results.

III.1.1. ANNUAL WORKING PLAN AND BUDGET (AWPB) PROCESS

304. **Principles.** The document which guides implementation and identifies activities required to each the Project objectives is the AWPB. The AWPB will follow the fiscal year, as per planning systems in Rwanda. The AWPB development process is expected to start in Octoberof the fiscal year. AWPBs will be cleared by the Project Steering Committee and sent to IFAD 60 days prior to the end of each programme year for no objection. The AWPB will be prepared in the format described in the IFAD guidelines for AWPBs by the SPIU with substantial participation of other implementing partners - NGOs and Government agencies.

305. The AWPB will be informed by an assessment of current implementation progress and will describe the strategic direction of the project for the coming year along with results expected (targets) under each component and how those results will be achieved. This will be complemented by a resource plan, budget and risk analysis for each result. The AWPB will include plans for training and technical assistance, M&E and procurement for the year in question. Each AWPB will include a detailed description of planned Programme activities by component, sub-component and activity, and a procurement plan for 18 months for the first fiscal year, 12 months for the following fiscal years).

306. **Roll out of the AWPB process**. The SPIU will establish the funds available for the AWPB for a particular year as per cost tables. The Project District coordinator will align the activities to the needs of the beneficiary sectors with due regard to the performance contracts entered into by the District. The participation of District authorities and representatives of beneficiaries in this exercise will be paramount, and an activity schedule, prepared by the project district coordinator and approved by the District Council. It will be drawn up in consultation with all stakeholders at district level. There will be meetings between the district planner and service provider, they will share project documents and estimated budget, and identified activities implemented by each service provider .When activities are identified for the fiscal year, they form groups with RAB, MINIAGRI , district and service providers and start brainstorming content of action plan, and each service provider proposes activities and estimated amount.

307. Once the consultations and exchanges are done and the first draft is produced, the SPIU will ensure that the activities presented for financing are eligible. After consolidation, the draft AWPB will be submitted to the PSC for approval and later to IFAD for comments and acceptance, no later than 60 days before the beginning of the relevant financial Year. No withdrawal of funds shall be made from the Loan/Grant Accounts until the AWPB has been approved. If required, the SPIU may revise the AWPB half yearly.

308. Each AWPB shall include, among other things, a detailed description of planned Project activities by component, sub-component and activity, and a procurement plan for eighteen months (for the first fiscal year, twelve months for the following fiscal years). The SPIU will establish the funds available for the AWPB for a particular year as per cost tables.

AWPB OUTLINE

The AWPB will have three sections: (i) a narrative section (in word) describing the results of the previous year and the activities planned for the upcoming year; (ii) a detailed budget (in excel) (iii) a procurement plan. This must include as a minimum:

a. Executive Summary
b. Summary Project Description
c. Summary of implementation to date and results achieved
d. Proposed Strategic Priorities for the upcoming year
e. Description of Expected results and activities (per component and per sector)
    i. Schedule of implementation (per month)
    ii. Related procurement plan
    iii. Links to the results framework
f. Implementation constraints and risks mitigation
g. Budget Summary (per financier, per component, per category)
h. Detailed table per implementing agency and summary by project activity. E.g. for one activity, you may have several implementing agencies contributing to it.

III.1.2. PROJECT SUPERVISION

309. The SPIU will have to produce for the supervision missions a progress report containing information on the progress of activities, outputs, the status of implementation of the recommendations of the previous mission, the material progress of activities in relation to the project indicators and the updated logical framework.

310. The supervision of the Project will be carried out jointly by IFAD and the Government of Rwanda through the ministries concerned and in close collaboration with the representatives of the beneficiaries and the institutional partners, on the basis of one supervision mission per year. In addition, regular monitoring missions and/ or implementation suport mission could be carried out if required by IFAD. They will pay particular attention to progress towards the achievement of results and impacts, the the success of the Project as well as to the constraints encountered.

III.1.3.MID-TERM REVIEW

311. The project will undertake a rigorous Mid Term Review (MTR) to ensure efficient project spending, leading towards the intended outcomes. It should be agreed between the SPIU Coordinator, KIIWP2 Manager and IFAD, early in year 3 which modality will be used to conduct the MTR, e.g. an internal exercise conducted by RAB and validated through an IFAD Supervision Mission, or recruitment of consultants, either by MINIAGRI or IFAD. Some of the critical elements to be assessed during MRT are:

a. Assess the irrigation schemes technology and development status;
b. Assess the status of organizations and how capacity building plans were implemented;
c. Assess FFS approach – how is the uptake, are facilitators and farmers enjoying it, any visible results;
d. Assess the adequacy of technologies and practices proposed as well as possible social and environmental externalities;
e. Approach to private sector engagement;

f. Impact and relevance of capacity building activities;

g. Efficiency and effectiveness of Component B interventions, particularly on innovations for possible scaling-up such as insurance and finance;

h. Adequacy of implementation arrangements, including allocation of human resource towards the project, and efficiency of planning processes;

i. Performance of the M&E system,; and

j. Performance in procurement and financial management, including assessing the effectiveness of the TA.

312. The output of the MTR will be a MTR document, together with an Aide Memoire. This will include a revised budget to guide utilization of the remaining funds; revised recommendations for the use of TA; and an updated PIM. The exercise should be followed up by development of a second 3 year plan for project implementation.

III.1.4.PROJECT CLOSURE

313. At the end of the project, a completion mission will be carried out and result in a by a completion report and a closing workshop. They will highlight the results, effects and impact of the project on the target groups, and will allow the capitalization and lessons. The completion report will be prepared before the project closure date and will address, among other things, the following points: (a) the achievement of its objectives, (b) the benefits obtained from the Project, (c) the performance of the parties involved in the implementation of the project, (d) the implementation of the costs; and (e) the lessons learnt from the implementation of the project. The PCR will be also completed from different studies and in particular with the end of the project outcome survey.

314. Project closure must be planned 6 months earlier that the IFAD loan closing dates (financial closure), to ensure that various assets are handed over, and that all studies, including PCR, are completed on time. Major infrastructure and equipment is expected to be handed over to the communities, with a management plan or following comprehensive operational and management trainings.

III.2: M&E, KM AND COMMUNICATION

III.2.1 MONITOR AND EVALUATION SYSTEM

M&E structure and processes

315. The Project's Results based Logical Framework will be the foundation of the Project M&E system. The M&E system will help streamline monitoring, evaluation and reporting procedures, responsibilities and processes essential to track performance and progress of the various components and activities of the programme in comparison with the set targets in the Annual Work Plan and budgets (AWPBs). The M&E system will work as a useful tool to guide management during implementation of the programme. The M&E system will entail:

a. Data collection and reporting formats for the different reporting centers

b. Design and implementation of assessments of program performance on specific investments

c. the carrying out of baseline(during KIIWP1), mid-line and end-line surveys in adherence to the quality standards set out in the IFAD guidelines for the measurement of Core Indicators at outcome level (the so-called COI guidelines)

d. Definitions of specific responsibilities and roles of different stakeholders at diverse levels and offices in monitoring, evaluation and reporting of KIIWP implementation progress.

e. Integration of KIIWP activities into the AWP&Bs of Kayonza District and other relevant government programmes

f. A user friendly electronic monitoring system (MIS) for data storage, analysis and reporting which will be integrated with the MINAGRI MIS.

g. Plans for capacity building for the SPIU and district staff to ensure that the M&E system is operational.

316. The conceptual thrust of the M&E Framework will be based on the following assumptions:

a. Timely project management activities and procedures at both the SPIU and the district level PIU

b. Kayonza District commitment to the project activities.

c. Staff of relevant caliber are available, recruited and motivated

d. Adherence to transparent procurement and fiduciary practices.

e. Timely provision of project operational resources to facilitate implementation

317. The general principles of monitoring of activities and physical progress will include the following;

a. **Community interest groups such Producer Organisations, Cooperatives and sub-catchment management committees** - will monitor project activities at sector level and may investigate performance, supported by service providers. For example, the implementation of the community-based participatory catchment management plans envisaged to be done through a service provider. Likewise the Water User Organisations will monitor outputs and activities in relation to water use in irrigation schemes

b. **Kayonza District Level PIU and** authorities - will monitor inputs, activities and output achievements in the district.

c. **MINAGRI and RAB** will monitor overall operations for planning and facilitation purposes in line with the sector objectives.

d. **MINCOFIN** will monitor the utilization of resources in line with IFMIS framework

e. **Rwanda Environment Management Authority (REMA)** – will monitor outputs and activities related to environmental monitoring and in particular the ESMP as defined and the Free, Prior and Informed Consent (FPIC) Plan as developed in 2018

f. Respective financial services implementing partners will monitor the activities and outputs in relation to access to financial services and provision of business development services

g. **The Business Development Fund (BDF)-** will monitor activities and outputs in relation to the implementation of the matching grant facility

h. **The M & E unit within the SPIU-** will monitor and evaluate outcomes and overall impact of the project as well as compile the projects quarterly, semiannual and annual reports for dissemination to stakeholders and IFAD. The unit will verify data received from implementing partners through quarterly field visits. The unit will also liaise with all the monitoring partners and collate information for overall consolidation.

i. Stakeholders and consultation with local community should be integral part of project implementation

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

318. The M&E system will be participatory, gender sensitive and results-oriented while enabling the integration of physical and financial progress reporting. All people-centered indicators will be disaggregated by gender and age. In addition, the system will enable the analysis of climate change vulnerability among the beneficiaries. The system will incorporate in-depth baseline, COI surveys and completion surveys, a mid-term review and other thematic studies as relevant, including qualitative studies.

319. The baseline surveys will be carried out during KIIWP1 and 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. The baseline survey will also provide a benchmark for assessment of future outcomes and impact of the project, as it will be compared with the mid-line and the end-line surveys, carried out to the extent possible using the same sample of beneficiaries and control group IFAD will undertake periodic monitoring, evaluation and supervision Missions to assess the status of Project implementation and evaluate Project direction with respect to its objectives, outputs and Outcomes.

320. 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 enabling 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. A glossary of log-frame indicators will be developed at start-up, clarifying the exact meaning of each indicator (in particular the Core Indicators) in the specific context of KIIWP2. This glossary, together with the M&E plan, will be discussed and validated during an M&E workshop with all implementing partners that have M&E responsibilities. The monitoring indicators, will compare project performance each year with the targets set in the AWP/B for that year.

321. The KIIWP M&E strategy will be to establish an iterative process for identifying issues and problems to ensure that the Project focus is maintained and expected outcomes are achieved. This will rely on data from periodic monitoring within the context of the Operational M & E framework and as obtained through the MINAGRI MIS, and on specific thematic surveys such as adoption, household and COI surveys which will be carried out in close collaboration with National Institute of Statistics Rwanda (NISR) and MINAGRI/RAB. The NISR regularly carries out periodic surveys that cover a range of topics and across the country. The SPIU will liaise with the NISR to ensure that data in respect to the project area is filtered out and analysed in order to be able to attribute the results to KIIWP interventions.

322. A detailed M & E framework will be developed to guide M&E processes within the project. An M&E implementation support mission will be fielded shortly after start-up to ensure that a solid M&E framework and plan is set up. The M&E framework developed at the beginning of implementation will detail the scope, organisation and contents of the M&E system; roles and responsibilities; a plan for data (sex- and age-disaggregated where appropriate) collection, analysis, reporting, use and management; timeline for M&E-related activities; staffing and capacity building plan; budget; etc.;

Physical progress monitoring

323. To supplement the project ORMS Logframe, a detailed operational logframe and an M & E framework will be developed to ensure the realisation of the set targets. This will be updated through the baseline study and regularly updated during the course of implementation. This framework will provide the foundation for progress monitoring at output and outcome level. Data collection for updating the operational M & E framework will be supported by an Online Monitoring System with an inbuilt module linked to the existing MINAGRI MIS. The Monitoring system will depend on the use of mobile phones for data collection and online transmission to the MINAGRI SPIU server based at national level for storage and processing.

324. Physical progress monitoring will be based on two principles:

a. **AWPB-based progress monitoring:** which will involve checking and reporting on implementation progress of each activity in the AWPB and

b. **Registers of physical progress:** by recording key information on selected activities in four registers, which will provide a cumulative historical record of practically all activities undertaken by the project.

325. The purpose of the registers of **physical progress** will be to systematically record information on certain types of activities and results of the project, in order to create an historical, cumulative overview. They will be integrated with the web-based Ministry of Agriculture and Animal resources (MINAGRI) M&E MIS which already has a module for the SPIU implemented projects. Initially, the following registers are envisaged:

Register of contracts: For each contract signed under the project, with suppliers, consultants and other service providers, the register of contracts will contain one line of information, which will include: description of the contract; name of the supplier/service provider; procurement method; contract sum; when the contract was signed, when the work started, when it was expected to be completed and when it was actually completed; number of invoices received and payments made

a. **Register of training activities** : The register for training activities is a very broad register that will be used to capture formal training courses, workshops, seminars, conferences, study tours, exchange visits, field demonstrations, key meetings, even studies and surveys. The same register can be used because the key information that is important to be recorded is basically the same for all these types of activities, and includes: (i) a description of the activity;(ii) whether it was for beneficiaries or staff;(iii)where it took place (venue, destination); (iv) when it started and ended; (v) who was responsible for organizing the activity (person/institution); (vi) who the participants were; (vii) how many participants (men/women); (viii) the cost; (ix)and the duration.

b. **Register of infrastructure**: In the register of infrastructure, one line of information will summarize key facts about any piece of infrastructure that is constructed, rehabilitated, expanded, or equipped under the project. The information in this register will include: the type of structure; a description of the structure; where it is located; when the contract for the work (if applicable) was signed, when the work started, when work was expected to end and when it actually ended; who the main contractor or supplier is (if applicable); who supervised the works; the total cost and the community contribution; and the estimated number of people who benefit from the structure

c. **Register of groups :** In the registering of groups, one line of information will summarize key facts about any group that has been established or is being supported under the project, for example farmers producer organisations, cooperatives, and infrastructure management Organizations such as the WUOs or WLUOs. The information in this register will include: (i)the type of group; (ii) the name of the group; (iii) where it is located;(iv) when it was formed; (v) a brief description of the group purpose and main activities; (vi) a description of the project's involvement with the group; the number of group members (disaggregated as men/women and youth).

d. **Register of Matching Grants and other financial services accessed** will summarize information on beneficiaries of the matching grants and the other financial services, type of grant/ service accessed, amounts of grants accessed, and activities funded among others.

326. These registers shall be kept and updated regularly at SPIU and other designated implementation levels. The district and partner implementation level registers will be submitted at least on a quarterly basis to the SPIU for review and consolidation. To assist officers at district level, formats will be developed by the SPIU consistent with the register

structures maintained by the SPIU within the MIS and distributed to the subject matter specialists in charge of monitoring at that level.

327. The **AWP&B-based progress monitoring** in principle will use detailed activities exactly as they are presented in tables in the AWP&B. The basic task will be to regularly note down, activity by activity, how much progress has been made, what has been achieved, comments and whether any special action is required. In order to do this, the files used during AWP&B preparation will be modified and distributed to the various implementation units for respective monitoring. The modification will consist of protecting the planning data and adding a number of columns for recording progress information.

328. To the extent possible, special emphasis will be placed on the need to integrate planning and monitoring as standard responsibilities in the work of project implementers, and ensuring that recording progress information is done regularly and consistently. In principle, the designated subject matter specialists from the district as well as focal persons from each of the implementation partner institutions will be responsible to collect and submit data for input into the M&E/MIS.

329. The progress information will be carefully analyzed by the M&E Specialist at the SPIU. The analysis will seek to identify any implementation constraints to be addressed by the project management. The same information will be used to prepare quarterly, half yearly and annual reports, which will contain the full tables with detailed, activity by activity progress information. These reports will be produced by the respective implementing units with formal reporting responsibilities to the SPIU and will be consolidated into a project-wide report for submission to relevant Government offices (MINCOFIN and MINAGRI etc) and IFAD. Reports will provide information such as (i) overview of intervention activities undertaken in the last quarter and cumulatively over the fiscal year; and: (ii) progress and outputs in terms of the agreed M&E indicators, provide lessons learnt, and knowledge gaps identified. The reports will also seek to identify any constraints encountered so as to seek guidance (where needed) from Project management for addressing the constraints.

330. It should be noted that progress information will be from the beginning of the year to date to reflect cumulative progress***.*** This means that for the third quarter, for example, the tables will contain the progress made and achievements from the beginning of the financial year until the end of the third quarter, in addition to the separate results for the third quarter. Further, information will be provided on the cumulative progress since the beginning of the programme. This is meant to assess the progress towards achieving programme targets in line with the IFAD's Operational Results Management System (ORMS). Standard reporting formats will be developed during the development of the M & E system to provide guidance on the various monitoring focal persons/offices as defined above.

331. Regular project Implementation Reviews will be undertaken every quarter as a platform for assessment of project implementation and performance as well as share experiences in implementation. Participation will be by all those involved with activity implementation as well as selected value chain actors and stakeholders, the hosting of which will follow internal rotational arrangements between Kigali and Kayonza District.

Outcome and impact monitoring and assessments

332. The focus of impact assessment will be on the project's overall goal and specific objectives, as follows : ***Contribute to poverty reduction in the drought prone Eastern province of Rwanda*** by achieving the following Development Objective: ***Improve food security and incomes of 40,000 households on a sustainable basis.*** Indicators for the overall project goal, objective and outcomes will include but not limited to the following;

a. Reduction in poverty levels in eastern province of Rwanda
b. Households with improved food security
c. Households with improved incomes
d. (Number)Percentage of persons/households reporting an increase in production (CI 1.2.4)

e. (Number)Percentage of Persons/HH reporting adoption of environmentally sustainable and climate-resilient technologies and practices (CI 3.2.2)
f. Percentage of women reporting minimum dietary diversity- MDD-W[53] (CI 1.2.8)
g. Number(Percentage) of rural producers' organizations reporting an increase in sales (CI 2.2.5)
h. Number (Percentage) of rural producers' organizations engaged in formal partnerships/agreements or contracts with public or private entities (CI 2.2.3)
i. Number of people/households reporting using rural financial services. (CI 1.2.5)
j. Number of existing/revised/new laws, regulations, policies or strategies proposed to policy makers for approval, ratification or amendment
k. Households satisfied with project-supported services (SF.2.1)
l. Households reporting, they can influence decision-making of local authorities and project-supported service providers (SF.2.2)

333. A comprehensive baseline will be carried out during KIIWP1 that will provide benchmarks that will guide the eventual impact monitoring. Data collection on the different impact and outcome indicators will be the responsibility of the SPIU in liaison with implementing partners. The SPIU will engage external consultants to carry out the assessments in line with standard impact assessment methodology and following the approved COI survey framework for the case of core outcome indicators. Secondary sources of data will be used particularly to provide information on the overall sector goal indicators. Such sources will include the National Statistics Institute Rwanda (NISR) which is mandated to carry out national surveys among others on poverty and gender studies as well as household food security assessments.

Environmental monitoring:

334. Monitoring of environment and climate related aspects of the project will be done in two ways:

a. monitoring physical progress against targets of proposed climate adaptation/mitigation measures, environmental sustainability, and sustainable natural resource management interventions. The Head of MIS and the Climate Specialist within the SPIU will have the primary responsibility of coordinating this, with support from project component leads.; and,
b. monitoring and ensuring the implementation of mitigation measures against identified environment, social and climate risks associated with project interventions such as irrigation. This will be done through the implementation and regular monitoring of the Environment and Social Management Plans and their accompanying Monitoring Plans (further details are provided in the SECAP Review Note. In addition, with support from CoEB and SPIU GIS expert, the project will mobilize several tools for evaluating and documenting progress in improving ecosystem services including a rapid biodiversity survey for each irrigation scheme and satellite imagery for assessing impacts of soil and water and biodiversity conservation measures. The project will collect geo-reference locations for all project critical interventions (including boundaries of the irrigation schemes, location of each water abstraction point, reforestation area, exact boundaries of the catchments and sub-catchments in Kayonza District through Geographic Information System (GIS) mapping, boreholes, etc.). By knowing a location's coordinates, satellite imagery can be used to monitor changes that have taken place and assess if the project is

[53] MDD-W is Minimum Dietary Diversity for Women. It assesses whether or not women 15–49 years of age have consumed at least five out of ten defined food groups the previous day or night

effectively implementing measures for ensuring conservation, restoration and sustainable use of terrestrial and freshwater ecosystems and their services.

KIIWP Management Information System (MIS)

335. A web-based management information system (MIS) will be used to support day to day monitoring of the project activities and outputs. The Ministry of Agriculture and Animal Resources already has an integrated M & E MIS. As a requirement, the SPIU maintains a module within the MIS in which all projects under the SPIU are linked. KIIWP MIS module will in a similar manner also be integrated with the MINAGRI MIS as part of the overall MIS framework. Data collection at field level will be carried out by field staff using mobile phones and uploaded into the MIS from where it will be accessed by the M & E Specialist at SPIU who is responsible for its management. District staff will only have user rights while the M&E Specialist will have editing rights to ensure data quality and consistency. The officer will liaise with the responsible IT staff of MINAGRI for technical performance of the system. The field staff will ensure that any errors in data entry are promptly communicated to the M&E Officer at SPIU who will then grant temporary permission to the affected staff for reloading of the data. A Technical Assistance support has already been recruited and will support the SPIU in building the capacity of the staff to use the system well. In addition a technical manual will also be developed to enhance the use of the system by the staff.

Monitoring responsibilities for different stakeholders

336. The KIIWP monitoring and evaluation function will involve key personnel at different levels.

337. Evaluations will be undertaken by independent experts or consultant firms under the supervision of the Head M & E/MIS at SPIU. Other Project staff will work together with the experts to learn lessons from the evaluations and apply them to improve project management and implementation.

338. **The Project Steering Committee (PSC)-** The Project Steering Committee will be responsible for providing policy guidance, review and approval of the Annual Work Plans and Budgets as well as the Annual Progress Reports and Audits Reports.

339. **The Ministry of Agriculture and Animal Resources (MINAGRI)/RAB-** The Ministry of Agriculture (MINAGRI) will monitor the overall operations for planning and facilitation purposes for the implementation for the attainment of objectives under KIIWP.

340. **Single Project Implementation Unit (SPIU)-** The SPIU based within RAB as the programme Implementation Unit will be responsible to ensure that respective departments within Kayonza District adopt and follow appropriate monitoring mechanisms, processes and procedures put in place by the project. The SPIU will also support the district level PIU to establish suitable means of data collection and ensure they are embedded into the implementation of different activities. The SPIU will also monitor and evaluate the overall impact of the project and compile the projects quarterly, semiannual and annual reports for dissemination to the respective stakeholders. The M & E Unit within the SPIU led by the Head M & E/MIS will be responsible for coordinating the monitoring and evaluation function of the project. The unit which is already staffed with one M & E officer and staff supervising other cross cutting responsibilities, will be re-enforced with a GIS Specialist who will be responsible for paying particular attention to geo-spatial data collection and analysis and integration with the overall M & E framework.

341. **Kayonza District Project Implementation Unit (PIU)-** The district level project implementation unit comprising of subject matter specialists and headed by the Director of Agriculture and Animal Resources will be responsible for Monitoring activities, inputs and outputs achievements in the district. The director will ensure that the data has been input into the MIS, for timely access by the SPIU.

342. **Sector level monitoring-** KIIWP is expected to be implemented in 9 out of 12 sectors in Kayonza district. Actual implementation of the project will therefore take place in each of

these sectors. The sector administrators and technical staff will ensure that KIIWP activities are integrated into the respective sector annual action plans and monitor project activities against stated targets. The sector technical staff will provide backstopping to beneficiaries and will be instrumental in ensuring that monitoring tools and procedures are incorporated into activity plans of the different interventions. The staff in these sectors will also ensure that data collection processes, procedures and responsibilities are adhered to and reporting undertaken in accordance with the design of the respective project activities.

343. **Activity implementation level-** Implementation of the KIIWP activities will involve various partners and stakeholders. These will be given clear monitoring procedures and reporting formats for the activities under their authority for on-ward transmission to respective higher monitoring levels.

344. **Beneficiary level monitoring**- Beneficiaries of different interventions will coordinate with activity implementers and or sector staff on the channels to be used to collect information and transmit it to higher levels

Information needs flow of KIIWP

345. In order for different levels of programme stakeholders to guide the project's planning, implementation, monitoring and evaluation, they will require different types of information from various sources.

346. **At community level:** In order for beneficiaries to own the interventions and ensure ease of monitoring by the various stakeholders and for the future and sustainability of the project, each sector will prepare detailed planning matrices and action plan showing the activities to be undertaken, costs involved, responsible persons and timing of the activities. The work plans will be prepared using simplified easy formats to accommodate the changing information/data needs that conform to and feed into formats for higher reporting levels. Groups of beneficiaries will also maintain record books with important information on the project's implementation. Information will also come from service providers working with the beneficiaries and will be compiled into reports that will be submitted to the sector level.

347. **At the sector level:** At the sector level, all the received community reports will be compiled and consolidated into one sector report under supervision of the sector technical leader. Besides consolidating the report, the sector staff will ensure that the important aspects in the work plans are well articulated in the community reports. They will also incorporate information generated during project implementation monitoring to constitute a comprehensive sector report. The sector report will be forwarded to the district level. Sources of information at the sector level include discussions with technical team leader, sector agronomists, veterinary officers, sector administrators, projects monitoring reports, sector action plans and other necessary documents.

348. **At district level:** The received sector reports will be consolidated into one district report will be compiled by the district director of agriculture and animal resources with input from subject matter specialists at the district. The M&E officer will play a supporting role. Sources of information at this level will include but not limited to the project monitoring reports, field supervision reports, meetings and consultations amongst staff involved in the KIIWP implementation.

349. **At SPIU Level:** The compiled district report and other reports coming in from implementing partners will be consolidated into one project wide report by the SPIU based at RAB under the supervision of the SPIU coordinator. The consolidated report will then be circulated to MINAGRI, MINFOC and IFAD.

350. Feedback of information will follow the reverse order from IFAD through the SPIU to the district, sector and beneficiary levels. Feedback will also be provided through project reviews and planning meetings at various implementation levels.

Reporting and supervision

351. The different stakeholders will have specific roles in progress reporting as follows;

352. **Quarterly Reports *:*** All KIIWP activities integrated into the district development plans will be reported upon every 3 months by respective units implementing them. Where the private sector implementers are involved in KIIWP activities, the district will be responsible for monitoring the implementation and reporting on those activities in liaison with the SPs.

353. **Semi-annual Progress Reports :** Consolidation of quarterly reports will be done by the SPIU to prepare consolidated 6-months progress reports to IFAD. The progress reports will include an overall assessment of KIIWP's achievements against the targets in the AWP & B. The reports will be submitted within six weeks from the end of each reporting period.

354. **Annual Progress Reports *:*** The annual progress reports will be a consolidation of the progress of achievements attained during a financial year and also assess the overall performance of the project against set objectives. This will be done by the SPIU with input from the district PIU and implementing partners.

355. **Back to Office Reports *:*** These will be produced on demand and following field visits to the project area. The reports will be submitted within one week of undertaking the field activities. The reports will contain feedback on the purpose of the field visits, the people met during the visits, the salient findings, the lessons learnt and recommendations for improvement.

In- country M&E capacity development

356. The SPIU has related staffed that coordinates the function of the M&E system. The M&E unit is headed by the Head of M&E/MIS who is supported by an M&E Specialist, a Gender and Social Inclusion Officer and a Knowledge Management Officer. In addition, KIIWP2 identified extra needed staff, a GIS specialist will ensure that adequate geo-spatial data analysis and its linkage to the overall M&E system is undertaken by the project. The officer will also be responsible for supervision of the ongoing mapping of the catchment areas and delimitation of irrigation plots before their use by the farmers.

357. To further strengthen and ensure smooth operationalization of the project M&E system, Capacity building will be provided to all staff at the various levels in several areas:

a. **Planning and Budgeting as well as use of M&E information in planning.** This will be provided to all project staff both at the district level, sector level and at SPIU
b. **Reporting**: Capacity building will be provided to staff on preparation of project reports following agreed formats and guidelines.
c. **Data collection and management through the MINAGRI MIS**: ongoing support to M & E and IT capacity will be provided in setting up of the monitoring system and appropriate linkage of the KIIWP SPIU Module infrastructure to ensure smooth running of the system – This will also include designing the required forms for data capture at field level and coding them into the electronic tablets/mobile phones. Support for this function has already been identified and training for relevant staff will soon commence including training in data collection by the field staff.
d. M & E staff will be trained on the basics of **Results Based M&E systems including use of M&E information in Planning and Budgeting**, Designing and Conduct of thematic and Outcome surveys; Report writing and Dissemination of results and link to knowledge among others

KIIWP Evaluation Plan

358. The KIIWP evaluation plan is envisaged as in the table below

Table 24. KIIWP Evaluation Plan

Year	Schedule (Quarters)				Nature of Evaluation	Scope (Area of Coverage and / or Content)	Responsible Person
	1st	2nd	3rd	4th			
1					Baseline Survey	All the selected 9 sectors in Kayonza District	SPIU Head MIS
					Supervision Missions	All project components	SPIU Coordinator
					Diagnostic studies	Specific topical area e.g nutrition , climate change	Subject matter Specialists and the Head MIS
2					Supervision Missions	All project components	SPIU Coordinator
					Special Studies	Specific topical area e.g nutrition , climate change	Subject matter Specialists and the Head MIS
					Mid-Term Review	All project components	SPIU Coordinator
3					Supervision Missions	All project components	SPIU Coordinator
					Beneficiary Assessments	All programme activities	Head MIS
					and COI Survey and other special studies	Sample sectors in the district	Head MIS, District and Sector staff
4					Supervision Missions	All project components	SPIU Coordinator
					Special Studies	Specific topical area in identified	Head SPIU
5					Supervision Missions	All project components	SPIU Coordinator
					Final COI Survey at completion/Impact Evaluation	All project components	SPIU Coordinator and all component heads
					Special Studies	Specific topical area in identified	Head MIS, District and Sector staff
6					Supervision Missions	All project components	SPIU Coordinator
					Project Completion Review	All project components	SPIU Coordinator
					Special Studies	Specific topical area in identified	Head MIS, District and Sector staff

III.2.2. KNOWLEDGE MANAGEMENT AND COMMUNICATION

359. **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. Knowledge Management (KM) will be an integral part of KIIIWP to ensure that Project implementation is a continuous learning process in which quantitative and qualitative data will be compiled, analysed and disseminated as lessons learned, together with thematic studies and stories from the field that document successful approaches, explain challenges encountered and results achieved. It will particularly relevant to inform policy development and engagement, specifically in generating knowledge from the many innovations that KIIWP 2 will promote. This will be ensured with constant communication and generation of Knowledge products that will come from (i) the research institutions results and applications with producers; (ii) case studies generated from successful stories and identified innovations; and more. The Project M&E system will form the foundation of KM and learning system and will thus be a primary instrument of information capture and storage, based on the indicators

detailed in the results framework. Tools, such as case studies, stakeholder interviews and surveys, will be used to deepen understanding of factors contributing to successes and failures, and to enable full documentation of impact. The Knowledge management and Communication Officer at the SPIU will be responsible for all KM activities with guidance from the Head MIS and in liaison with other component heads. Collaboration with relevant research and learning institutions to design and undertake studies and analyses as well as communicate lessons learnt will be encouraged.

360. 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. KM activities will participate in and benefit from M&E data collection efforts. On the one hand, KM products will build on and benefit from evidence gathered through the M&E system. On the other hand, KM activities will gather qualitative data that can offer further insights into the findings of quantitative M&E data. In addition, a knowledge Management and Communication Action Plan that outlines specific activities on how information is to be obtained, analysed, and disseminated, will be developed in line with the KM strategy will be developed to translate the strategies into action. Plans to support the implementation of the KM Action Plan will be integrated in the Project's AWPB. In this regard, the KM & Communication Action Plan shall include an outline how knowledge will be disseminated using, but not limited to, the communication channels. Effective communication at all levels will be critical to promotion and awareness raising, learning and adoption innovative techniques and practices under the respective value chains as well as issues related to mainstreaming of gender and nutrition in the selected value chains and encourage youth participation in rural agricultural development. 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 organized for lateral knowledge transfer. In order to facilitate the online dissemination of generated knowledge products to government and other stakeholders, the Project will ensure adequate sharing of information through the MINAGRI website as well as encourage use of other online knowledge sharing mechanisms such as the use of social media and short messaging services. The project will also encourage the access to climate and weather information as well as market information by the various value chain actors.

361. 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.

III.3: FINANCIAL MANAGEMENT AND DISBURSEMENT ARRAGEMENTS

Summary of financial management arrangements

362. Financial Management System: KIIWP II financial management arrangements follow the Government of Rwanda financial management system with some enhancements proposed to mitigate on risks identified. A financial management assessment for KIIWP II has been carried out in accordance with IFAD's Guidance Note on Undertaking Financial Management Assessment at Design. The objective of FMA is to provide assurance that KIIWP II will be implemented using sound financial management practices (timely and efficient accounting systems), and punctual professional reviews; both internally (internal audit) and externally (external audit). The assessment was based on existing IFAD Rwanda portfolio under the SPIU as KIIWP II will be adopting similar processes and procedures. The assessment was combined with reviews at Kayonza District and the Rwanda Agricultural Board (RAB).

363. The Government of Rwanda (the Borrower) will be required to maintain acceptable financial management systems including accounting, financial reporting, and auditing systems for the KIIWP II. Some project's specific additional measures have been incorporated to enhance financial management of the project.

364. Overall, the financial management risk is rated as 'moderate' after considering mitigation measures. The project faces risks in quality and timeliness of financial reports arising out of delays in customisation of the Integrated Financial Management Information Systems (IFMIS) whose current coding does not facilitate IFAD reporting requirements. There are also risks around funds flow arrangements given the justification complications associated with accounting under the current structure of IFMIS and reporting under MS Excel in the absence of a restructured chart of accounts. There has also been inadequate counterpart financing, falling short of targeted contribution at design. In-kind contribution has not been consistently recorded and activities implemented by GoR non-tax paying entities have not accounted for the would be tax contribution had the activities been implemented by private companies.

365. To mitigate on these risks, IFMIS will be customized as previously agreed to facilitate reporting by project component, expenditure category and financier. In the absence of this, a stop gap measure will be running a parallel accounting software, TOMPRO like is the case with RDDP. This, however is not a desirable solution as it will come with a need of another Accountant to deal with the work load arising from "double work". MINECOFIN ha commited to completing the customision of IFMIS in two phases, with phase 1 completing in April, 2021 and phase 2 completing in June, 2021. This will be critical for the overall quality of financial management of KIIWP II.

Implementing and participating organizations with fiduciary responsibilities

366. The project will be implemented through the Government of Rwanda's existing structures. **The Lead Project Implementing Agency (LPA)** will be RAB under the MINAGRI through the SPIU for IFAD funded projects which will directly manage all components. The implementation will be at the Kayonza District.

367. **Kayonza District:** The key implementing agency is Kayonza District. Some activities will be paid at district level based on the agreed AWPB while key investment activities will directly be paid by SPIU as they will be centrally procured. Kayonza District will receive quarterly advances based on the approved AWPB through a project dedicated account. The SPIU will provide suitable templates to enable the Project SPIU at the district to provide acceptable accountabilities of advances received.

368. The SPIU will be the overall accounting hub for the project. The SPIU will be responsible for ensuring the implementation of Project activities and will have the following fiduciary responsibilities:

a. the preparation of Annual Work plans and Budgets ensuring a bottom-up approach and timely submissions for inclusions in GoR overall approved budget estimates;

b. Procurement planning, execution and support service;

c. Disbursement of funds to other implementing agencies as per funds flow structure,

d. Management of withdrawal applications and disbursements;

e. Financial management of the Project, including supervising and ensuring compliance with government regulations.

f. Financial reporting and consolidation of financial statements for audits.

g. Any requests for No Objection to IFAD will emanate from the SPIU.

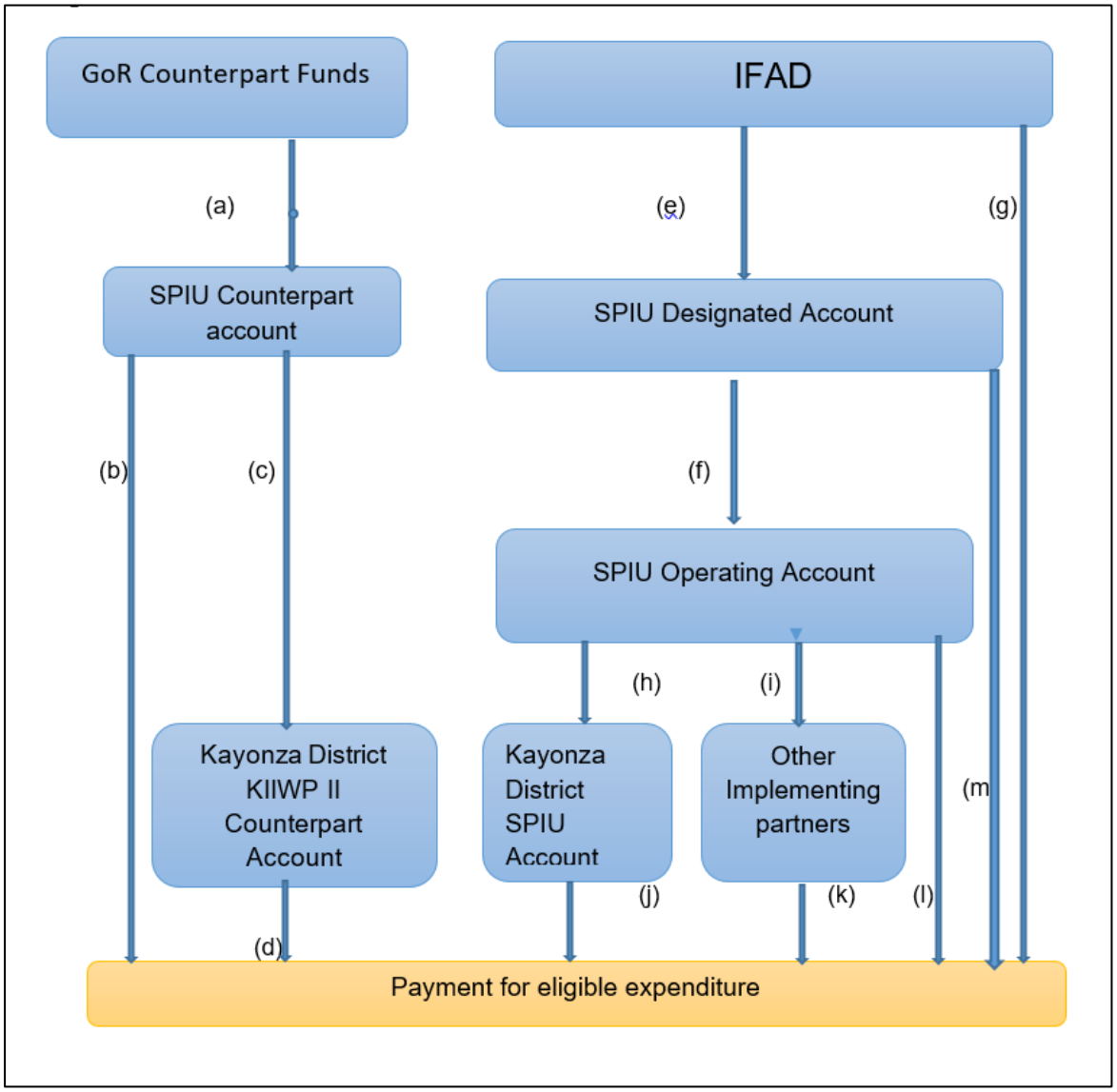
Disbursement arrangements and flow of funds

369. There will be three types of disbursement mechanisms for KIIWP II (i) Advance Withdrawal; (ii) Direct Payment; (iii) Reimbursement. Disbursements from IFAD will be made by way of an advance to the Designated Account and subsequent replenishments based on expenditure incurred as supported with Statement of Expenditure (SoEs). There will be one designated account that will receive funds from IFAD. The Designated account will have a corresponding dedicated project operational account in Rwanda Francs (RWF) managed by SPIU. Kayonza District will also have dedicated project operational account at the district level for receiving funds to facilitate activities to be carried out at the district. The project operations bank accounts both at the SPIU and district will be opened at the Reserve Bank of Rwanda and will be linked to IFMIS. Two separate Counterpart fund accounts will also be opened, one at SPIU level and the second at the district.

370. Once GoR and the Government of Spain have agreed on the financing modalities of the Spanish Trust Fund (STF), a separate designated account to receive the financing will be opened. There will be no need to open separate operating accounts in respect of the STF financing.

371. Below is a diagram illustrating the flow of funds from IFAD to various points of payments by the KIIWP II:

Figure 4 KIIWPII Funds flow chart



372. See key below for the payments points under the project.

a. Transfer of Government of Rwanda counterpart funds to a separate bank account that will be managed by SPIU.

b. Payments for eligible expenditure from counterpart funds bank account at SPIU level.

c. Transfer of counterpart funds from SPIU to Kayonza District.

d. Payment of eligible expenditure by Kayonza District from counterpart fund account held at the district.

e. Transfer of IFAD funds to KIIWP II US$ designated account managed by SPIU.

f. Transfer of IFAD funds to SPIU operational account in local currency for payments at SPIU level and transfers to Kayonza District and other Implementing Partners. This accounts will be held in a commercial bank.

g. Direct payment to suppliers/contractors/service providers or partners by IFAD. This will be on exceptional basis and for payments of more than USD 100,000 as will be guided in the letter to borrower.

h. Transfer of IFAD loan funds from the SPIU operating account to Kayonza District.

i. Transfer of IFAD loan funds from the SPIU operating account to other Implementing Agencies.

j. Payment of eligible expenditure by Kayonza District using IFAD loan funds.

k. Payment of eligible expenditure by other Implementing Partners that have received IFAD loan funds.

l. Payments for eligible expenditure denominated in RWF by the SPIU.

m. Payments of eligible expenditure for transactions entered into in USD by SPIU.

373. **GoR counterpart financing**. Counterpart contribution in the Rwanda portfolio has fallen short of target in all projects. Whereas counterpart funds have been adequate to meet the tax needs of the projects, there has been under reporting or under declaration of taxes where GoR non-tax paying agencies have implemented taxable activities. IFAD will demand commitment from GoR to provide cash contribution on a timely basis and to report promptly on any inkind contributions including taxes waived whenever government agencies are used to implement activities. There will be a separate bank account for counterpart funds both at SPIU and at the district, managed by SPIU and district project staff respectively, just like the project operational account.

374. **Withdrawal Applications** for Advance Withdrawal and Reimbursements may be submitted once ninety 90 days (quarterly basis) have lapsed from the submission of the previous withdrawal application. However, if the requested withdrawal amount is at least twenty per cent (20%) of the authorized allocation, a withdrawal application may be submitted even if ninety (90) days have not lapsed. This will be included in the letter to the borrower (LtB).

375. The Designated Account limit will be set at the total 18 months of AWPB. The DA limit may be reviewed and adjusted if there are increased payments as the project progresses. In that case SPIU would write to IFAD with the expected cash flow projections and the proposed adjusted ceiling for considerations. It is very important that projections are done accurately and on a timely basis as IFAD will require to include the project in disbursement plans.

Planning and budgeting

376. 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.

377. The project will be implemented based on approved Annual Work Plans and Budgets (AWPBs). The budgeting process will be done jointly among SPIU, Kayonza District and implementing partners using a bottom–up approach. The exercise will bring together Accountants, M&E Officers, Procurement Officers and component technical staff to ensure activities are realistic, 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.

378. 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, KIIWP I and the RDDP that has been rolled into IFMIS.

379. The SPIU led by the Head of Finance and Chief Accountant will coordinate the budget preparation processes with close coordination with project coordinator and the component heads. At Kayonza District, the activities to be carried out will also need to be included in their respective budget for approval by the District Council. Payments cannot be made if the budget provisions have not been made and approved by Parliament at RAB/MINAGRI level and by District Council at Kayonza District level.

380. As there will be timing differences between GoR and KIIWP II budget initiation and approval, there can be significant differences between the AWPB for which IFAD eventually issues a 'No Objection', and the budget that had been appropriated and approved in the printed estimates. The appropriated amounts is a block limit, from which implementing entities have a window in May/June at submission of AWPB, to provide the breakdowns for the AWPB signed–off by the Accounting Officer of the Ministry. SPIU will ensure the breakdowns included in the accounting system is in line with the AWPB for which IFAD has provided No-Objection and spending is in line with this.

381. The Head of Finance at SPIU will closely work with planning officers at RAB/MINAGRI and MINICOFIN to ensure the project is not affected by regular budget cuts which are usually based on estimated and actual revenue collections by the government. The mitigated risk under budgeting area is therefore considered substantial that require keen monitoring. While there are supplementary budget processes which ensure what may have been omitted is rectified, this takes time, and thus, it is critical to ensure there is adequate budget for the project at the start of the year. Over-budgeting also poses a risk of failure to absorb funds, which in turn leads to failure by the project to demonstrate capabilities to absorb funds. This may lead to reduction in allocations affecting implementation and eventual failure to absorb the total loan funds.

382. The authority to incur expenditure is the approval of the AWPB with expenditure incurred outside the approved AWPB declared ineligible for financing from the loan funds. The detailed cost tables in the PDR are indicative of the costs to be incurred over the project period and can be altered during the process of the AWPB.

383. Schedule 2 of the financing agreement will specify the disbursement categories of the project. As per the IFAD disbursement handbook, schedule 2 of the financing agreement can also be amended with reasonable justification submitted to IFAD by the GoR requesting reallocation of funds. It is however difficult to request for a reallocation of funds from investing activities to recurrent activities like operation costs and salaries.

384. AWPB shall indicate the financing sources (IFAD loan, STF loan, GoR, Private Sector and beneficiaries) for each activity, every item should be linked to a proper cost category and component/sub-component. This is important as, each funding source will Finance expenditure items as per the financing rule in the financing agreement which should be reflected in the AWP.

385. Payments to suppliers, contractors and service providers will be made will be made from IFAD at 100% net of taxes.

Accounting systems, policies and procedures

386. The accounting systems, policies, and procedures to be used by the KIIWPII will follow GoR systems. Rwanda IFAD portfolio is moving towards having all projects financial management done in IFMIS. This requires customization of IFMS to facilitate reporting that meets IFAD requirements of reporting by Component, Sub Component, Expenditure category and Financier. Previous projects have met the IFAD system by running a parallel software (TOMPRO) in addition to use of IFMIS, which has not been customized.

387. There has been delays in customization of IFMIS. This will potentially lead to manual accounting, where MS Excel will be used to disaggregate data generated in IFMIS as is currently set to meet IFAD reporting requirements. There is risk is data generation will not be timely, may be inaccurate, cumbersome and is prone to manipulation. To mitigate this risk, will implement TOMPRO accounting software pallarallel to IFMIS. The key financial reporting parameter for IFAD project is a financial system that will be able to i) extract SoE for withdrawal applications, ii) reporting expenditure per component and comparing budget vs actual for the same for the current year and cumulatively, iii) reporting expenditure per category and comparing budget vs actual for the same for the current year and cumulatively and iv) reporting of expenditure per financier.

388. The project expenditure initiation, authorization and payments will be in line with the Organic Law on State Finances and Property (No.12/2013/OL of 12/09/2013), as guided by Manual of Public Financial Management – Policies and Procedures. The CEO of RAB will be the Chief Budget Manager for KIIWPII, with delegated powers to SPIU. The authorized personnel will play the key role of sanctioning all withdrawals from the bank account under them as described above.

Financial reporting

389. The Head of Finance at SPIU will be responsible for all financial reporting for the project and will produce a consolidated financial statements for the project. The financial reporting will comply with International Public-Sector Accounting Standards (IPSAS). GoR is transitioning from IPSAS Cash to IPSAS Accrual, prior to full transition any departures or modifications from IPSAS will be disclosed in the financial statements.

390. On annual basis, the consolidated financial statements for the project will be audited by Office of the Auditor General and audited financial statements submitted to IFAD within six months after the period end in accordance with IFAD guidelines. IFAD will, in addition, to the annual audited financial statements require interim financial reports on a six-monthly interval. For management decision and control, detailed monthly and quarterly management accounts will be produced.

Statements of Expeditures (SOE)

391. SoEs will be prepared by the project for processing of Withdrawal application. The detailed guidelines and SoE templates has been elaborated under financial guidelines issued by IFAD which will be included in the Letter to the Borrower. The SPIU Accounts staff shall assist in the compilation of the expenditures from the implementing agencies including Kayonza District which upon meeting the IFAD threshold shall be submitted in form of Withdrawal Applications to IFAD, through the MINAGRI and MINOCOFIN. This activity shall be carried by the SPIU every quarter or if the withdrawal limits has been attained. Kayonza District will prepare the SoE on monthly basis and submit to SPIU.

392. The SPIU will prepare the consolidated SoEs which shall be used in the preparation of the Withdrawal Applications using the guideline below:

393. Every category should be typed on a separate summary sheet, which should be numbered sequentially, and details of categories e.g. civil works clearly marked on the section – description of category.

394. Reporting period on the summary sheet to be clearly indicated with the earliest paid voucher indicating the starting period and the latest end period e.g. 1st Nov 2020 to 31st Dec, 2020.

395. The rate of exchange will be the ruling rates when funds are transferred from the special account to project operational account and should be used when exchanging to the US Dollar equivalent. The rates will be applied on FIFO basis until the prior transfer is fully exhausted.

396. The IFAD forms used including the checklist and Designated Account (DA) Reconciliation shall be attached to form the Withdrawal Application. Other documentations for attachment shall include:

- Bank Reconciliation Statement for the last month of reporting.
- Cash book copy of the last reporting date showing the balances.
- Copy of the bank statement for the last reporting month.
- DA statement
- DA reconciliation statement
- SPIU bank account reconciliation statement
    - The summary sheets will be prepared according to categories and numbered sequentially.
    - The amount spent per component should be clearly indicated.
    - The summary sheets signed by the Project Coordinator and Head of Finance and to be signed by authorized representative from MINECOFIN.
    - Designated Account Reconciliation statement duly signed by the Head of Finance
    - Checklist withdrawal application duly signed by the Project Coordinator and Head of Finance.
    - Application for withdrawal to be duly signed by authorized representative.
    - All the above supporting documents together will be forwarded to MINAGRI for further processing before being forwarded to IFAD for replenishment.

Financial management organization and staffing

397. The project financial management arrangements follow the Government of Rwanda financial management arrangements in line with the Organic Law on State Finances and Property (No.12/2013/OL of 12/09/2013), as guided by Manual of Public Financial Management – Policies and Procedures. KIIWPII will have a dedicated Accountant at SPIU under the supervision of a Chief Accountant and the Head of Finance at SPIU. The Accountant shall be supported by another Accountant at Kayonza District, who will have dual reporting responsibility, to SPIU and the District Head of Finance.

398. The Project Accounting team duties and responsibilities shall include:

- Contributing to the preparation and update of the Financial Manuals.
- Ensuring the project's financial procedures as detailed in the Project Implementation and Financial Manuals and other guidelines that may be issued are strictly followed by all Project staff and implementing agencies at the national and district levels.
- Facilitating, as much as possible, the timely disbursement of project funds

- Compiling the Expenditure Returns for the SPIU, Kayonza District and other implementing agencies, for submission to MINECOFIN.
- Liaising with the implementing officers from the Project implementing agencies, including Kayonza District and the lead Project agency to ensure that SOE's are prepared in timely manner.
- Preparing periodic and statutory financial reports and advising the Project Coordinator on the Project's financial status and trends;
- Ensuring adherence to Government of Rwanda's financial practices and circulars as issued from time to time, to ensure only legible payments are made from the Project's funds.
- To carry out periodic backstopping visits to the implementing agencies, providing financial advice and recommendations where necessary.
- Facilitating and ensuring that external auditors are availed all necessary documents during the audit as detailed in the Financing Agreement, and making a follow up on audit recommendations.
- Ensuring that the financial transactions are well documented, filed and that the Project financial transactions are entered into the Government existing accounting systems.
- Any other duty (related to the Project's activities) as may be assigned by the Project Coordinator.

Internal controls

399. In order to effectively safeguard project resources, internal controls have been instituted at the SPIU in the whole framework of financial and administrative procedures. The identified controls range from; proper record keeping and posting, authorization of accounting, procurement and administrative documents, balancing and checking, physical security of assets, double signing (approval) arrangements, to financial reporting and monitoring. These are described in the Manual of Public Financial Management – Policies and Procedures. There will be internal audit function, as noted below, to check overall compliance to internal controls and provide support towards improving systems, procedures and processes. Controls are also in-built into the IFMIS, being cutomised by MINECOFIN for project financial management.

Internal audit

400. Internal audits will be conducted to provide assurance that the Project is being implemented in accordance with the PIM, complies with GoR regulations and is complying with Project financing covenants. The project will utilise the internal audit function at SPIU and Kayonza District to carry out internal audit.

401. The internal audit of KIIWPII will be included in the annual audit plan for the SPIU Internal Auditor who will carry out an audit of the project at least once in a year.

402. IFAD supervision and implementation support missions will consistently demand and review the rolling internal audit plans, internal audit reports produced and shared as per internal audit plans and implementations of internal audit recommendations and action plans.

403. Other key controls are summarised below:

Table 25. Key controls

	Other KIIWPII Key Controls
2. Fixed Assets	1. **Fixed Assets Register (FAR):** a) KIIWPII shall maintain a consolidated fixed Assets Register (FAR) which is a record of fixed assets for the project including assets held by SPIU and the IA; b) The KIIWPII register format includes details of assets-make, model, Specification, quality, rate, value, supplier, receipts, issues, balance, location, etc. It also has the date of receipt of the asset & the payment voucher reference; c) Each class of assets has a separate page in the FAR. d) Any alteration in the FAR must be dully authorized. e) It will reflect the book balance of a class of assets at any point of time. 2. **Fixed Assets Issue Register (FAIR)** a) While the FAR is maintained according to class of assets, the FAIR is maintained according to the staff member who holds the asset. There will be one folio for each staff member who has custody of an asset. b) It will record the date of issue & return of each asset. c) It will bear the signatures of the employee when s/he receives the asset. d) The register has to be periodically reconciled with the FAR. All issues in the FAR should be reflected in the FAIR. e) The register helps in locating assets at the time of physical inventory taking. 3. **KIIWPII will follow the following fixed Assets internal controls:** a) Tagging & labelling of assets- assets are labelled or tagged so that they can be easily identified & their ownership established. b) Insurance of assets- KIIWPII will insure all project assets. c) Physical inventory of assets at regular intervals. d) Log books for vehicles, the log book records the details of use vehicles & is usually maintained by the driver and checked by PA. It helps in identifying personal use of KIIWPII assets. It is also used for calculating fuel consumption appropriateness. e) KIIWPII vehicles are not available as Personal to holder. They should be packed after working hours and cannot be used for private use. f) Cross referencing of financial & fixed assets records- done to avoid payment to supplier before assets are recorded in the FAR. For internal controls purposes it is vital to reconcile the financial accounting records with assets records.
	4. **Physical verification of fixed assets.** a) Conducted by an inter departmental team (not only Accounts, include Procurement, M & E , etc) b) Should be undertaken under the supervision of external / internal auditors at least once a year. c) Surprise checks during audit/supervision visits. d) Meant to existence, condition & custody of assets. e) Physical balances compared with book balances f) Variances reported g) Variances have to be adjusted in financial records after due authorization. 5. **Physical Asset Inventory Form (PAIF)** a) This is the form used for recording the result of physical asset verification. b) PAIF records the asset code, book balance, physical balance, condition, variance & possible reasons for variance. c) Surplus & shortage are equally serious & need further investigation. d) Should be signed by all members of the verification team. e) Preferably, it should be counter signed by the auditors.
6. **Cash and Bank**	**a)** Bank reconciliations prepared by the 15th day after month end. **b)** Bank reconciliations are prepared within Project Accounting Software and not off the system. **c)** Prepared by the Accountant, checked by the Project Accountant and approved by the Project Coordinator/Coordinator with hard copies formally kept on file.
7. **Advances**	a) As described in the module, advances are not expensed they are to be monitored in Project Accounting Software in a control account for advance takers b) Advances are aged on a monthly basis and the aging report is provided to the PD on a monthly basis c) Advances are retired after expenditure justifications have been submitted, accepted and after the journal voucher has been formally approved.

	Other KIIWPII Key Controls
8. **Personnel Costs**	a) Formal payrolls are prepared by the Accountant, checked by Project Accountant and approved by Project Coordinator. b) In preparing the payroll care is taken to recover any outstanding advances c) The Project Coordinator should ensure salaries included in payroll are as per the employment contracts. d) Salary adjustments necessarily require IFAD's No Objection prior to being effective e) Payroll taxes are a responsibility of employees; these taxes are deducted from employee salaries and remitted to the Tax Authority by KIIWPII only acting on agency basis

External audit

404. External audits will be executed by the Auditor General who have been carrying out the external audit of IFAD projects implemented by the Government. Any changes in the Terms of Reference will require the Fund's No Objection. IFAD will require specific audit opinions: (a) general opinion on the financial statements, (b) opinion on the balances of funds held in the special account.

405. 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, KIIWPII external audits will be carried out by the Auditor General. KIIWPII 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.

406. Standard TOR for audit engagements as spelt out in the IFAD Handbook for auditing and financial management for projects shall be used. The prepared TORs are subject to IFAD clearance/No Objection.

407. Draft financial statement for audit to be shared with IFAD for clearance together with TOR no later than four months following the end of the financial year.

408. The Audited financial statements shall be sent to IFAD no later than 6 months after the end of the fiscal year. In addition to the audit report, the independent auditor will prepare a management letter. This will include comment and recommendations on the adequacy of the financial management system, and on the system of internal control. The management letter should also include a follow up section on the status of implementation of previous years' recommendations.

409. The detailed instruction regarding project audit are outlined in the IFAD guidelines for project audits available at http://www.ifad.org/pub/basic/index.htm

410. Nature of project eligible expenditures - Project expenditure categories have been allocated in accordance with the standard expenditure categories. Detailed cost tables are presented in this document. Transaction-based disbursement procedures will be used. The eligibility of expenditure should require:

a. The expenditure shall meet the reasonable cost of goods, works and services required for the Project and covered by the relevant AWPB and procured according to Rwandan procurement regulations to the extent that they are consistent with the IFAD Project Procurement Guidelines.

b. The expenditure shall be incurred during the project implementation period, except that expenditures to meet the costs of winding up the project that may be incurred after the project completion date and before the closing date

c. The expenditure shall be incurred by a project party

d. If the agreement allocates the amount of the financing to categories of eligible expenditures and specifies the percentages of such eligible expenditures to be financed, the expenditure must relate to a category whose allocation has not been depleted, and shall be eligible only up to the percentage applicable to such category.

e. The expenditure shall be otherwise eligible in accordance with the terms of the financing agreement

f. All payment vouchers will be examined to ascertain completeness and eligibility. The following checklist will be used:

KIIWPII Document checklist for eligibility of expenditure

9. Standard Goods	(Tick)
1. Complete Written Voucher, duly approved	
2. Confirmation by Procurement Specialist that the Procurement was properly done in accordance with Rwandan procurement regulations and IFAD Project Procurement Guidelines	
3. Attach Copies of relevant No Objections from IFAD, where applicable	
4. Attach Contract Monitoring form where applicable	
5. Availability of supporting documentation	
a) Contract	
b) Invoice	
c) Evidence of payment	
d) Bank guarantee, where applicable	
e) Delivery notes/reports (Make Cross Reference where bulky)	
6. Fund availability in	
a) Budget-Ensure Vote Book has been updated	
b) Category(ies)	
7. Accuracy of Computations/footings	
8. Reviewed optimality of the disbursement method?	
9. Banking instructions	
10. Correspondence bank	
11. Percentage of financing	

In-Country Workshops	(Tick)
1. Attendance sheets	
2. Attendance sheets should be reconciled to DSA paid	
3. Availability of supporting documentation	
a) Training report	
b) Hotel Receipts/ bills for meals and accommodation(should be reconciled to attendance sheets)	
4. Procurement record on how the venue was selected	
5. Justification for any fuel refunds and related support	
6. Fund availability in	
a) Budget-Ensure Vote Book has been updated	
b) Category(ies)	
7. Accuracy of Computations/footings	

Consultancies	(Tick)
1. Time sheets in comparison with the work done; 2. Attach Copies of relevant No Objections from IFAD, where applicable 3. An acceptable report	

Workshops- Abroad	(Tick)
1. Invitations and related IFAD's No Objection	
2. Availability of supporting documentation	
a) Boarding passes reconciled DSA days taken	
b) Back to Office Reports	
3. Fund availability in	
a) Budget-Ensure Vote Book has been updated	
b) Category(ies)	
4. Accuracy of Computations/footings	

4. Availability of supporting documentation a) Contract b) Invoice c) Evidence of payment d) Bank guarantee for advances 5. Fund availability in Budget- a) Ensure Vote Book has been updated b) Category(ies) 6. Accuracy of Computations/footings 7. Banking instructions Correspondence bank	

FM Supervision plan

411. Supervision. KIIWP II will be directly supervised by IFAD with annual implementation support missions, followed initially by shorter follow-up missions six months later as may be assessed. Supervision will not be conducted as a general inspection or evaluation, but rather as an opportunity to jointly assess achievements and lessons, and to reflect on ways to improve implementation; and impact. From a financial management perspective, IFAD missions will keenly follow up the fiduciary risk at various levels, including the use of the report-based disbursement, assess the changes in risk profile and propose mitigation measures.

III.4: PROCUREMENT

412. **Applicable procurement framework.** Procurement under KIIWP2 shall be carried out according to Rwandan procurement regulations to the extent that they are consistent with the IFAD Project Procurement Guidelines[54]. Rwandan procurement regulations include Law no. 62/2018 of 25/08/2018 governing public procurement[55] and the Ministerial Order no. 002/20/10/TC of 19/05/2020 establishing regulations on public procurement[56].

413. **Standard procurement documents and IFAD systems.** KIIWP2 will use the full package of standard procurement documents released by the Rwanda Public Procurement Authority57, which will be adapted to include mandatory references to IFAD policies such as the Revised IFAD Policy on Preventing Fraud and Corruption[58], the IFAD policy to preventing and responding to sexual harassment, sexual exploitation and abuse[59], the Anti-Money Laundering and Countering the Financing of Terrorism Policy[60] and IFAD's Social, Envornmental and Climate Assessment Procedures (SECAP)[61]. KIIWP2 will be set up on the No-Objection Tracking Utility System (NOTUS) and Contract Monitoring Tool (CMT) function of the IFAD Client Portal (ICP) from project start up, thus ensuring effective supervision and prior review of procurement processes by IFAD, as well as adequate contract monitoring within ROLL.

414. **Institutional arrangements.** Coordination and central procurement capacities will be focused in the Procurement Unit of the existing MINAGRI SPIU, which counts an

[54] Available here: https://www.ifad.org/en/web/guest/document-detail/asset/39501080
[55] Available here: https://rppa.gov.rw/index.php?id=609&L=%27%27%22%27%27%27A%3D0%27%27%27
[56] Available here: https://rppa.gov.rw/index.php?id=609&L=%27%27%22%27%27%27A%3D0%27%27%27
[57] Available here: https://rppa.gov.rw/index.php?id=613
[58] Available here: https://www.ifad.org/documents/38711624/40189366/fraud_e.pdf/ab42fc11-b213-49af-8df3-e70af2076650
[59] Available here: https://www.ifad.org/en/document-detail/asset/40738506
[60] Available here: https://www.ifad.org/en/document-detail/asset/41942012
[61] Available here: https://www.ifad.org/en/secap

experienced Head of Procurement in charge of the procurement function for all IFAD-funded projects implemented by the SPIU and a dedicated Procurement Specialist recruited under the first phase of KIIWP1, who will reprise his role as Procurement Specialist under KIIWP2. Capacity at SPIU level will be strengthened with the addition of a Procurement Assistant to support activities under KIIWP2 and the other IFAD-funded projects implemented by the SPIU. The Procurement Assistant will be competitively recruited from the market, based on the ToRs included in Annex 1 below and subject to IFAD's No-Objection.

415. The Kayonza District will be actively involved in procurement activities wherever possible. Specifically, selected procurements of goods with an estimated value of USD 40,000.00 to be delivered at district-level will be delegated to the District's Corporate Division, which includes two procurement officers, under the supervision of the SPIU. Procurement at district-level shall be carried out according to the Borrower's procurement regulations to the extent that they are consistent with the IFAD Project Procurement Guidelines. The District Tender Committee will be responsible for the advertisement of tenders and the approval of recommendations to award.

416. **Procurement planning.** The Procurement Specialist will participate to the preparation of the Annual Work Plan and Budget (AWPB), ensuring that the final document is realistic, reasonable and result-oriented. To help with smooth planning and implementation of the AWPB, the budget estimated shall be done after completion of market research particularly for procurement related activities. Thereafter, it is the Procurement Specialist's responsibility to draft a realistic and consolidated procurement plan that shall cover all the activities funded by KIIWP2, on the basis of the latest IFAD procurement plan template[62]. The procurement plan prepared for KIIWP2 shall be for a period of 18 months, with successive 12-months plans to be prepared for the following periods of implementation. The procurement plan shall be realistic and consistent with the AWPB, forming a part of it, and the Procurement Specialist shall submit it on NOTUS for IFAD's review and No-Objection at least 60 days prior to the beginning of the new financial year.

417. **Procurement process.** The Procurement Specialist will be responsible for managing the procurement process, under the supervision of the Head of Procurement and with the assistance of the Procurement Assistant, including the update of the procurement plan, the evaluation of bids, proposals and quotations, contract award and management.

418. **Public Tender Committee.** For evaluation of recommendations to award, KIIWP2 will use the Public Tender Committee already appointed by the Chief Finance Officer of RAB. Pursunt to article 5 of Ministerial Order no. 002/20/10/TC of 19/05/2020 establishing regulations on public procurement, a public tender committee is appointed for a term of 3 years, which may be renewed only once.

419. **Procurement methods and IFAD prior review thresholds.** Proposed methods of procurement for goods, works, consulting services and related non-consulting services, as well as the IFAD prior-review thresholds will be laid out in the Letter to the Borrower of KIIWP2, as may be amended from time to time.

420. The procurement section of this PIM has a dynamic nature. It will be reviewed and updated periodically based on lessons learned during implementation and on developments that may occur during the Project's life. Any changes/amendments to the procurement section will be made in order to improve the Project's efficiency and effectiveness and will be subject to IFAD's No-Objection.

[62] Available here: https://www.ifad.org/en/document-detail/asset/41917572

PART IV: ANNEXES

ANNEX 1: TORS OF SPIU STAFF

The following ToR are to complement the additional staff that KIIWP2 will add. Most of the other staff not shown here, will be recruited under KIIPW1, hence they will keep the same ToRs.

TERMS OF REFERENCE FOR THE KIIWP2 PROCUREMENT SPECIALIST

Position: KIIWP2 Procurement Specialist

Place of assignment: Kigali, Rwanda

Duties and reporting lines: Under the direct supervision and authority of the Head of Procurement Department of the SPIU, the Procurement Specialist will be in charge of all procurement processes carried out under KIIWP2, from the identification of the need to the completion of the contract, with the exception of those delegated to the Corporate Division of the District of Kayonza. The Procurement Specialist will also be responsible in guiding the Corporate Division of the District of Kayonza in the conduct of procurement activities delegated to the latter.

Tasks and responsibilities:

- Establish and regularly update a data base of technical specifications of goods to be acquired by the project and a data base on suppliers, service providers, contractors for tendering process;
- Prepare bidding documents and requests for proposals;
- Undertake publication formalities and/or send the bidding documents to prospective bidders;
- Attend any bid opening sessions and establish attendance and opening session reports in close collaboration with project parties and with project internal tender committee;
- Organize the panel of evaluation of bids or proposals;
- Attend the evaluation team of bids as non scoring member and assist with the elaboration of evaluation reports;
- Communicate with RPPA, PCU and IFAD through the Head of Procurement Unit for all problems pertaining to the procurement process;
- Organize the reception of goods and works delivered by the suppliers and contractors (Client's certificate of reception);
- Provide guidance to the Corporate Division of the District of Kayonza in the conduct of procurement activities delegated to the latter.
- Carry out any other assignment or relevant duties in the field of his/her competences as may be assigned by the PC and the Authorities.

Outputs:

- Effective and efficient procurement process of acquisition of goods services and works at the PCU level and respect of the basic principle of the best value for money.

- Pragmatic and systematic filing system of procurement documents at the PCU level;
- Province and districts positively assisted in their procurement process with clear and transparent evaluation reports to avoid the repetition of launching several similar tenders.
- Reception of goods and works in accordance with the technical specification and the bidding documents;
- Full satisfaction of participants in workshops, seminars, travels on the practical dispositions taken for their organization including payment of allowances and board and lodging conditions.

Competencies:

Functional Competencies

- Possess competencies in government procurement and office/contract management;
- Possess the ability to give sound advice on procurement issues that would impact on the project's financial and physical performance;
- Good communication and interpersonal skills required;
- Strong personal management and communication skills;
- Excellent knowledge of MS Office, internet use and procurement databases.

Corporate Competencies

- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Highest standards of integrity, discretion and loyalty.

Qualifications and experience:

Education

- Bachelor's Degree in Procurement/Supply Chain Management/Economics/Accounting/Finance or other relevant degree;
- Master's Degree in Procurement or any related field is an advantage;
- Professional qualification in procurement from an internationally recognised and accredited institution (i.e. CIPS) desired.

Experience

- At least 8 years of experience in project procurement funded by international organizations, preferably international development partners;
- At least 5 years' experience in effectively managing teams;
- Extensive knowledge of IFAD procedures is an advantage.

Language Requirements

- Fluency in written and spoken English;
- Demonstrated capacity to produce high quality technical reports.

Duration of the assignment: The duration of the assignment will be one year, renewable depending on satisfactory performance.

TERMS OF REFERENCE: SOCIAL INCLUSION, GENDER AND YOUTH SPECIALIST AT DISTRICT LEVEL

Under the authority of the Project Operations Manager, and in close collaboration with the SPIU Gender & Youth Specialist, the KIIWP Social Inclusion, Gender and Youth Project Specialist is responsible to coordinate and facilitate the implementation of the social inclusion, gender and youth related interventions defined by the Project at the district level. The Specialist will ensure the operationalization of social inclusion, gender and youth mainstreaming in the Project's investments and proper coordination of the related activities.

In reference to the cross-cutting issues, the Social Inclusion, Gender and Youth Specialist, shall perform the following functions:

- Overall coordinate all the social inclusion, gender, youth related activities of the Project at the district level; ensure that vulnerable households are included in all Project's activities, that women and men equally benefit from Project's interventions and that young people are adequately reached by the Project.

- Identify any capacity gap from Project's implementation partners or service providers that limit achievements of social inclusion, gender/ youth related objectives, and propose practical solutions to address the gap.

- Prepare contents for trainings on gender and youth related topics; revise existing training materials and ensure that the materials the Project develops are gender sensitive in their language and image, considering literacy level of target groups.

- Provide capacity building during trainings/workshops, preparation and follow up, particularly at the beginning of the Project and in relation to mobilization strategy, identification and selection of target groups.

- Organize specific separate sessions for women and youth during the mobilisation process and during the development of participatory sub-catchment plans, ensuring that the needs of women, youth and vulnerable categories are taken into account. Interacting with women in communities to gain better understanding of women's' and youth perceptions and guiding implementers in approaches to better integrating women and youth into project activities as well as having them in leadership positions.

- Organize women's leadership trainings and keep track of monitoring women in leadership positions.

- Reviewing (regularly) participation of women and youth in KIIWP activities and decision-making processes and making recommendation to improve processes.

- Review basic project implementation processes and outputs to provide feedback and suggestions when needed on how to achieve best possible project outcomes with respect to social inclusion, gender equity, women's empowerment, youth mainstreaming. The basic processes to which the specialist should provide inputs are: (i) Preparation of the Annual Work Plan and Budget; (ii) Design and implementation of project M&E system; (iii) Project Progress Reports; (iv) Project Supervision Reports.

- Review project plans and budgets to ensure that adequate attention is paid (and resources allocated) to support practical and strategic support to women, youth and vulnerable groups as in line with project design document and percentage of outreach by categories is respected.

- Work with the M&E Officer to ensure that the M&E, logframe is gender and youth sensitive and reflective of the real time situation. Address any gaps in the supervision reports for further follow up. Furthermore, work with M&E unit to ensure that lessons learned, and success stories of women and youth are fully captured and reflected in relevant reports sections (i.e. Knowledge Management).

- Work in close collaboration with SPIU Gender & Youth Specialist: revise the Gender and Youth Strategy of the Project; maintain close communication with pre-identified service providers (such as, Kilimo Trust, RYAF among others); ensure that GALS methodology is adequately delivered to the targeted groups. Maintain communication with the SPIU Nutrition Specialist on cross-cutting thematic areas.

- Ensure that the project implementation teams are sensitized to gender and diversity issues that they should expect and explore in their interaction with the community through regular trainings and sensitization programmes.

- Establish and maintain working relationships with the District authorities to build synergy in gender-sensitive interventions in Project activities and establish coordination mechanisms; ensure coordination and partnership with the Gender Officers or with other relevant stakeholders at the District level for the delivery of gender awareness trainings.

Expected outputs:

- Specific contents for gender-awareness training for Project staff and local service providers are outlined.
- Delivery of AWPB, Progress reports, project documentation related to gender issues and activities.
- Coordination mechanisms for the delivery of gender related activities are settled.

Minimum requirements:

At least a bachelor's degree in social sciences or related fields with expertise in gender issues. 3 years working experience. Having worked with an IFAD project is an advantage.

Languages:

Fluency in Kinyarwanda and English

TERMS OF REFERENCE FOR THE SPIU PROCUREMENT ASSISTANT

Position: SPIU Procurement Specialist

Place of assignment: Kigali, Rwanda

Duties and reporting lines: Under the direct supervision and authority of the Head of Procurement Department of the SPIU, the Procurement Assistant will assist in the day-to-day project procurement activities and support all procurement processes across IFAD-funded projects implemented by the SPIU.

Tasks and responsibilities:

- Support with the preparation and review of procurement plans in order to assess the need for updates/upgrades and ascertain their completeness, concurrence with the AWPB, and consistency with Rwandan procurement regulations and IFAD's Procurement Guidelines;
- Support with the preparation and review of procurement documents, processes and procedures for goods, works, consulting services, and related non-consulting services;
- Support with the preparation and review of the procurement, contracting and implementation processes and timeliness and appropriateness of procurement actions;
- Support with contract administration and management procedures;
- Support with systems in place for procurement planning, implementation and monitoring;
- Support with document filing and retention, as per required standards;
- Identify deficiencies and make recommendations for improvements and control mechanisms in the procurement procedures and processes;
- Submit assignment reports and any other relevant ancillary documents as required by the Head of Procurement Department of the SPIU;
- Carry out any other procurement-related duties as requested by the PC and Head of Procurement Department of the SPIU.

Outputs:

- Effective and efficient assistance provided to the Head of Procurement Department of the SPIU and to the other SPIU colleagues.

Competencies:

Functional Competencies

- Possess competencies in government procurement and office/contract management;
- Possess the ability to give sound advice on procurement issues that would impact on the project's financial and physical performance;
- Good communication and interpersonal skills required;
- Strong personal management and communication skills;
- Excellent knowledge of MS Office, internet use and procurement databases.

Corporate Competencies

- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Highest standards of integrity, discretion and loyalty.

Qualifications and experience:

Education

- Diploma in Procurement/Supply Chain Management/Economics/Accounting/Finance or other relevant degree;
- Bachelor Degree in Procurement or any related field is an advantage;
- Professional qualification in procurement from an internationally recognised and accredited institution (i.e. CIPS) desired.

Experience

- At least 2 years of experience in project procurement funded by international organizations, preferably international development partners;
- Extensive knowledge of IFAD procedures is an advantage.

Language Requirements

- Fluency in written and spoken English;
- Demonstrated capacity to produce high quality technical reports.

Duration of the assignment: The duration of the assignment will be one year, renewable depending on satisfactory performance.

TERMS OF REFERENCE FOR A GIS SPECIALIST SUPPORTING M&E

The GIS specialist will be part of the SPIU and will support the project's Monitoring and Evaluation (M&E) through the usage of Geographical Information Systems (GIS). The primary duties of the GIS specialist will include establishing procedures and standards to support the monitoring of project activities with GIS tools and measure the progress towards achieving its deliverables that are specified in the project's logical framework. He/She will analyse spatial data through mapping software and designing digital maps with geographic data and various other data sets. The expert will work in close collaboration with the M&E Specialist and the Knowledge Management and Communication Officer. The specific tasks include the following:

a) GIS data collection and usage manual. The GIS expert will develop a manual specifying what GIS data is to be collected, how it is collected and how it is used for planning and reporting. The GIS manual should specify how the usage of GIS will support the project's M&E system. It should cover:

- GIS software and hardware requirements of the project;
- Data layers to be collected;
- Data standards (rules by which data are described and recorded);
- Procedures specifying the steps how data is collected, quality checked, stored, analysed and used, as well as roles and responsibilities;
- Data management, analysis and visualization for project planning and reporting as well as external communication.

b) Implementation plan and budget. The expert will produce a detailed implementation plan for the application of GIS approaches in the M&E of the project including a budget for its implementation.

c) Support project M&E with GIS. The GIS Specialist will support M & E in collection of geospatial data relating to locations of agribusinesses, community-based organizations, catchment rehabilitation areas as well as infrastructure and areas being developed. The Specialist will also analyze the spatial data using a mapping software to produce maps showing the spatial distribution of various kinds of data. He/She will create "shape files" to merge topographical data with external data by layering external data over topographical maps and also support M & E in discovering patterns and trends through the spatially mapped data.

d) Assemble GIS data from third parties. The expert will supervise service providers engaged by the project to map project interventions, ensuring data quality checks on the collected GIS data.

e) Data management, analysis, visualization and reporting. The expert will manage GIS data, and produce analytical reports on geographical data utilising data visualisations and maps to support the M&E unit and management to plan for and monitor the implementation of project activities. The expert will also provide IFAD with geospatial datasets in accordance with corporate GIS procedures that follow standard requirements with regards to naming convention, attribute structure and records, and metadata. He/She will also manage a digital library of geographic maps in various file types and will liaise with the knowledge management officer for dissemination or such maps and other reports.

TERMS OF REFERENCE: 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.

TERMS OF REFERENCE FOR THE KIIWP2 AGRONOMIST AND FFS SPECIALIST

Duties and reporting lines: Under the direct supervision and authority of the Head of Procurement Department of the SPIU, the Agronomist Specialist will be in charge of the overall coordination of the activities related to crop production, mechanization and extension services carried out under KIIWP2. He/she will be in charge of the overall coordination of Sub-component A.3.

Tasks and responsibilities

- Contribution to research and development in particular in the review and correct application of adapted FFS modules, the CSA baseline conclusions and on the link between ongoing research centers in the area that could be implemented in the project;
- Active participation and inputs on the planning and contribution to the AWPB;
- Revision of all related technical documents produced by the project;
- Co- responsible for selection of technical related service providers;
- Attend supervision missions;
- Contribute to M&E data and various reports;
- Participate and coordinate FFS implementation and preparation as well as its technical soundness;
- Follow-up and coordination of the activities related to sustainable mechanization development in coordination and under constant collaboration with the mechanization expert and the experts at the MINIAGRI.
- Carry out any other assignment or relevant duties in the field of his/her competences as may be assigned by the SPIU coordinator and the Authorities.

Competencies:

Functional Competencies

- Possess competencies in government procurement and selection of service providers;
- Possess the ability to give sound advice on implementation activities and coordination;
- Possess good technical competencies in agronomy, extension services and in FFS;
- Good communication and interpersonal skills required;
- Strong personal management and communication skills;
- Excellent knowledge of MS Office, internet use and procurement databases.

Corporate Competencies

- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Highest standards of integrity, discretion and loyalty.

Qualifications and experience:

- A Bachelor or higher degree in agricultural agronomy or agricultural science;
- Extensive experience on agriculture, including knowledge on sustainable practices and mechanization;
- Proven skills in the management and coordination of agricultural/agronomic initiatives.
- Computer literacy is a prerequisite, as a very good command of spoken and written English
- Awareness and on crosscutting issues of gender, youth, and poverty targeting.

Language Requirements

- Fluency in written and spoken English;
- Demonstrated capacity to produce high quality technical reports.

Duration of the assignment: The duration of the assignment will be 2 years, renewable depending on satisfactory performance.

ANNEX 2: DRAFT TERMS OF REFERENCE FOR CONSULTANCY SERVICES TO CONDUCT A BASELINE SURVEY FOR NUTRITION INDICATORS IN KIIWP2

MINIMUM DIETARY DIVERSITY SCORE FOR WOMEN OF REPRODUCTIVE AGE (MDD-W)

Background. MDD-W captures daily diet diversity of women of reproductive age (15–49 years of age). It is a proxy indicator to judge adequacy of micronutrients (e.g. vitamins, minerals) consumption by women. It is also a proxy to gauge the adequacy of nutrition intake of the household members. MDD-W is expected to provide a broader picture of the household nutrient intake taking into consideration that women are more likely to be nutritionally vulnerable in most societies because of their disadvantaged position in relation to intrahousehold distribution of nutritious foods in the resource-poor settings which are the primary targets for IFAD financed operations.

Additionally, women and, in particular women of reproductive age (15-49 years), are more vulnerable due to their higher physiological demand of nutrients as compared to adult men. A consistent use of the same methodology over time to measure women's diet quality in the same population will allow assessment of impact of IFAD's investment of nutrition adequacy of the targeted household.

Objective of the study. The primary objective of the survey is to establish the baseline values of key indicators for nutrition indicators, in the frame of the implementation of KIIWP.

The specific objective of the baseline survey is to collect data to establish levels of all results indicators to enable tracking of implementation.

The Project intends to hire a consultant(s) to conduct this baseline. Specifically, the consultant(s) will assess the following indicators:

- **Output Indicator**: Number of persons provided with targeted support to improve their nutrition
- **Outcome Indicator**: Percentage of women, 15-49 years of age, who consume at least 5 out of 10 food groups (MDD-W)

Counting output indicator

This indicator refers to the number of people that have directly benefited from Project-supported activities designed to help improve nutrition either during the past 12 months (annual reporting) or since project start-up (cumulative reporting). Note that the nutrition-sensitive activities are not generic, but they are tailored to address context-based nutrition problems. Activities include people participating in nutrition-related trainings (nutrition education in Farmers Field Schools), infrastructure (e.g., access to drinking water and sanitation), technical assistance on the use of inputs and technologies intended to improve nutrition outcomes (e.g., bio-fortified or nutrient rich seed varieties, labor-saving implements/ technologies), socio-cultural-related issues impacting on nutrition outcomes such as Gender and Action Learning System (GALS) training. As nutrition education sessions are held in villages/communities with a group of people (from FFS), the total number of people participating in these sessions should be counted as people reached.

Measuring outcome indicator (MDD-W)

To evaluate the minimum dietary diversity of women of reproductive age, the methodology includes classification of food into 10 food groups and assessing whether women have consumed at least 5 groups out of 10 in a day. Women are asked what food they have eaten in the past 24 hours. The food list is then divided into groups.

The 10 food groups are (i) Grains, white roots and tubers, and plantains (ii) Pulses (beans, peas and lentils) (iii) Nuts and seeds (iv) Dairy (v) Meat, Poultry and fish (vi) Eggs (vii) Dark green leafy vegetables (viii) Other vitamin A rich fruits and vegetables (ix) Other vegetables (x) Other fruits. (See, Annex A for sample questionnaire).

If the women's diets include food items that can be categorized in a minimum of five food groups, then she is expected to have met the minimum requirement for micronutrient consumption. The amount of each food group; however, must be 15 g or more. Specific technique/methodology has been prescribed to administer the question to women, as outlined in the guideline on MDD-W[63].

The survey, data collection and analysis of this indicator is mandatory. Through a 24-hour open recall, the survey would assess the following:

- The percentage of women that had a dietary diversity above the MDD-W cut-off (5 or more), as well as the percentage of women that had consumed food items in every standard food group.
- Women's consumption of nutrient-dense foods, which may have implications on micronutrient adequacies and health outcomes.
- Source of food if from own production or from markets.

Multipliers

- Women (percentage) (Mandatory)
- Women (number) (Mandatory)
- Households (percentage) (Mandatory)
- Households (number) (Mandatory)
- Women-headed households
- Non-women-headed households
- Household members (number) (Mandatory)

Specific Tasks of the consultant(s)

The key tasks of the consultant(s) will include:

Task 1: Obtaining necessary clearance for the survey

- Adhere to local formalities and obtain any required clearance related to conduct the survey, including acquiring all permissions necessary for conducting the survey and relevant permissions from national and/or local authorities as needed.

Task 2: Sample selection

- An appropriate sample and size based on an appropriate design should be generated.
- Sampling to consider only geographical/beneficiaries targeted for support.

Task 3: Development of questionnaires

- Questionnaires drafted in accordance with the indicator variables of the logical framework;
- Adapt the questionnaire to the local food cultures, local names of foods consumed, social and cultural context;
- The questionnaires are translated into Kinyarwanda and programmed for electronic data collection (as relevant);
- The questionnaires will be pre-tested during the inception phase, on at least 10 respondents. Pilot test the questionnaires under real local conditions. Monitor time per module for estimation of average time per questionnaire, and any programming challenges.

[63] FAO and FHI 360. 2016. Minimum Dietary Diversity for Women: A Guide for Measurement. Rome: FAO Available at: http://www.fao.org/3/a-i5486e.pdf

Task 4: Detailed Field Procedure Plan

The Field Procedure Plan should detail the following:

- Protocols for ensuring full adherence to the sample frame and high-quality data, including rules for household re-visits and substitutions;
- Travel and lodging logistics;
- Management information/reporting tools to track household interviews;
- Necessary protocols to ensure selected households can participate in a follow-up survey as part of the requirements for the construction of a household panel dataset;
- Supervision and spot check plans to ensure adherence to data collection protocols and confirm quality of data collection including 5% re-visits to a random sample of the evaluation sample to confirm the validity of the data;
- The Field Procedure Plan should be reviewed together with the KIIWP, prior to commencement of the field exercise;
- The Consultant(s) must adhere closely to the plan as conditions allow during survey implementation.

Task 5: Recruiting, training, and contracting of experienced field staff

- Recruit enumerators with experience in conducting household/Dietary/KAP surveys, and familiarity with tablets and electronic data collection and geo-tagging;
- Train all enumerators, supervisors, and data manager on the administration of the questionnaires;
- The training should also serve as a screening process for skilled interviewers and data entry agents; Consequently, the consultant(s) must recruit more interviewers for the training than will be ultimately needed to cater for those who drop out. The training should include theoretical training, classroom and field practice and final evaluation of the enumerators.

Task 6: Data collection

- Develop appropriate tools and instruments for gathering information, including Data collection by Computer Assisted Personal Interviewing, or any appropriate software;
- Develop a monitoring system to track questionnaires completed and replacements;
- Provide weekly reports to the client detailing number of interviews completed, plots mapped, challenges faced, modifications made to the Field Procedure Plan, and any other notable occurrences;
- The KIIWP/ SPIU M&E officer (or other staff assigned) will work closely with the consultant(s) to ensure data quality;
- Correct all inconsistencies and problems identified by the client in data quality checks, which may require re-visiting households (the list of data quality checks will be shared in advance of the start of data collection);
- Provide a final Field Report, submitted at the end of the data collection period, summarizing the weekly progress reports and detailing the overall response rate.
- Present the final results to key the KIIWP and SPIU.

Task 7: Reporting

Following the data collection, cleaning and analysis by the consultant(s), the reporting shall follow:

- Draft Baseline survey report. The report should include, but not limited to, the Background of the consultancy, Executive summary including recommendations; Table of contents; Project Goals; baseline survey objectives; ; Methodology: scope and coverage; survey design and sample size; organization; quality control; data processing and management; level of reliability of the estimates of the indicators being evaluated; Main findings (aligned to the Results Framework); Conclusions and recommendations; Appendices to include TOR; Bibliography; etc. The draft report will be presented to KIIWP and to the SPIU.

- Final Baseline report incorporating comments and suggestions from the Project, and relevant SPIU staff. The report structure shall remain as in the draft. The report will be presented to SPIU.
- Raw data sets of all data collected (in EXCEL or STATA) and captured, including pictures taken in the course of the consultancy.

Experience, staffing & qualifications

The selected Consultant(s) should possess the following:

- Legal status recognized by the Government enabling it to undertake a household survey;
- Demonstrated prior experience, with references, in household baseline surveys (Dietary) – knowledge of local formalities and customs in conducting household surveys;
- Demonstrated capacity for implementing electronic data collection;
- Capacity in data management; strong knowledge of the relevant applications, the relevant programming language;
- Core team of a Lead Consultant with a minimum of a Master qualification with evidence of experience in Statistics, Social Sciences, food security and nutrition, with experience in Research, Monitoring and Evaluation, of not less than 10 years. The team should also include, at a minimum, a Statistician, Food security and nutrition expert, a Survey Specialist or a Sociologist, all with at least 5 years' experience.

ANNEX 3: IFAD PROCUMENET RISK MATRIX

	Risk Rating System	
3	L : Low Risk	L
2	M : Medium Risk	
1	H : High Risk	

IFAD Procurement Risk Matrix						
	Division	ESA				
	Country	RWANDA				
	Project	Kayonza Irrigation and Integrated Watershed Management Project (KIIWP) - Phases I and II				
	Date	09-Feb-21			NET RISK RATING	
	INHERENT RISK RATING	2.91				2.96
#	Description of Risk Feature	Rating	Assessment Basis	Remarks	Recommendation /Mitigation	Rating
A	COUNTRY RISK ASSESSMENT	2.90				3.00
1	Legal and Regulatory Framework	3.00				3.00
a	Country procurement law, regulations and manual exist	3	3 they all exist, 2 only two exist, 1 only one exist or none	Governed by Law no. 62/2018 governing public procurement, Ministerial Order no. 002/20/10/TC of 19/05/2020 establishing Regulations on Public Procurement, Standard Bidding Documents and Standard Contracts. In November 2010, the Ministry of Finance and Economic Planning also released a Public Procurement User Guide. Training modules on public procurement (Introductory and intermediate level) are all available on RPPA website.		3
b	Existence of Standard Bidding Documents for Goods, Works and Services	3	3 all exist, 2 only for NCB & ICB, none for Shopping, 1 none exists	All available in French and accessible on RPPA's website and all seen to be World Bank standard. Only bidding documents for NCB/ICB are available in English. The SPIU uses a complete set of SPDs for all IFAD-funded projects. The SPDs were found to be compliant with IFAD's requirements and policies.		3
c	Procurement Monitoring	3	Use PEFA Framework, see worksheet for details	This dimension has been rated 'A' by PEFA. Procurement data maintained by RPPA was seen to be comprehensive, and published annually. Such monitoring data is accessible on the RPPA website (http://www.rppa.gov.rw), including audits of procuring entitites.		3
d	Procurement Methods	3	Use PEFA Framework, see worksheet for details	This dimension has been rated 'A' by PEFA, Procurement methods were observed to be followed according to the law.		3
e	Public access to procurement information	3	Use PEFA Framework, see worksheet for details	In its 2016 assessment, PEFA found that procurement entities were not fully complying with this dimension. Only 3 of the 6 criteria were met, while sufficient information on contract awards, resolution of procurement complaints and annual procurement statistics were missing. However, the recent introduction of Rwanda's online e-procurement system (UMUCYO, accessible here: umucyo.gov.rw) has increased public access to contract awards, also allowing the 2018-2019 RPPA Annual Activity report to include complete annual procurement statistics. Furthermore, the RPPA website now also includes data on resolution of procurement complaints. IFAD-funded projects are already registered on the UMUCYO. For IFAD-funded projects, the e-procurement system is used both at SPIU and District-level.		3
2	Accountability and Transparency	2.80				3.00
a	Procurement Complaints Management	3	Use PEFA Framework, see worksheet for details	KIIWP practices meet all legal requirements, including the six criteria. A national independent review panel (IRP) is appointed by an Order of the Minister in charge of public procurement and sits at RPPA. The IRP has the power to receive appeals on public procurement at the national level, based on the dissatisfaction of complainants with decisions of a procuring entity, from the publication of the tender to contract signature.		3
b	Country Corruption Perception Index score	2	The score is published on Transparency.org. 0 to 29 = 1, 30 to 60 = 2, 61 to 100 = 3	Overall inherent risk rating bracket of medium risk. In 2019, Rwanda ranked 51st in the world with a score of 53.	All procurement entities, as well as bidders, suppliers, contractors, consultants and service providers, shall observe the highest standard of ethics during the procurement and execution of contracts financed under IFAD funded Projects, in accordance with paragraph 69 of the IFAD Project Procurement Guidelines. The Revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations shall apply to all projects, vendors and third parties, in addition to the relevant national anticorruption and fraud laws.	3
c	2-tiered system to handle complaints	3	3 as stated, 2 only a single level system, 1 no system	The normal order of appeal is: first to the Procuring Entity and, if not resolved, then to the Independent Review Panel of RPPA.		3
d	Existence of a debarment system	3	3 full existence, 2 existence of complaints body that is the authority, 1 does not exist	Any criminal act will result in the bidding company being subject to criminal prosecution as well as debarment by RPPA in accordance with the Rwandan law. A list of blacklisted companies is published on the RPPA website.		3
e	Existence of an independent and competent local authority responsible for investigating corruption allegations	3	3 existence of independent Anti-Corruption agency, 2 existence of an office within a government ministry/agency that carries out some/all of these functions, 1 does not exist	The Office of the Ombudsman is an independent public institution, which was established in 2003 under Article 182 of the Constitution of the Republic of Rwanda. Its organization and functions were established by Law no. 25/2003 of 15 August 2003, which was modified and complemented by Law no. 17/2005 of 18 August 2005. It became operational in 2004. Apart from investigating cases of injustice in public administration and private institutions, the Ombudsman has the additional task of preventing and combating corruption and other related offences. As result, the Office of the Ombudsman serves as both an ombudsman and an anti-corruption authority.		3

B	**PROJECT INSTITUTIONAL RISK ASSESSMENT**	**2.92**				**2.93**
1	**Capability in Public Procurement**	**3.00**				**3.00**
a	Existence of a Procurement Unit with at least 2 staff members (Design stage, reference is to govt agency) Existence of a Procurement Officer (Implementation)	3	3 as stated, 2 one staff member, 1 does not exist (at Design stage) 3 as stated, 2 someone else doing Procurement, 1 procurement function not consistently handled by anyone	There is a head of procurement unit with a separate procurement officer attached to every project. KIIWP has a dedicated procurement officer. The procurement unit at the District of Kayonza counts two procurement officers.		3
b	Staff member(s) have at least 7 years experience in donor-funded public procurement	3	3 as stated, 2 for less than 7 years and/or experience in public procurement but not donor-funded, 1 for less than 3 years experience	Head of procurement - 13 years of experience, KIIWP procurement officer - more than 10 years of experience. District procurement officers have also more than 7 years of experience.		3
c	What is the general quality of documents produced by the procurement office?	3	3 for very good bidding documents, evaluation reports and contracts, 2 for mediocre documents, 1 for documents with bad quality	The general quality of documents produced by the procurement office was judged to be adequate.		3
d	Do procurement staff have immediate access to the legal and regulatory framework documents?	3	3 for all, 2 for some, 1 for none	The legal and regulatory framework documents are all available on the RPPA website. The procurement staff is well acquainted with the newest developments in the legal and regulatory procurement framework.		3
e	Are the procurement and financial management functions separated?	3	3 for total separation, 2 for some separation, 1 for procurement being done by FM staff	There is total separation between the procurement and financial management functions, both at SPIU and at District level.		3
2	**Public Procurement Processes**	**2.83**				**2.86**
i	**Procurement Methods**	**2.50**				**2.50**
a	Procurement methods for Goods consistent with IFAD Guidelines	2	3 as stated, 2 for national or international, 1 for none	The procurement methods for goods are generally consistent with IFAD's Project Procurement Guidelines, except for the application of domestic preferences to NCBs and the lack of mandatory references to IFAD's policies (the Revised IFAD Policy on Preventing Fraud and Corruption, the IFAD policy to preventing and responding to sexual harassment, sexual exploitation and abuse and the Anti-Money Laundering and Countering the Financing of Terrorism Policy) in the bidding documents used for NCB. Additionally, procurements of goods and related non-consulting services are delayed by the use of open tendering for low-value procurements. This is due to the SPIU following national procurement thresholds mandated by the RPPA instead of those listed in the LtB. According to the national thresholds, any procurement activity whose value exceeds RWF 3,000,000.00 (equal to, approximately, USD 3,000.00) is to be carried out via open competitive bidding.	The KIIWP Team was reminded that, according to the IFAD Project Procurement Guidelines, domestic preferences are only allowed for ICBs and that bidding documents shall always contain a mandatory reference to IFAD's policies. IFAD will ensure that procurement processes fully comply with its Project Procurement Guidelines by reviewing procurement documents on a prior and post review basis. Following consultations with both the SPIU and the RPPA, on November 19th, 2020, IFAD sent a letter to the Rwandan Ministry of Finance, requesting an increase in procurement thresholds to be applied to IFAD-funded projects implemented by the SPIU. As of the time of the KIIWP2 design mission (January 2021), no response was received by IFAD. It is recommended for IFAD to keep following up until feedback is received from the Rwandan Ministry of Finance.	2
b	Procurement methods for Works consistent with IFAD Guidelines	2	3 as stated, 2 for national or international, 1 for none	The procurement methods for works are generally consistent with IFAD's Project Procurement Guidelines. However, procurements of works and related-non consulting services are delayed by the use of open tendering for low-value procurements. This is due to the SPIU following national procurement thresholds mandated by the RPPA instead of those listed in the LtB. According to the national thresholds, any procurement activity whose value exceeds RWF 3,000,000.00 (equal to, approximately, USD 3,000.00) is to be carried out via open competitive bidding.	Following consultantions with both the SPIU and the RPPA, on November 19th, 2020, IFAD sent a letter to the Rwandan Ministry of Finance, requesting an increase in procurement thresholds to be applied to IFAD-funded projects implemented by the SPIU. As of the time of the KIIWP2 design mission (January 2021), no response was received by IFAD. It is recommended for IFAD to keep following up until feedback is received from the Rwandan Ministry of Finance.	2
c	Procurement methods for Services consistent with IFAD Guidelines	3	3 for large-value method for firms, small value method for firms and method for individual consultants; 2 for two of the above; 1 for only one or less	The procurement methods for consultancies are generally consistent with IFAD's Project Procurement Guidelines.		3
d	Easy access to bidding documents by foreign firms	3	3 bidding documents are free and could be issued/sent electronically; 2 foreign bidders have to wire funds to Project to buy bidding docs; 1 bidding docs not practically available to foreign bidders	Foreign firms can easily access bidding documents on the e-procurement system.		3
ii	**Procurement Planning**	**3.00**				**3.00**
a	Are procurement plans prepared ahead of time and consistent with annual work plans/budgets?	3	3 prepared ahead and consistent, 2 one of either, 1 none	For KIIWP1, the 2020/2021 procurement plan was submitted before the beginning of the financial year. Minor discrepancies between the procurement plan and the corresponding AWPB were found by IFAD and promptly addressed by the SPIU.		3
b	Do procurement people participate in the annual work planning processes?	3	3 if required by regulation and practised, 2 if required by regulation, 1 if none of above	Yes, the head of the procurement department and the procurement officer attached to that particular project participate. They are in charge of preparing the procument plan.		3
c	Are Procurement Plans done using an effective format with planned and actual rows across 3 different categories	3	3 for all, 2 for some, 1 for none	The SPIU recently adopted IFAD's most recent procurement plan template.		3

PEFA Framework Procedure:

1. Open www.pefa.org
2. Scroll down and search by country
3. Choose whole country, not regions within a country
4. Choose latest report. Download entire report
5. Examine Pillar PI-19 or PI-24 (depending on Framework used) to see assessment
6. Summary information from section of report should be in Remarks of the Matrix
7. Score as follows:

PEFA	IFAD Matrix
A	3
B	3
C	2
D	1

iii	**Procurement Processes**	**3**				**3**
a	Minimum number of quotations established by law	3	3 for three or more; 2 for two, 1 if it does not state or less than two	A minimum of 3 quotations is established by law.		3
b	Minimum number of days for advertised procurement under competitive bidding processes	3	3 for minimum of 30 days; 2 for minimum of 20 days; 1 for less than 20 days or not stated	45 calendar days for ICB, NCB 30 calendar days,shopping 3 working days.		3
c	Is there enough time provided for bidders to ask questions and receive answers in the bidding process?	3	3 if bidders have a minimum of 3 days for the RFQ method and 7 days for competitive methods to ask questions, 2 if less than 3 days for RFQ and less than 7 but more than 4 days for competitive methods, 1 if not mentioned in RFQ and less than 4 days for competitive procurements	21 days for international tender, 15 days for NCB, and 4 days for shopping.		3
d	Are clarifications provided to all bidders?	3	3 for all, 2 for some, 1 for none	Clarifications are provided to all bidders.		3
e	Are bids received prior to the deadline securely stored?	3	3 for all, 2 for some, 1 for none	In the e-procurement system, bid submission closes automatically at the deadline. Bids are securely stored electronically.		3
f	Are procurement securities securely stored?	3	3 for all, 2 for some, 1 for none	Original procurement securities are kept under lock and key.		3
g	Are public bid openings conducted for advertised procurements, and within an hour of receipt of bids?	3	3 for both, 2 for bid openings being conducted more than an hour after receipt, 1 for bid openings not being conducted	Bid openings are conducted publicly via the e-procurement system.		3
h	Are minutes of bid openings taken, and sent to bidders who submitted bids?	3	3 for both, 2 for minutes being taken but not being sent, 1 for none	The e-procurement system displays the opening bid report to every bidder through the e-procurement portal immediately after bid opening.		3
i	Are evaluations conducted by a suitably qualified ad-hoc evaluation committee?	2	3 for both, 2 for qualified but not ad-hoc, 1 for ad-hoc or none	The tender evaluation committee is suitably qualified but it is not ad-hoc. Bid evaluation is conducted by 5 persons; i.e chairperson (gender specialist), vice chairperson (environmental specialist), secretary (procurement officer for the project) and 2 members (M&E specialist & livestock officer). Mandate for the evaluation committee is for three years, but cannot exceed two mandates. The committee is selected by the Chief Finance Officer of RAB. This is consistent with article 5 of Ministerial Order no. 002/20/10/TC of 19/05/2020 establishing Regulations on Public Procurement, which establishes that the Chief Budget Manager of every procuring entity must appoint a public tender committee for a term of 3 years, which may be renewed only once.	IFAD can strongly encourage government through policy dialogue to nominate ad-hoc tender evaluation committees, and it is recommended that it do so through the COSOP consultations with the government.	2
j	In evaluation, is responsiveness based on criteria requirements in the bidding documents?	3	3 for all, 2 for some, 1 for none	Responsiveness criteria are specifically stated in the bidding documents.		3
k	Are evaluations completed within the bid validity period?	3	3 for all, 2 for some, 1 for none	The bid validity period is no more than 120 days. Evaluation should be within 21 days from the date of opening of bids except when there are sound reasons raised by the procuring entity, as prescribed by the procurement regulations. No issues of bid validity period being exceeded was recorded.		3
l	Are conditions precedent to contract effectiveness clearly stipulated in the contract? (i.e., advance payment security, performance security, insurance, etc)	3	3 for all, 2 for some, 1 for none	All conditions precedent to contract effectiveness are clearly stipulated for standard contracts for goods, works or services published on RPPA website.		3
m	Does the agency maintain a complete record of the process? This would include copies of all public advertisements, pre-qualification documents (if used, the pre-qualification evaluation report documenting any decisions not to pre-qualify certain potential bidders), the bidding documents and any addenda, a record of any pre-bid meetings, the bid opening minutes, the final bid evaluation report (including a detailed record of the reasons used to accept or reject each bid), appeals against procedures or award recommendations, a signed copy of the final contract and any performance and advance payment securities issued, etc.	3	3 for all, 2 for some, 1 for none	yes - each tender is filed in a separate box file.		3
n	Are all contracts awarded advertised publicly?	3	3 for all, 2 for some, 1 for none	All signed contracts are advertised publicly on the e-procurement system.		3
iv	**Contract Administration and Management**	**2.91**				**3.00**
a	Existence of authority levels in the contract management process	3	3 for existence, 2 for some practice, 1 for none	Done by end user department in coordination with the procurement department. In 2020, the SPIU has adopted specific contract monitoring forms for each signed contract, which are kept by the responsible contract monitoring officer. All contract documents are kept by the procurement department.		3
b	Existence of approval thresholds for contract amendments	2	3 for existence, 2 for some practice, 1 for none	Contract amendments are approved internally by the SPIU, regardless of their value. The specialist in charge makes a request for amendment to SPIU coordinator that submits it to the evaluation committee for approval.	Pursuant to the IFAD Procurement Handbook, IFAD's No-Objection will be required for all prior-review contracts where the amendment increases the original contract value by more than 10 per cent or extends the original contract duration by 25 per cent or more.	3
c	Is there an effective contract monitoring system/framework in place?	3	3 for all, 2 for some, 1 for none	A contract monitoring form is kept and updated by accounts department. Procurement files include relevant information concerning the execution of the contract.		3
d	Is there a process to monitor delivery of goods to verify quantity and quality?	3	3 for all, 2 for some, 1 for none	There is a reception committee - logistics/procurement/end-user		3
e	Is there a framework for approval of deliverables and payment process for consulting services contract?	3	3 for all, 2 for some, 1 for none	Inception/draft/final reports have to be validated, and later a progress report approved by the end-user department.		3
f	Is there a process for resolution of final payment and contract closure?	3	3 for all, 2 for some, 1 for none	The Coordinator and Program Manager appoint a final report validation committee, which determines if the contract has been executed as per the contractual provisions before closure and final payment.		3
g	Are contract disputes handled in accordance with a formal complaints/arbitration system?	3	3 for all, 2 for some, 1 for none	The normal order of appeal is: first to the Procuring Entity and, if not resolved, then to the Independent Review Panel of RPPA.		3
h	Are works contracts supervised by independent engineers or a named project manager?	3	3 for all, 2 for some, 1 for none	Independent supervision companies are employed for some civil works. Other activities are supervised directly by competent SPIU staff.		3
i	Are contracts completed on schedule and within the approved/ contracted contract price?	3	3 for all, 2 for some, 1 for none	The sample of reviewed procurement activities showed that contracts are completed on schedule and within the approved/contracted contract price.		3
j	Does the organization have contract registers that register all contracts (with names, prices and dates), per procurement category?	3	3 for all, 2 for some, 1 for none	KIIWP1 is already registered on the Contract Monitoring Tool (CMT) of the IFAD Client Portal. KIIWP1 staff maintains the information on the CMT updated.		3
k	Are adequate contract administration records maintained? (These would include contractual notices issued by the supplier, contractor, purchaser or employer; a detailed record of all changes or variation orders issued affecting the scope, qualities, timing or price of the contract; records of invoices and payments, progress reports, certificates of inspection, acceptance and completion; records of claim and dispute and their outcomes; etc.)	3	3 for all, 2 for some, 1 for none	Contractual notices, records of invoices and payments, progress reports and an updated CMF are kept on file. CHECK WITH CONTRACTS.		3

ANNEX 4: AGRICULTURAL INSURANCE

1. The mission was supported by the Sida-financed INSURED programme to finance the participation of an agricultural insurance expert (Emily Coleman). The mission is thankful to the inputs and advice received from the Single Project Implementation Unit (SPIU) for the IFAD-funded projects on agricultural insurance. In addition, the findings and recommendations on insurance were informed by meetings with financial and insurance institutions, including several SACCOs and MFIs, SACCO Refinance Unit of BDF, National Agriculture Insurance Scheme (NAIS), Access to Finance Rwanda (AFR), ACRE Africa Rwanda, Risk Shield Ltd., PRIME, Radiant, UAP Insurance Rwanda, the World Bank, WFP, IFC, One Acre Fund, and Africa Improved Foods (AIF). [64]

2. Agricultural insurance is part of GoR's strategy to de-risk and build the resilience of the agricultural sector, for livestock, and for crops - both rainfed and irrigated. A pilot phase of the National Agriculture Insurance Scheme (NAIS) was launched on 23rd April 2019 and is due to end in March 2021. After which NAIS will be continued and has already received Government commitment as such. The pilot began in Nyanza District, but the NAIS is currently operating in all 30 Districts of the country. In the context of KIIWP and KIIWP2, support to NAIS is one important element alongside other project activities to i. Increase food security and protect livelihoods and ii. Increase productivity and access to finance for productive inputs and technology.

3. NAIS is under oversight of a team at MINAGRI, but includes inter-ministerial coordination. Up until end of 2020, NAIS was receiving technical support services under a Memorandum of Understanding with and financial support from Access to Finance Rwanda. The NAIS team and the AFR-hired technical service providers assume some responsibilities such as research, product design, some farmer education. AFR have commissioned an assessment of the pilot support to NAIS which is estimated to be available in March 2021.

4. Three insurance companies, Radiant, PRIME, and SONARWA, who won the right to offer the subsidized product following a tender for the pilot scheme, are responsible for underwriting the product and carrying the risk. They also assume responsibilities to varying degrees on scheme operation, such as: mobilization and education of farmers; loss assessment; and new product design in some cases. At the end of the pilot phase in March, the tender will be reopened to insurers wishing to participate. The design mission met with an insurer who is not currently eligible to offer NAIS products but aims to apply to the new tender. Whilst it is possible not all previous insurers will continue due to some of the challenges faced.

5. NAIS covers both livestock and crops under its scheme. The premium (or sum insured) covers the 'investment cost' of farmers, or the cost of inputs. For crops, the total insurance cost per hectare/sum insured varies between 7.08% and 8.25% of the input cost per season depending on the commodity. GoR subsidizes 40% of the cost of the premium, whilst the remaining 60% is expected to be paid by the farmer – no matter the wealth category – as there is currently no targeting or variation in premium subsidies. In terms of products and value chains covered, for crops, NAIS started with maize and rice and now has products for French beans, chili, and Irish potato. There are plans to add other crops: banana, cassava, beans and soya beans - in season B 2020/21. Other commodities may be added depending on demand and government priorities. Under livestock insurance, coverage for dairy cows has been active, with poultry and piggery insurance being added. Insurers spoken to in the mission reported high claims ratios from season data available in 2020, reaching over 100% and in some cases 150%. For crops, it is understood floods were a particular issue in Season A 2020, and as such, there is reluctance to insure non-irrigated farmers in marshlands in the future. For livestock, a key cause of high losses was reported to be the prevalence of tic-borne diseases and lack of vaccinations. These high losses indicated there are other measures that need to be in place as well as insurance to reduce losses, and also for insurance to function and be sustainable. Such measures in KIIWP will include irrigation; land husbandry;

[64] Meeting notes, contacts, and documents can be made available on request

input provision; farmer field schools to train on farm management including pest and disease management, farmer record keeping; and weather and climate information services which is already in development under KIIWP.

Table 26. NAIS products: cost of crop insurance premiums

#	PRODUCTS	INVESTMENT COST (SUM INSURED/HA)	PREMIUM RATE (%)	TOTAL PREMIUM	FARMER CONTRIBUTION (60%)	GOVERNMENT SUBSIDY (40%)
1	Maize	429,250	8.25	35,413	21,248	14,165
2	Rice	590,320	7.08	41,795	25,077	16,718
3	Irish potatoes	2,394,500	8	191,560	114,936	76,624
4	Chili	2,151,500	8	172,120	103,272	68,848
5	French beans	2,018,250	8	161,460	96,876	64,584

Source: Laetitia Mahoro, Head of Agriculture Insurance, Radiant Insurance Company

6. There are two crop insurance product types under NAIS: 1. Based on average yields, which entails in-field crop cutting experiments to be conducted during the season, currently the responsibility of the insurer who contracts a private provider to do so; and 2. A hybrid product, based on average yields and combined with weather data from satellites and weather stations. In Rwanda, pure weather index-based insurance (WII), has not worked well in the past due to the varying topography and microclimates. In addition, yield products are able to capture other pertinent risks such as pests and disease, although, in Kayonza, drought and rainfall variations are the most prevalent cause of loss. In Kayonza, it is understood that the hybrid product using WII is not operational. Livestock insurance covers mortality, and for dairy cows, loss assessment is the responsibility of rural vets. Livestock producers are required to report a loss within 4-hours of occurrence. For both crops and livestock, it is important loss assessment is as efficient as possible in order to reduce costs and ensure timeliness of claims payments (currently aimed at 15 days after loss).

7. In terms of delivery, the mobilization of farmers and education activities have mainly been targeted at the level of producer cooperatives. This has been conducted by NAIS staff and by insurers themselves. There is some limited experience with financial service providers, but where they are involved, they are so far providing a 'referrer' role, by which they do not enter into direct education, selling, or other scheme operation responsibilities, but refer the farmer to the insurer in order to buy a policy. Other models mentioned in mission meetings are with NGOs for particular commodities. Delivery models with other non-financial institutions such as input providers, agrodealers, or bundling of agricultural insurance directly with credit arrangements were not yet found. There is interest of some delivery channels (financial e.g. SACCOs, and non-financial, e.g. buyers), insurers, and NAIS in developing bundling and additional delivery models. Despite some reported willingness to pay of farmers of the remaining 60% of the premium, there is also some challenges in low uptake at the moment. It is not clear if this is only due to lack of education, or whether some wealth categories may struggle to pay the remaining 60% and need other financing arrangements, or premium payment options.[65]

8. NAIS is still at the beginning of its operations, although government commitment is clear. Despite the short experience, much has already been achieved, and consequently there

[65] To be eligible for agricultural insurance, the premium needs to be paid in full at the beginning of each season (for crops), or year (for livestock). In some innovative schemes, an aggregator or delivery channel, such as a financial service provider or SME providing seeds or technology may pay or pre-finance the premium allowing the farmer to pay back in instalments.

are already emerging lessons on possible areas of support which can contribute to scale and sustainability, in order to benefit producers, delivery channels, insurers, and GoR's objectives.

9. In addition, when KIIWP2 is operational, it can build on information from the AFR planned pilot evaluation due to be published in March 2021, and the World Bank focused technical support to NAIS and the insurance sector which is pending validation and due to start at end 2021/beginning 2022. KIIWP2 will work together with NAIS on some identified aspects with a focus on Kayonza, which can inform some World Bank-funded activities for scale-up (e.g., extension officer training, bundling approaches). At the same time, the presence of World Bank-funded activities will be important for helping to create a more conducive enabling environment. Following a request from the Ministry of Finance and Economic Planning (MINECOFIN) in 2018, the World Bank Group - Finance, Competitiveness and Innovation Global Practice - in close collaboration with MINECOFIN and MINAGRI analysed the national agricultural insurance landscape[66] and proposed areas for potential World Bank funding.

10. As such, the World Bank tentatively plans to support: 1. Establishing an appropriate institutional framework for NAIS (i.e. a NAIS Steering Committee and Technical Working Group to guide and implement PPP in agricultural insurance); 2. Collect and manage data for agricultural insurance (e.g. yield, weather, and livestock data); 3. Adopt a smart premium subsidies regime (which also considers bundling agricultural insurance products with agricultural credit and inputs, and discussing establishing a premium subsidy regime for NAIS, targeted at each segment of the farming community according to GoR priorities; 4. Expanding investments in financial education and awareness creation (including train extension officers, and financial and non-financial distribution channels to provide insurance literacy; and supporting the scale-up of all types of digital services for the operation of agricultural insurance.[67]

[66] Rwanda: National Agricultural Insurance Scheme. Situation analysis and options for strengthening; World Bank Group - Finance, Competitiveness and Innovation Global Practice; 2019.
[67] Rwanda NAIS Policy Note-FINAL; World Bank Group - Finance, Competitiveness and Innovation Global Practice; June 15, 2019.

ANNEX 5: KNOWLEDGE MANAGEMENT PLAN

Knowledge management: Definition

1. For the purposes of this strategy, Knowledge Management (KM) is defined as "a set of processes, tools and behaviours that connect and motivate people to generate, use and share good practice, learning and expertise to improve projects' efficiency and development effectiveness"[68].

2. The present document is a draft plan developed at the time of project design. After start-up, this draft should be completed and refined with support from IFAD. The KM strategy and plan will be validated by project stakeholders through a national workshop. The workshop will be an opportunity to refine the thematic focus and dissemination strategy of policy relevant studies, but also to better understand the key information needs for KIIWP2 to be successful.

Knowledge management: Goal, objective and activities

3. The **overall goal** of this KM plan is to support learning and adaptation for improved project performance. It will also enable development and dissemination of knowledge products that can promote wider changes at national level, as well as the sustainability of project results.

4. KM strategy is closely linked to the policy engagement agenda, which in turn will reinforce the project's exit strategy. In this sense, KM activities will focus in particular on shedding more light on the following two key questions:

1. What incentives work well for the different actors at coalition level, leading to a sustained use of irrigation schemes and conservation and protection of watersheds?
2. How can the policy and regulatory frameworks be modified to sustainable improve Kayonza's farmers production and productive while conserving natural resources? How can they get better access to markets?

5. The **specific objectives** of this plan are:

- **To support learning, adaptation and improved project performance** during implementation;
- **To raise awareness** among people in Rwanda on the importance of changing behaviour and adopting more sustainable practices through highlighting mainstreaming issues such as gender, youth, nutrition and environment;
- **To capture, use and share lessons learned**;
- **To improve the design of future projects** in Rwanda and elsewhere based on the lessons learned previous KM plans in the SPIU;
- **To influence policy processes** and promote good results/activities for potential scaling-up in other projects by the government or other development partners;
- **To raise awareness of project activities and results**, and publicize successful experiences;
- To **align development and dissemination of knowledge products with the theory of change** of the project so that the key

[68] IFAD, 2019

messages/focuses on mainstreaming issues are clearly conveyed and reinforced;

- **To boost the project profile** among decision makers by increased visibility;
- **To engage with and inform rural people** about project activities;
- **To build a community of stakeholders.**

6. As part of project management and coordination, **quarterly review meetings with implementing partners** will be organized by SPIU to discuss progress towards results in relation to each quarterly progress report. The format of reporting will include lessons learned in terms of challenges and good practices. The quarterly review meetings will be a good opportunity for building common understanding among implementing partners and this would contribute to coherently achieving the project's development objectives. These meetings should also review the theory of change to reflect how the project is contributing to mainstreaming issues. In addition to the data collected from the project's M&E activities, the knowledge products will be based on (i) the research institutions' results and applications with producers; (ii) case studies generated from successful stories and identified innovations.

7. The dissemination **activities** will be implemented in three broad action areas: a) raising awareness on the importance of sustainable practices and promoting behavioural change as well as innovation to support it; b) producing policy-relevant material and sharing lessons learned on what works and what does not in terms of water users organizations (WUOs), insurance, access to finance, CSA and sustainable mechanization.

(a) **Raising awareness of the importance of sustainable practices and promoting behavioural change:** Given the need of behaviour change to achieve KIIWP2's environmental objectives, KM efforts will primarily focus on awareness raising on the importance of sustainable irrigation management. This will be pursued through three main channels:

(i) yearly TV and/or radio national awareness campaigns aimed at promoting environmentally friendly, sustainable use of pastures and other key natural resources. The campaigns will, among others, promote the use of fuel-efficient cooking stoves;

(ii) exposure visits for school children in collaboration with WFP's Home-Grown School Feeding Programme;

(iii) the development of video and other material on irrigation management, catchment rehabilitation and protection, natural resource management, etc. KM activities will be conducted in synergy with several activities in Component A such as the farmer field schools (FFS), implementation of the environmental and social management plans (ESMPs), and collaboration with the WFP-supported project (Farm to Market Alliance) improving adaptive capacity of vulnerable and food-insecure populations in Kayonza as well as with ICCO on financial literacy, business development and entrepreneurship.

(b) **Developing policy-relevant knowledge products:** these will enable the country programme to build a credible knowledge base of practical and actionable know-how that can be used to better address challenges of integrated catchment management. KIIWP2 will be mainly supporting four areas related to policy: (i) national policy on contract farming; (ii) law on financial lease for agricultural equipment; (iii) value added tax in rice processing; and (iv) issues surrounding availability and quality of seeds, including multiplication. The

thematic studies and the briefs will be focused around these areas. In addition, the project will also produce knowledge products on public-private partnerships, agricultural insurance, infrastructure management, etc. The dissemination of these policy-relevant materials will be focused on sharing lessons on what works and what does not in terms of irrigation development and management. Key activities will include:

(i) development of three thematic studies;

(ii) production of briefs that highlight project results, key lessons learned, and stories from the field (notably on mobile apps for saving groups and on the use of drones for M&E).

(c) **Ensuring visibility.** KM activities will aim at promoting KIIWP2 visibility by developing a webpage on the MINAGRI website, Facebook page, and by being active on other relevant social media. The communication plan will be flexible and should be adjusted according to needs as they arise and feedback from the beneficiaries.

Knowledge management structure

8. The implementation of the knowledge management strategy requires **strong and visible leadership from the management team**, and all SPIU staff. It will also **require strong partnerships with institutions, partners and the private sector.** Each member of the Unit has the responsibility to engage in developing knowledge products, facilitate connections between the field and headquarter, offer technical support to knowledge-sharing and learning.

9. At the same time, KM will be the **primary responsibility of the KM officer at SPIU level.** The KM officer will work in close collaboration with the M&E officer to ensure that:

i) M&E findings on project results are widely disseminated in a clear, synthetized, and interesting way;
ii) Knowledge products are backed up by solid M&E evidence (and therefore, the M&E system collects all data necessary for the envisaged knowledge products to be developed);
iii) Field visits to collect stories by the KM officer are also used for triangulating M&E data, and the way around;
iv) Case studies, stakeholder interviews and surveys, will be used to deepen the understanding of factors contributing to successes and failures, and to enable full documentation of impact.

Stakeholders and audiences

10. KIIWP2 KM activities will be differentiated depending on the different audiences they aim to reach. The tables 1 and 2 below are <u>examples</u> of KM stakeholders/audiences and KM products that could be used to reach these. Both these tables are to be completed/adjusted/completely modified at start-up and updated during implementation.

Table 1: KIIWP2 KM Stakeholders.

Stakeholders	What do they want/need to know? What do we want to communicate to them?
Local ▪ Beneficiaries ▪ Local communities ▪ Project staff ▪ Local offices of government agencies and project partners	▪ Purpose and activities of the project ▪ Opportunities to partner, participate, or benefit ▪ Notifications about project events and meetings ▪ Project results and outcomes ▪ Experiences of beneficiaries ▪ Relevant lessons learned ▪ Results of successful pilots and trials of new technologies, crops etc. ▪ Guidelines and methodologies ▪ Results of studies, surveys and assessments undertaken ▪ Policy relevant lessons
National ▪ Project partners ▪ Other similar projects ▪ Government agencies ▪ General public	
International ▪ Donors/financiers ▪ Development agencies ▪ Communities of practise/interest groups ▪ Other projects ▪ General public ▪ Policy makers	

Table 2. KIIWP2 KM products

Products	What knowledge can they share and with who?
▪ Stories from the field ▪ Lessons learned ▪ Project briefs ▪ Policy briefs	▪ Good for sharing information on project activities, results and lessons learned with a wide variety of audiences from beneficiaries to high-level decision makers. ▪ Typically short (a few pages) and not too technical, but with enough detail to be useful or to encourage audience to seek out more information.
▪ Reports and studies ▪ Technical guidelines ▪ Working papers ▪ How-to-do-note ▪ Research publications	▪ Addressing particular issues in significant detail, normally longer and more analytical and targeted towards audiences with specialist knowledge or interest in the topic. ▪ Require considerable investment of time and resources to produce
▪ Inputs to partners publications ▪ Inputs to government policies and strategies	▪ Useful opportunities to put project knowledge into action and to use partners and government resources to leverage its impact and raise awareness of the project.
▪ Articles (newspaper/magazine) ▪ Blog posts ▪ Newsletters ▪ Press releases	▪ Useful for communicating information about project activities and results achieved and reaching a wide general audience. ▪ Newspapers, websites and blogs are normally eager for content and are normally keen to publish interesting stories from projects.

Products	What knowledge can they share and with who?
▪ Videos ▪ Photos ▪ Interviews ▪ Infographics ▪ Podcasts	▪ These make great content for the project to disseminate through social media – publishing videos and photos of project activities, beneficiaries, field visits etc. online is a good way to attract interest (but make sure you get permission where necessary). Interviews often provide good soundbites for sharing through social media, perhaps together with links to longer articles or publications.
▪ Radio sessions	▪ Use local radio and invite famers, technicians involved in irrigation scheme management to talk about their success stories ▪ Spread technical information as well as use it to invite farmers to participate to the project as a self-targeting tool

Tools

11. Useful KM tools and templates can be accessed on the IFAD KM Resource Centre, accessible through this link: https://ifadkmcentre.weebly.com/integrating-km-in-projects.html.

ANNEX 6: MEMORANDUM OF UNDERSTANDING (MOU) TEMPLATE

REPUBLIC OF RWANDA

RWANDA AGRICULTURE AND ANIMAL RESOURCES DEVELOPMENT BOARD

Rwanda

Memorandum of Understanding

"MoU"

Between

XXX

Through

SPIU of IFAD Funded Projects

And

Ministry of Agriculture and Animal Resources (MINAGRI)

For

This Memorandum of Understanding, hereunder referred to as "MoU" is entered into by and between:

XX through **SPIU of IFAD Funded Projects**, having its principal place of business at ……

And

The **Ministry of Agriculture and Animal Resources (MINAGRI)**,…. represented by **….**, the Acting Coordinator of SPIU/MINAGRI, here under referred to as **"the Service Provider";**

WHEREAS

To this effect and for the implementation of the …… the client and the Service Provider, collectively referred to as "**PARTIES**" and individually as "**PART**".

HEREBY AGREE AS FOLLOW:

Article 1: Purpose of this MoU and Scope of activities

Article 2: Value of the activities and Terms of Fund Disbursements.

2.1 Value of activities to be executed

The total estimated amount for all activities to be done by the Service Provider is…… Rwandan **Francs** taxes exclusive.

Details related to the activities and related budget are on the annex.

2.2 Terms of Funds Disbursements

The client shall transfer the funds for activities/works to be executed by the Service Provider in accordance with following installments:

All payment will be done on the following bank account:

Article 3: Documents forming this MoU

Parties in this MoU hereby acknowledge being in possession of the following MoU documents listed below in the order of their priority.

1) This MoU;
2) … Narrative Text.

Those documents are considered as complementary and explanatory to each other. In case of conflict or ambiguity between any of the above listed documents, priority shall be given in the order as listed above.

Article 4: Partnership Mechanisms

This MoU expresses a convergence of will between "Parties", it indicates an intended common line of action and parties imply legal commitment.

Parties agree that, upon execution of this MoU, completion of planned activities and their execution shall be done based on availability of required resources and funds.

Parties intend to use their best efforts in good faith to work together to achieve the Project Objectives.

Whenever necessary during the implementation, parties shall hold several meetings to discuss any issue, and the Service Provider shall accept any invitation to participate in the Project management-meeting if need be.

Article 5: The use of funds

The funds shall be exclusively received by the Service Provider for the activities performed and described in this MoU and other supporting documents.

The client is entirely and fully responsible and accountable of the disbursement of funds under this MoU.

Article 6: Execution of activities

The Service Provider shall execute the activities and/or perform the services as set out in the approved Annual Work Plan and Budget (AWPB) for…… Financial Year (FY) and in accordance with this MoU.

For activities related to the acquisition of maize and beans grains, the Service Provider will work with ……

Activities to be done under this MoU are subject to revision in consideration of any revision done on the approved AWPB.

Article 7: Reporting requirement

The Service Provider shall submit ….. financial and progress reports to the project.

Article 8: Performance evaluation

The performance evaluation of the implementation status shall be carried out by client/project staff in accordance with performance indicators and Project' targets, quantity and quality of the work, timeframe as well as the terms in particular to this MOU. If necessary, the evaluation report shall be discussed during a joint meeting where parties will be agreed on the findings and way forward to address issues highlighted in the report.

If needed, a participative workshop to identify Service Provider's weaknesses and strengths, based on which parties will agree on measures to be taken to improve the situation or to replicate the successful operations in other sites.

Article 9: Coordination of activities under this MoU

The Client appoints following staff to ensure the coordination of activities under this MoU: …….

The team will be responsible and accountable for:

Article 10: Force Majeure

No party shall be liable for breach of any aspect of this Agreement where this breach can be reasonably ascertained to have been occasioned by an act of Force Majeure including but not limited to Acts of War, Rebellion, Lockouts, Strikes or Blockades, Government Policy, Pandemic, Natural Disaster or any other Act which was not reasonably foreseen at the date of signing of this MoU.

In case of force majeure, parties shall make a joint assessment aiming at analyzing the case and agreed on the way forward.

Article 11: Governing Law, privileges and conflict of interest

This MoU is governed by and construed in accordance with the laws of the Republic of Rwanda.

Nothing in this MoU or relating thereto shall be construed:

(i) As relieving the Service Provider from conforming to any national law applicable in its relations to third Parties, including its employees, or to any national law applicable to it by reason of trade, business or activities. The Service Provider shall comply with applicable laws and shall keep the client informed of any conflict or problem arising in relation to national authorities.

(ii) As constituting a waiver of privileges or immunities that may be conferred on the client, or as conferring any privileges or immunities on the Service Provider or its employees.

Article 12: Settlement of disputes

Any dispute between the parties arising out of the interpretation or implementation of this MoU shall be settled amicably through consultations and negotiations between the parties. In the event after ten (10) days amicable settlement of a dispute has failed, either party shall be at liberty to exercise its option to terminate this MoU.

However, in the event such dispute is subject to liability or to any other unfulfilled obligation, the concerned party shall be held responsible to the other.

Articles 13: Termination

The client reserves the right to terminate this MoU or a part thereof (one or several activities of the AWPB) if it considers that the continued implementation of the MoU is impossible or impractical for either of the following reasons:

- Unforeseen causes beyond the control of the client such as, the lack of funds from the donor, the revision of the AWPB, the cancellation of termination of the financing agreement for KIIWP2;
- In the event of repeated default, delay or unsatisfactory performance on the part of the Service Provider;

If some activities under this MoU should be terminated, the following shall apply:

- The client shall complete all payments that may be due up to the effective date of termination;
- The Service Provider shall take all reasonable measures in order that any work/activity in progress is delivered to avoid any loss or damage;
- Adjustments to amounts due and any claims arising from or connected to termination of this MoU or part thereof shall be dealt with in accordance with the pertinent provisions of this MoU.

The notices of termination shall specify the reasons for termination and take effect starting from the date indicated in the notice. However, it is understood that the provisions of this MoU applicable to the winding up of the MoU, the liquidation of claims and the settlement of disputes shall remain in force for such additional period as may be necessary.

Article 14: Change and amendments

No modification of or change in this MoU, waiver of any of its provisions or additional provisions shall be valid or enforceable unless previously approved in writing by the parties to this MoU or their duly authorized representatives in the form of an amendment to this MoU duly signed by the parties hereto.

The client may, at any time, give written notification of change agreed between the GoR and the donors in the activities of the AWPB of KIIWP2 to be executed and/or their delivery schedule, even if such changes do increase the activities under this MoU, involve additional expense, or reduce the time frame within which the activity must be completed.

Article 15: Duration and Annual Addendum to this MoU

Subject to the provisions of article 6, this MoU is concluded for a period of … (X) months from the effective date.

If needed, this period can be extended to allow the Service Provider to finalize all activities;

Also, this MoU can be subject to annual addendum in accordance with approved AWPB.

The annual addendum shall base on the following:

- Approved annual work plan for the next fiscal year;
- Quality of activities completed;
- Comply with MoU provisions and other supporting documents;

Article 16: Confidentiality

Each party agrees that it shall not, at any time, after executing the activities of this MoU, disclose any information in relation to these activities without consent of both parties.

Article 17: Notices

Any notice affecting the rights or obligations of either party to this MoU shall be given in writing and delivered in person, physical address or by email to the addressee given below:

Article 18: Procurement

All procurement activities to be carried out under this MoU shall be in conformity with the …. Letter to the ……as may be amended from time to time, and shall be conducted in accordance with the Law No. 62/2018 of 25/08/2018 governing public procurement and the Ministerial Order No. 002/20/10/TC of 19/05/2020 establishing regulations on public procurement, to the extent such are consistent with the IFAD Projects Procurement Guidelines, as may be amended from time to time.

Article 19: Corrupt and Fraudulent Practices

19.1 The Revised IFAD Policy on Preventing Fraud and Corruption in Its Activities and Operations (hereinafter, the "Revised Policy") applies to individuals and entities that receive, apply to receive, are responsible for the deposit or transfer of, or take or influence decisions regarding the use of proceeds from IFAD financing or financing managed by IFAD, including, but not limited to, implementing partners, Project Partners, contractors, suppliers, subcontractors, sub-suppliers, bidders, consultant and any of their agents or personnel (all such individuals and entities are collectively referred to as "Third Parties" or "Third Party"). Pursuant to the Revised Policy, Third parties shall refrain from engaging in the following practices, which are considered to be prohibited practices when engaged in connection with an IFAD-financed and/or IFAD-managed operation or activity:

(i) a “corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value in order to improperly influence the actions of another party;

(ii) a “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party in order to obtain a financial or other benefit or to avoid an obligation;

(iii) a “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including improperly influencing the actions of another party;

(iv) a “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to improperly influence the actions of that or another party;

(v) an “obstructive practice” is

(aa) deliberately destroying, falsifying, altering or concealing evidence that may be material to an investigation by IFAD or making false statements to investigators in order to materially impede an investigation by IFAD;

(bb) threatening, harassing or intimidating any party in order to prevent that party from disclosing its knowledge of matters relevant to an investigation by IFAD or from pursuing such an investigation; and/or

(cc) the commission of any act intended to materially impede the exercise of IFAD's contractual rights of audit, inspection and access to information, provided for under article 19.2 below.

19.2 In pursuance of this policy:

(i) Third Parties shall disclose, in the course of a procurement process or any time thereafter, information relating to themselves or any of their key personnel concerning:

(aa) relevant criminal convictions, administrative sanctions and/or temporary suspensions;

(bb) agents engaged in connection with a procurement process or the execution of a contract, including the commissions or fees paid or to be paid; and

(cc) any actual or potential conflict of interest in connection with a procurement process or the execution of a contract;

(ii) Third Parties shall promptly report to IFAD any allegations or other indications of prohibited practices that come to their attention by virtue of their involvement in an IFAD-financed and/or IFAD-managed operation or activity;

(iii) IFAD possesses jurisdiction to investigate allegations and other indications of prohibited practises and to impose sanctions on Third Parties for such practices in connection with an IFAD-financed and/or IFAD-managed operation or activity;

(iv) Third Parties shall fully cooperate with any investigation conducted by IFAD, including by making personnel available for interviews and by providing full access to any and all accounts, premises, documents and records (including electronic records) relating to the relevant IFAD-financed and/or IFAD-managed operation or activity and to have such accounts, premises, records and documents audited and/or inspected by auditors and/or investigators appointed by IFAD;

(v) Third Parties shall maintain all accounts, documents and records relating to an IFAD-financed and/or IFAD-managed operation or activity for a period of 3 (three) years after completion of the bid;

(vi) should IFAD determine that a Third Party has engaged in any of the prohibited practices defined under article 19.1 above, it may impose on the Third Party any of the administrative sanctions provided by the Revised Policy, Section F, (ii);

(vii) during the course of an IFAD review or investigation, or pending the conclusion of a sanctioning process, IFAD may decide, at any time, to temporarily suspend payments to a Third Party or to temporarily suspend its eligibility to participate in IFAD-financed and/or IFAD managed operations and activities for an initial period of six (6) months, subject to a

possible extension of that suspension for an additional period of six (6) months, as provided by the Revised Policy, Section F, (i);

(viii) public entities receiving IFAD financing or financing managed by IFAD and any of their agents or personnel and private entities receiving IFAD financing or financing managed by IFAD and any of their agents or personnel shall terminate or suspend the contract if such termination or suspension is required as a consequence of a temporary suspension or sanction imposed or recognized by IFAD;

(ix) furthermore, Third Parties' attention is drawn to IFAD's policy of unilaterally recognizing debarments imposed by other International Financial Institutions if such debarments meet the requirements for mutual recognition under the Agreement for Mutual Enforcement of Debarment Decisions.[69]

Article 20: Sexual Harassment, Sexual Exploitation and Abuse

24.1 The Fund requires that all beneficiaries of IFAD Funding, including the employer and any bidders, implementing partners, Project Partners, suppliers, sub-suppliers, contractors, sub-contractors, consultants, sub-consultants, and any of their agents (whether declared or not) and personnel comply with IFAD's Policy on Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse. For the purpose of this provision, and consistent with IFAD's Policy on Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse as it may be amended from time to time, the terms set forth below are defined as follows:

Sexual harassment means "any unwelcome sexual advance, request for sexual favour or other verbal, non-verbal or physical conduct of a sexual nature that unreasonably interferes with work, alters or is made a condition of employment, or creates an intimidating, hostile or offensive work environment.

Sexual exploitation and abuse means "any actual or attempted abuse of a position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of others (sexual exploitation); the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions (sexual abuse)".

24.2 Employers, suppliers and bidders shall take all appropriate measures to prevent and prohibit sexual harassment and sexual exploitation and abuse on the part of their personnel and subcontractors or anyone else directly or indirectly employed by them or any of subcontractors in the performance of the contract. Purchasers, suppliers and bidders shall immediately report to the purchaser or IFAD any incidents of sexual harassment and sexual exploitation and abuse arising out of or in connection with the performance of the contract or prior to its execution, including convictions, disciplinary measures,

[69] The Agreement for Mutual Enforcement of Debarment Decisions, dated 9 April 2010, was signed by five of the leading International Financial Institutions, namely, the African Development Bank Group, the Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank and the World Bank Group.

sanctions or investigations. The purchaser may take appropriate measures, including the termination of the contract, on the basis of proven acts of sexual harassment, sexual exploitation and abuse arising out of or in connection with the performance of the contract.

24.3 The bidder or subcontractor or supplier is required to disclose any relevant prior sanctions, convictions, disciplinary measures or criminal records.

Article 21: Money Laundering and Terrorist Financing

The Fund requires that all beneficiaries of IFAD funding or funds administered by IFAD, including the employer, any bidders, implementing partners, Project Partners and suppliers, observe the highest standards of integrity during the procurement and execution of such contracts, and commit to combat money laundering and terrorism financing consistent with IFAD's Anti-Money Laundering and Countering the Financing of Terrorism Policy.

For the Client:

For the Service Provider:

Acting Coordinator

SPIU/MINAGRI

Email: info@minagri.gov.rw

Notice shall be considered as effective as of the date of delivery to the addressee.

Article 22: Entry into Force and effectiveness

This MoU comes into force on the date of its signature.

Date: ……. /…… / 2021

For MINAGRI:

For RAB – SPIU/IFAD Funded Projects:

For Approval:

ANNEX 7: POTENTIAL PARTNERSHIP BETWEEN KIIWP/IFAD AND WFP

I. Under KIIWP1 (KIIWP Phase 1; completion in 2022)

1. **Community mobilization and engagement**: KIIWP1 would adapt and scale up the WFP Community-based Participatory Planning (CBPP) approach that is being used by the ongoing of the SMART/WFP project, for the upcoming catchment management planning that will guide the rehabilitation and conservation activities on the ground. CBPP is a pragmatic and easy-to-use planning tool for communities, government extension staff and cooperating partners. Under KIIWP1, the SPIU will align its interventions related to community mobilization and engagement to the WFP's methodology already implemented in Kayonza District. KIIWP1 and KIIWP2 will build on and benefit from WFP's experience and capacity to place the community in the driver's seat of planning and contribute to their own resilience placed in the resilience building efforts and development.

II. Under KIIWP2

A. Improved production of nutritious-sensitive crops (FFS/ Cooperatives)

2. **Market analysis, selection of NS crops**: joint identification and selection of main agricultural commodities that have high nutrient value, are climate smart, and can ensure profitability for farmers (e.g. improved beans, OFSP, dark green leafy vegetables; also include underutilized species available in the territory). The selection criteria should consider those crops/vegetables that are included in the food basket for schools, in the frame of the Home-Grown School Feeding Programme, in order to have a market secured. The selection will also count on the nutrition and market analysis prepared by FAO (NsWP).

3. This aligns very well with WFP's intended engagement in the district, linking to targeted schools in Rwinkwavu sector of Kayonza; we will readily consider the proposed link to school feeding. it is important to complement the market-oriented agricultural promotion with household-level education and awareness raising, as what tends to happen is that farmer end up selling the 'good'/premium products and often consume less nutritious/safe products at home.

4. **Access to improved seeds (IFAD/WFP plus other partners)**. WFP facilitating relations among cooperatives, seed multipliers and off-takers that potentially include HarvestPlus varieties (currently in partnership with RAB) in the purchase of improved and bio fortified seeds varieties (iron beans, OFSP). There is a need to explore access to seeds together. Possible ideas:

   a. Provision of seeds could be combined with insurance potentially facilitated by WFP, depending on the value chain (if there is an insurance product existing), and the model for provision (on credit, provided by project etc).

   b. One Acre Fund provide inputs including seeds. They are open to exploring value chains they do not currently serve. They have currently defining a MoU with WFP.

   c. AGRA can be also be part, as it has been supporting MINIAGRI and RAB in improved seed production, certification and availability opening also to private sector. They as well supported in policy development regarding seed system.

B. Capacity building of cooperatives (post-harvest)

5. **Training on nutrition sensitive Climate Smart practices and technologies** to be embedded into trainings at cooperative level, including aflatoxin control, storage, drying and milling (for beans, soya, sorghum), sun drying (e.g., bananas). These practices help addressing micronutrient deficiencies and provide an additional source of protein consumption on the long term.

6. **Scale-up results, baseline studies on TLST and on activities**: this work by WFP could be integrated in the analysis of TLST and on sustainable mechanization under CSA

practices and technologies baseline report and be mainstreamed through FFS, demonstration and trials, manufacturing and capacity building of staff. Work with WFP also on the link with access to finance to help farmers to have access to these technologies.

7. Explore combination on WFP's expertise/existing materials on Post Harvest Handling and Storage to incorporate as part of a more holistic FFS approach that include production, IMP, PHHS and even possibly farming as a business. Also, explore opportunities for including SMART beneficiaries as part of this approach

C. Access to financial services (cooperatives)

8. **Link MFIs and SACCOs supported under KIIWP2 with VSLAs supported by WFP in common project areas**. WFP is rolling out the savings-promotion approach to the SMART project areas, as well as FtMA in general within the district and beyond (building on the work ICCO-TFM has conducted in the past).

9. This would include: match-making; condition of accessing financing under KIIWP2 introduced to serve some of these groups; technical support to market assessment/mapping of groups; technical support to product development; financial education (including insurance and savings for insurance and other things) targeted at WFP-facilitated VSLAs ; in insurance capacity building to MFIs, SACCOs, coops, to include insuring VSLAs as one model.

10. One key element will be supporting MFIs and interested stakeholders in developing specialized financial products linked to these groups- not limited only to savings/loans, but possibly insurance bundling as well.

11. **Business planning & Matching Grants**: Jointly identified private actors could be supported with business planning and to apply for the matching grants under KIIWP2. The MG window is currently being drafted as: Category 3, private sector joint ventures with cooperatives: eligible investments are large warehouses, rice-processing facilities, etc.

12. **Linkages with market (FtMA).** Establish the linkage with the HGSFP (public procurement): a pilot could be done in the sectors where SMART is ongoing. This includes the selection of the crops to be promoted at cooperative/FFS level (see above); fulfil the criteria set by the Procurement guidelines for school purchases, WFP is finalizing together with the Ministry of Education.

- Identification of other markets: for maize, beans, rice in the frame of FtMA (One way is as per above: Jointly identified private actors could be supported with business planning and to apply for the matching grants under KIIWP2. There are a number of national and/or regional players that can be engaged for these products, including AIF and Minimex for maize, but also EAX, BRG, 4B holding and Sarura for beans. For Rice, WFP is still in the exploratory phase for the main players but the principles will be the same.

D. Promotion of consumption of nutritious foods (not yet explored)

13. Partnership in the WFP SBCC campaigns for the promotion of consumption of local micronutrient rich foods. In RDDP the project partially financed the governmental campaign on milk consumption. How the project could partner in the campaign and how they do it. This would be district wide.

Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 9: Integrated Project Risk Matrix (IPRM)

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Overall Summary

Risk Category / Subcategory	Inherent risk	Residual risk
Country Context	**Moderate**	**Low**
Political Commitment	*Low*	*Low*
Governance	*Low*	*Low*
Macroeconomic	*Moderate*	*Low*
Fragility and Security	*Substantial*	*Moderate*
Sector Strategies and Policies	**Low**	**Low**
Policy alignment	*Low*	*Low*
Policy Development and Implementation	*Low*	*Low*
Environment and Climate Context	**Substantial**	**Moderate**
Project vulnerability to environmental conditions	*Moderate*	*Low*
Project vulnerability to climate change impacts	*High*	*Moderate*
Project Scope	**High**	**Moderate**
Project Relevance	*High*	*Moderate*
Technical Soundness	*High*	*Moderate*
Institutional Capacity for Implementation and Sustainability	**Substantial**	**Moderate**
Implementation Arrangements	*Substantial*	*Moderate*
Monitoring and Evaluation Arrangements	*Moderate*	*Low*
Project Financial Management	**Moderate**	**Moderate**
Project Organization and Staffing	*Moderate*	*Low*
Project Budgeting	*Substantial*	*Moderate*
Project Funds Flow/Disbursement Arrangements	*Substantial*	*Moderate*
Project Internal Controls	*Moderate*	*Low*
Project Accounting and Financial Reporting	*Substantial*	*Moderate*
Project External Audit	*Low*	*Low*
Project Procurement	**Low**	**Low**
Legal and Regulatory Framework	*Low*	*Low*
Accountability and Transparency	*Low*	*Low*
Capability in Public Procurement	*Low*	*Low*
Public Procurement Processes	*Low*	*Low*
Environment, Social and Climate Impact	**Moderate**	**Low**
Biodiversity Conservation	*Substantial*	*Moderate*
Resource Efficiency and Pollution Prevention	*Moderate*	*Low*
Cultural Heritage		*No risk envisaged - not applicable*
Indigenous People		*No risk envisaged - not applicable*
Labour and Working Conditions	*Moderate*	*Low*
Community Health and Safety	*Moderate*	*Low*
Physical and Economic Resettlement	*Moderate*	*Low*
Greenhouse Gas Emissions	*Moderate*	*Low*

Risk Category / Subcategory	Inherent risk	Residual risk
Vulnerability of target populations and ecosystems to climate variability and hazards	*High*	*Moderate*
Stakeholders	**Substantial**	**Moderate**
Stakeholder Engagement/Coordination	*Substantial*	*Moderate*
Stakeholder Grievances	*Substantial*	*Moderate*
Overall	**Moderate**	**Moderate**

Country Context	**Moderate**	**Low**
Political Commitment	***Low***	***Low***
Risk: 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. The next legislative and presidential elections are due in 2023 and 2024 respectively. Counterpart funding in some previous IFAD-supported projects has materialized below the expected levels.	Low	Low
Mitigations: GoR has already demonstrated strong commitment in co-financing KIIWP1. Ndego and Kabare feasibility studies in KIIWP1 have been fully financed by GoR. Kayonza is one the priority districts for GoR investments, which is affected by recurrent drought that bring an additional burden to the systemic challenges faced by smallholder farmers. GoR committed to provide cash contribution for taxes on a timely basis and report promptly on any in-kind contributions including taxes waived whenever government agencies are used to implement activities. There will be a separate bank account for counterpart funds both at SPIU and at the district, managed by SPIU and district project staff respectively, just like the project operational account. GoR has assigned a staff to keep track and record district and national level government staff's in kind contributions. The Single Project Implementation Unit has already recruited a professional staff to count/value on GoR's in-kind contribution.		
Governance	***Low***	***Low***
Risk: Over the last 20 years, Rwanda has enjoyed political stability which, combined with good governance and policy consistency. Transparency International's Country Corruption Perception Index score puts Rwanda at medium risk in terms of corruption (54 points in 2020). Guided by the Vision 2020 and the Economic Development and Poverty Reduction Strategy, since the year 2000, the Rwandan government has been implementing a comprehensive and ambitious decentralization reform, which materialized by the adoption of the National Decentralization Policy. The policy's objective were the promotion of good governance, the reduction of poverty as well as the promotion of efficient, effective, and accountable service delivery. While progress has been achieved through strengthening the capacities of districts and the territorial reorganization of decentralized state entities, some challenges still persist. In order to mitigate the infection spread of COVID-19, the Government imposed strict contingency measures including total or partial lockdowns, border closures, and restriction of movements. While these measures were necessary for public safety, they may pose risks on project implementation.	Low	Low

Mitigations: GoR has enhanced its efforts to prevent corruption by identifying and reducing vulnerability to corruption. A number of multistakeholder consultative bodies have been established, including the National Council to fight against Corruption and Injustice and Corruption Advisory Councils at national, district, sector, and cell levels, KIIWP2 will contribute to enhancing the quality of governance at the district level. Mitigations: GoR has enhanced its efforts to prevent corruption by identifying and reducing vulnerability to corruption. A number of multistakeholder consultative bodies have been established, including the National Council to fight against Corruption and Injustice and Corruption Advisory Councils at national, district, sector, and cell levels. KIIWP2 will contribute to enhancing the quality of governance at the district level. Based on a needs assessment, KIIWP will strengthen institutional capacities at national and district levels:, the Project will provide support to RAB and the District authorities' staff in order to improve their capacity to monitor and support project activities. Relevant institutions will also be supported, including the Rwanda Environmental Management Authority, Ministry of Environment, and Rwanda Water Boards. Stakeholder participation will be by: (i) participatory community-driven preparation of sub-catchment plans; (ii) strengthened FFS, cooperatives, Infrastructure Management Institutions; (iii) community competition grants; (iv) engagement in the selection of irrigation systems and technology. The project will ensure capacity development of farmers and farmers' organizations in areas including irrigation management (SC.A2), climate-smart agriculture and technologies (SC.A5), and business and marketing skills (SC.B1). In order to mitigate the COVID-19 related risks, MINAGRI has already put in place special guidelines allowing farmers to continue agricultural activities even during lockdowns, including access to agricultural inputs and facilitation of transporting the produce to local markets. Most importantly, all members of the SPIU and government staff involved in the IFAD-funded projects have already been vaccinated against COVID-19 so that they can continue their implementation tasks with limited risks. In addition, 3% of the total project cost (US$1.8 million) has been earmarked under the "unallocated" category in order to quickly respond to emergencies and any other unforeseen circumstances. The emergency related sub-component is set up under Component C, and GoR and IFAD will discuss and agree on necessary restructuring in the project activities, if deemed necessary.		
Macroeconomic	***Moderate***	***Low***
Risk: COVID-19, combined with heavy rains in Q1 2020, as well as subsequent measures to contain the spread of the virus, deepened the country's economic slowdown such that real GDP growth was slightly negative at -0.2 percent in 2020. Although the outlook remains highly uncertain, the IMF projects a rebound in real GDP growth to 5.7 percent in 2021, albeit below potential.	Moderate	Low
Mitigations: KIIWP will promote increased and diversified agricultural production to enhance farmers' resilience to a wide range of shocks. US$1.8 million, which is about 3% of the total project cost, has been allocated for emergency under the "unallocated" category. This would allow a relatively quick adjustment of project activities in the face of any emergency situation such as a surge in COVID-19 infections. Finally, the RPSF that is currently being implemented in Rwanda focuses on expanding the capacity of National Strategic Food Reserve (NSFR). The NSFR has played a critical role during COVID-19 by purchasing produce from farmers' cooperatives and smallholders while providing food assistance to households in need. KIIWP2 beneficiaries in the event of a new crisis will benefit from the NSFR's enhanced purchasing capacity.		
Fragility and Security	***Substantial***	***Moderate***

Risk: Kayonza District faces climate-induced fragility is a drought-prone area, which impacts on the livelihoods of the population while COVID-19 may continue to pose social, economic, and health risks.	Substantial	Moderate
Mitigations: Mitigations: KIIWP2 will significantly reduce the climate-related fragility and drought problem in Kayonza District by several measures including (i) improving access to water for agriculture, livestock and rural population; (ii) promoting climate-smart agriculture (CSA) technologies and practices; (iii) training beneficiaries on climate risk and its management; and (iv) supporting and promoting understanding of agricultural insurance products offered by National Agricultural Insurances Scheme (NAIS). In addition, the project will promote increased and diversified agricultural production to mitigate shocks. These activities will enhance the resilience of households and have an impact on livelihoods, income and food security.		
Sector Strategies and Policies	**Low**	**Low**
Policy alignment	***Low***	***Low***
Risk: The policy environment surrounding KIIWP2 is relatively favorable as 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.	Low	Low
Mitigations: Sub-component C2 will address policy issues. KIIWP2 will support policy dialogues through an evaluation of implementation and impact of new or existing policies related to the project activities. The dialogues will involve national and district level relevant stakeholders. KIIWP2 will focus on policy areas including: (i) national policy on contract farming; (ii) laws on financial lease for agricultural equipment (e.g. special registry requirement in the law that is yet to be effective); (iii) value added tax (VAT) in rice processing that makes Rwandan rice less competitive than regional products; and (iv) current issues of availability and quality of seeds including multiplication.		
Policy Development and Implementation	***Low***	***Low***
Risk: Identified gaps in terms of operationalization 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.	Low	Low
Mitigations: Sub-component C2 will address policy issues. In addition to above mentioned four areas of policy support, KIIWP2 will be supporting and promoting in coordination with the World Bank (WB) agricultural insurance as offered by NAIS. This may provide valuable insights to enhancing policy dialogue on agricultural insurance and other risk mitigation strategies and instruments.		
Environment and Climate Context	**Substantial**	**Moderate**
Project vulnerability to environmental conditions	***Moderate***	***Low***
Risk: Growing population and associated pressure on agricultural lands and grazing areas. Because of the growing pressure on farm land, deforestation in Kayonza District has by far surpassed afforestation and grazing areas are shrinking.	Moderate	Low

Mitigations: The watershed and catchment management approach, including participatory preparation of catchment management plans, will lead to longer term environmental rejuvenation and returns on improved soil and sustainable access to water. In addition, the Project will promote CSA technologies and these will increase soil fertility, enhance resilience and reduce carbon emissions		
Project vulnerability to climate change impacts	***High***	***Moderate***
Risk: Increased frequency of drought in Eastern province. The District is characterized by high frequency of rainfall deficit, late rainfall onsets, early rainfall cessations, and is prone to drought. Droughts are responsible for famine and food shortages, a reduction in plant and animal species and displacement of people in search of food and pasture. 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).	High	Moderate
Mitigations: KIIWP2 will promote adaptation to climate change through provision of water in drought seasons and climate smart agricultural practices. Project beneficiaries will also be trained on climate risk and climate risk management and received climate information coupled with agricultural advisories. KIIWP2 will also support understanding and access of project beneficiaries to agricultural insurance products offered under Rwanda's National Agricultural Insurance Scheme (NAIS). The products insure against crop and livestock damage and losses due to climate change and other reasons. This is one way to protect some of the project's investments in improved productivity, including but not limited to provision of physical inputs, increased access to markets and agricultural financial services. It can also help create stability for retail lending institutions at risk of mass default in the event of a widespread climate-related shock.		
Project Scope	**High**	**Moderate**
Project Relevance	***High***	***Moderate***
Risk: The Eastern Province of Rwanda was hit by a severe drought in 2016, followed by two years of poor rains. This severely impacted local communities, mainly in Kayonza District, with more than 47,000 households becoming food insecure and the GoR, in partnership with WFP, providing food relief. Farmers in these drought-prone areas were also affected by pressure of farm land and loss of soil fertility due to unsustainable environmental management. KIIWP intervention area comprises nine drought-prone sectors of the twelve sectors in Kayonza District. The area has been selected on the basis of its high vulnerability to drought and high poverty and food insecurity levels.	High	Moderate

Mitigations: Mitigations: Kayonza District has a high untapped potential of water resources that, if fully mobilized, would significantly improve crop production, climate resilience, food security and nutrition. KIIWP2 aims to mobilize this potential Impact expected from the project's activities include: a) increased productivity and income with possibility of having more cropping seasons; b) temporary and permanent employment opportunity; c) 2,000 ha afforested and reforested as part of upstream catchment rehabilitation using endemic and fruit tree species and promotion of agro-biodiversity within the buffer zones; d) adaptation to climate change through provision of water in drought seasons and climate smart agricultural practices; e) crop diversification and increased value of production in hillside areas; f) enhanced food security; g) increased value of agricultural production; h) reduced post-harvest losses; i) increased sales in output markets; and j) improved access to water for livestock and humans.		
Technical Soundness	***High***	***Moderate***
Risk: Kayonza, and building on the experience of KWAMP, the successful IFAD-supported Community-based Watershed Management Project, implemented in the neighboring Kirehe District, which completed in June 2016. There is risk of high cost of hillside irrigation in case the proposed technologies are not carefully adjusted to the constraints of the target areas and the capacity of the beneficiaries.	High	Moderate
Mitigations: Additional analyses was undertaken to mitigate the risk (high cost of hillside irrigation) of the initial design of the irrigation schemes and capacity to operate and maintain the same. This allowed to (a) reduce the unit cost of irrigation; (b) reduce the risk of the management of these schemes. The detailed design of the irrigation schemes will be optimised and recommend a suitable rationing based on further analysis, close consultation with concerned farmers and cooperatives, and prevailing conditions towards optimising profitability, making sure that the investments are suitable to the capacity of the target group. The Project will also establish and support Water Users Organizations and other relevant Infrastructure Management Institutions.		
Institutional Capacity for Implementation and Sustainability	**Substantial**	**Moderate**
Implementation Arrangements	***Substantial***	***Moderate***
Risk: 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, demonstrated by the performance of Single Project Implementation Unit (SPIU). However, limited technical capacity, governance and institutional capacities at the district level could lead to slow disbursement, lower project benefits as well as delays in implementation. Raising awareness and capacity building are key elements in KIIWP2, especially of FOs and District, Sector and Cell level staff. Adequate capacity to operate and maintain the irrigation infrastructure will be critical for their long term sustainability.	Substantial	Moderate

Mitigations: The institutional arrangements for KIIWP2 will be fully aligned with the current implementation framework of IFAD-funded projects in Rwanda. In particular, the SPIU is already in place with core staff and 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. The project will also provide support to RAB and the District staff in order to improve their skills on technical aspects. International technical assistance will be envisaged for some thematic areas. Relevant institutions will also be supported (e.g. Environmental Management Authority; Rwanda Water Board). In addition, three types of Infrastructure Management Institutions (Scheme Steering Committees, Hydrographic Basin Committees, and Irrigation Water Users Organizations) will be established during KIIWP1 in order to ensure (i) good governance, (ii) water management and maintenance and (iii) monitoring. These institutions will be further strengthened through capacity building in KIIWP2 to make sure that adequate capacity is in place at project closure.		
Monitoring and Evaluation Arrangements	***Moderate***	***Low***
Risk: Insufficient human resources dedicated to M&E in the SPIU.	Moderate	Low
Mitigations: An M&E plan will be developed to guide M&E processes, define roles and responsibilities as well as set a plan for realization of set targets through the project life. An M&E Manual will be developed by the SPIU describing how the MES/MIS system works, the tools and processes for its smooth operation. M&E activities will be coordinated by the SPIU M&E expert and supported by additional professional staff already hired as part of KIIWP1, who will work closely with subject-matter specialists to strengthen learning and knowledge management. The Project will partner with the Center of Excellence in Biodiversity and Natural Resource Management, which will provide technical backstopping to monitor the implementation of the community–based sub-catchment management plans and all mitigations measures listed under the ESMPs in order to ensure conservation, restoration and sustainable use of terrestrial and freshwater ecosystems and their services.		
Project Financial Management	**Moderate**	**Moderate**
Project Organization and Staffing	***Moderate***	***Low***
Risk: Risk(s): The reporting structure of the district (Accountant reporting to the district and SPIU and district data in IFMIS no accessible by SPIU) may cause significant delays in justification and consolidating financial information for withdrawal applications and financial reporting Newly recruited Accountant at Kayonza District not conversant with IFAD financial management requirements. SPIU staff share time with other IFAD projects, which limit the availability and dedication they can give to KIIWP1 and 2. This is a particular issue for the M&E officer that is doing gender at the same time. Moreover, a complex project needs different specialists to guide appropriate implementation of different activities	Moderate	Low

Mitigations: The newly recruited staff (Accountant at the District), will be exposed in IFAD specific procedures at start up and during implementation. Roles and responsibilities of staff will be defined in the PIM Generate certified monthly extracts of expenditure by project component, sub-component, and expenditure category to activity level will be done by the district and submitted to SPIU for purposes of generating withdrawal applications. KIIWP2 will propose new recruitments, particularly at district level, to ensure a sound and timely implementation of a complex project. The staff will include a Social inclusion Specialist that will ensure the inclusion of vulnerable groups, the focus on nutrition aspects as well as the overall social safeguards and participation of communities and project interventions. The recruited staff will work side by side with district permanent staff to complement existing functions.		
Project Budgeting	***Substantial***	***Moderate***
Risk: Risk(s): Failure to meet budget deadlines for the submission of the AWPBs and receipt of IFAD No Objection – which could cause ineligible expenditure Poor budget monitoring at activity and category level arising out of failure to customize IFMIS to facilitate posting of budgets by this requirement.	Substantial	Moderate
Mitigations: KIIWP 2 will use IFMIS for accounting, budget input into the IFMIS will be a requirement as this will is a requirement to facilitate review of trends and budget control. However, as IFMIS has not been customized, should a decision be made to implement a parallel software, the budget will be monitored within TOMPRO. Budgeting should involve the Project finance team, technical staff, procurement officer and an officer responsible for M & E. This should ensure that the expenditures categories are well aligned and the logframe is considered at budgeting time. It should also realistically inform the procurement plan as procurement action timelines will be clearly attended Implementing partners, including districts should be included in the budgeting process. Budget templates to implementing partners that mirror its code/chart of accounts reflecting components, categories and activities together with funding sources will be developed as part of budgeting process. SPIU will also guide the implementing partners on eligible activities.		
Project Funds Flow/Disbursement Arrangements	***Substantial***	***Moderate***
Risk: Risk(s): MINECOFIN requires agencies including RAB (and projects) to operate under a single treasury account with a daily nil balance on its individual account with the Central bank. This would commingle IFAD resources and make traceability difficult. Delays in customization of IFMIS, presents a liquidity risk arising out of delays in submission of the withdrawal applications. This is because data from the current set up of IFMIS cannot support timely analysis of expenditure by category	Substantial	Moderate

Mitigations: As in the case under KIIWP1, a designated account denominated in US$ held at the Central Bank (National Bank of Rwanda) to receive funds from IFAD will be maintained. An additional designated account to receive Spanish financing will also be opened. An operating account denominated RWF will also be opened in the National Bank of Rwanda bank in line with GoR policy. These accounts will be managed by the IFAD Portfolio SPIU Coordinator, the SPIU Head of Finance and the SPIU chief accountant with thresholds that will be defined. SPIU will also open a Counterpart Fund account in the Central bank managed under the same arrangements. Funds to implementing partners, including Kayonza District will be on the basis of planned activities/activity-based advances supported by MOUs. No other accounts are anticipated to be opened under the direct management of the project. Subsequent transfers to partners will happen only after justification of previous advances The IFAD client Portal (ICP) will be implemented for KIIWP II.		
Project Internal Controls	***Moderate***	***Low***
Risk: Risk(s): Lapses in internal controls and compliance may never be reported as it has not been a requirement to provide internal audit reports to IFAD. Project implemented in non-compliance with IFAD procedures and GoR laws and regulations	Moderate	Low
Mitigations: Internal audit reports/action plans be part of the semi-annual reports submitted by the project to IFAD Revise and update PIM when implementation starts to reflect implementation realities		
Project Accounting and Financial Reporting	***Substantial***	***Moderate***
Risk: Risk(s): IFMIS, cannot satisfy IFAD's reporting requirements as it is not set-up to address IFAD requirements. Use of the software would require separate use of MS Excel for data manipulation to report by category and component by financier is time consuming and prone to errors. Real time reports may not be produced within IFMIS for purposes of management decision making as the setup of the GoR IFMIS chart of accounts has not been configured to produce real time reports with the required parameters of components by Financier, and by category. The IFMIS data posted by the district cannot be accessed/viewed by SPIU within IFMIS. This will delay data consolidation for financial reporting and withdrawal applications IFMIS cannot capture information on beneficiary contribution as it is not cash based. Adjusting for it with journal vouchers at the end of the financial year (as payments made by financier) will also not be possible as the system will require beneficiary code, TIN number and bank account details that are not available for the kind of beneficiaries targeted by IFAD financed projects. Risk of incomplete disclosures in the financial reports Risk of delays in reporting due to multiple partners with different management and reporting structures	Substantial	Moderate

Mitigations: IFAD and RAB/SPIU will continue to engage with IFMIS/MINECOFIN to speed up the process of configuring and mapping project reporting requirements so that IFMIS is coded to address the needs of the project and should be capable of capturing and reporting by category in addition to sub-component and financier. This will be used for KIIWP and will be expected to continue throughout project implementation. Specific guidelines will be included in the KIIWP PIM/Financial management manual. Financial reporting: The semi-annual report includes financial information regarding the current year's semester compared to the budget and its previous year's period. Quarterly reporting should be encouraged. This should ease access to reports and will form part of a more comprehensive interim financial reporting as quarterly reports will be updated to produce semi-annual reports. RAB will also have to ensure that appropriate levels of reporting are established to manage possible conflict relating to internal/ traditional set of reporting set up within RAB where existence of a parallel structure may cause internal conflict. SPIU will report to the Director General and also provide the required reports to MINECOFIN and IFAD. Should GoR significantly delay or fail to customize IFMIS to IFAD reporting requirements, use of a parallel accounting software may be considered to mitigate against manual accounting/use of MS Excel. Kayonza District will submit certified reports to SPIU on a monthly basis to facilitate report generation and submission of withdrawal applications. In kind contribution will be reported by disclosure rather than recognition as there will be no cash flowing into the project and yet the accounting will be on cash basis. In kind contribution will be reported by disclosure rather than recognition as there will be no cash flowing into the project and yet the accounting will be on cash basis.		
Project External Audit	***Low***	***Low***
Risk: Audit reports may be submitted late. Audit quality may be compromised as a consequence of failure to follow audit guidelines and TOR.	Low	Low
Mitigations: KIIWP2 external audits will be carried out by the Auditor General. SPIU will ensure that the draft financial statements are approved by the end March and availed to the auditor well in time to facilitate early completion of the audit. Terms of Reference clearly specify IFAD audit requirements, including the timing for submission of audit reports. The audit report together with the management letter will be submitted to IFAD no later than 60 days from the end of the financial year.		
Project Procurement	**Low**	**Low**
Legal and Regulatory Framework	***Low***	***Low***
Risk: No risk was detected with reference to the legal and regulatory framework. Rwanda shows a complete legal framework, which includes standard bidding documents. The recent introduction of a public e-procurement system greatly increased procurement monitoring and public access to procurement information. For IFAD-funded projects, the e-procurement system is used both at SPIU and District level. Procurement Footnote: For the full list of risks and mitigations related to both the country level and project institutional dimensions of public procurement, kindly refer to the KIIWP Procurement Risk Matrix, which was used to inform this section of the IPRM.	Low	Low
Mitigations: N/A		

Accountability and Transparency	***Low***	***Low***
Risk: According to the country corruption perception index score of Transparency.org, Rwanda ranks 51st in the world with a score of 53.	Low	Low
Mitigations: All procurement entities, as well as bidders, suppliers, contractors, consultants and service providers, shall observe the highest standard of ethics during the procurement and execution of contracts financed under IFAD funded Projects, in accordance with paragraph 69 of the IFAD Project Procurement Guidelines. The Revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations shall apply to all projects, vendors and third parties, in addition to the relevant national anticorruption and fraud laws.		
Capability in Public Procurement	***Low***	***Low***
Risk: No risk was detected with reference to the capability of the procurement unit in public procurement. Procurement staff at SPIU and District level was found to be competent and the quality of documents produced was judged to be adequate.	Low	Low
Mitigations: N/A		
Public Procurement Processes	***Low***	***Low***
Risk: The procurement risk assessment ascertained that procurement planning, methods, processes and contract administration and management are generally compliant with national procurement regulations, IFAD Project Procurement Guidelines and good procurement practice. The main challenge consists in the potential delays caused by the use of open tendering for low-value procurements, due to the SPIU following the national procurement thresholds instead of those mandated by IFAD in LtBs/LtRs. Other minor shortcomings involve: a. the application of domestic preferences to NCBs and the lack of mandatory references to IFAD's policies (the Revised IFAD Policy on Preventing Fraud and Corruption, the IFAD policy to preventing and responding to sexual harassment, sexual exploitation and abuse and the Anti-Money Laundering and Countering the Financing of Terrorism Policy) in the bidding documents used for NCB; b. The tender evaluation committee of KIIWP being suitably qualified, but not appointed ad-hoc; and The lack of approval thresholds for contract amendments.	Low	Low
Mitigations: In November 2020, IFAD brought the issue of low procurement thresholds to the attention of the Rwandan Ministry of Finance and proposed an increase. IFAD will follow up with the Ministry until positive feedback is received. The KIIWP Team was reminded that, according to the IFAD Project Procurement Guidelines, domestic preferences are only allowed for ICBs and that bidding documents shall always contain a mandatory reference to IFAD's policies. IFAD will ensure that procurement processes fully comply with its Project Procurement Guidelines by reviewing procurement documents on a prior and post review basis. IFAD can strongly encourage government through policy dialogue to nominate ad-hoc tender evaluation committees, and it is recommended that it do so through the COSOP consultations with the government. IFAD’s No-Objection will be required for all prior-review contracts where the amendment increases the original value by more than 10 per cent or extends the original contract duration by 25 per cent or more.		
Environment, Social and Climate Impact	**Moderate**	**Low**

Biodiversity Conservation	***Substantial***	***Moderate***
Risk: KIIWP2 will be implemented in the vicinity of the Akagera National Park which hosts considerable biodiversity of both fauna and flora. The area is characterized by a network of lakes hydrologically connected with the Akagera River, either directly through surface flows or through swampy areas. The next phase of the Ndego detailed design should make sure there is no significant harm to the Akagera transboundary waters.	Substantial	Moderate
Mitigations: The Project will conduct rapid site biodiversity survey and establish baseline on biodiversity and ecosystem status, which will be monitored annually. The IFAD SECAP guidelines on protection of biodiversity and will be used to guide the anticipated mitigation measures to protect the biodiversity.		
Resource Efficiency and Pollution Prevention	***Moderate***	***Low***
Risk: Water and soil pollution due to increased use of agro-chemicals.	Moderate	Low
Mitigations: Implementation of Integrated Pest Management Plan (IPMP) and promotion of organic fertilizer and good agricultural practices. IPMP will be done for the entire project as part of the detailed design of each irrigation scheme, and efficient use of agrochemicals will be included in the FFS activities in addition to a strong emphasis on soil conservation and fertility, agroforestry and conservation agriculture.		
Cultural Heritage		***No risk envisaged - not applicable***
N/A		
Indigenous People		***No risk envisaged - not applicable***
There are not Indigenous Peoples living in Project area, therefore no risk has been detected on this issue.		
Labour and Working Conditions	***Moderate***	***Low***
Risk: In-migration due to potential job opportunities and spin off employment activities. In addition, child labour in the irrigation schemes is a major issue. According to ILO, children perform dangerous tasks in agriculture such as street vending, construction (e.g. brick-laying) and production (e.g. applying fertilizer, carrying heavy loads).	Moderate	Low
Mitigations: Awareness campaign on child labour and on employment preference to members of local communities Plan for population increase and consequent demand on public authorities.		
Community Health and Safety	***Moderate***	***Low***

Risk: Food security: the production of cash crops grown in preference to food crops on irrigated schemes might exacerbate food insecurity in already poor and food insecure households and affect community health.	Moderate	Low
Mitigations: Food security: food crops will be promoted in parallel with cash crops; nutrition sensitive value chains will be promoted in the frame of FFS. The project has set aside a specific budget line for the promotion of improved and nutrient rich seed varieties. The diversification of crops grown by the Project beneficiaries will also improve food security.		
Physical and Economic Resettlement	***Moderate***	***Low***
Risk: During the construction of irrigation infrastructures (BS and canals networks) and post-harvest facilities, permanent land will be acquired, crops and trees be affected and a resettlement action Plan (RAP) will be prepared and implemented.	Moderate	Low
Mitigations: An abbreviated Resettlement Action Plan (RAP) was prepared and included in the ESIA and associated costs were integrated in the cost-table. The RAP will be implemented and all compensation measures provided prior to the construction works or land take.		
Greenhouse Gas Emissions	***Moderate***	***Low***
Risk: a) Excessive use of fertilizers where unabsorbed ammonia and nitrates may subsequently be released into the air. b) Tilling land releases carbon stored in soil.	Moderate	Low
Mitigations: Under Sub-component A.3, the project will use the FFS approach as an entry point to introduce climate smart agriculture (CSA) practices and technologies. KIIWP1 will conduct a baseline study to identify existing CSA practices and technologies in Rwanda, and the findings from the study will be utilized in the CSA training in FFS under KIIWP2. Some of the promoted practices will include: adoption of zero tillage so that carbon is stored in soils, and less carbon released to the air; and implementation of Integrated Pest Management Plan(IPMP).		
Vulnerability of target populations and ecosystems to climate variability and hazards	***High***	***Moderate***
Risk: Population has suffered from extreme events (droughts) in 2016 and 2017. The risk of extreme weather event will continue to remain.	High	Moderate

Mitigations: KIIWP2 will apply the watershed and catchment management approach, including participatory preparation of catchment management plans, which will lead to sustainable use of natural resources. KIIWP2 will also support understanding and access of target populations to agricultural insurance products offered under Rwanda's National Agricultural Insurance Scheme (NAIS). The products will insure against crop and livestock damage and losses due to climate change and other reasons (SC.B2). The beneficiaries will be trained on the Participatory Integrated Climate Services for Agriculture (PICSA) approach (SC.A5) which aims at facilitating farmers to make informed decisions based on accurate, location specific, climate and weather information; locally relevant crop, livestock and livelihood options during the process of planning their agricultural season and other livelihood activities. Furthermore, under the same Sub-component A5, the project will implement ESMPs (Annex 5, Appendix 1) and introduce various mitigation measures.		
Stakeholders	**Substantial**	**Moderate**
Stakeholder Engagement/Coordination	***Substantial***	***Moderate***
Risk: (1) The poorest households are not fully engaged in consultation processes aimed at defining the development of project's activities, and water infrastructures benefit the wealthiest categories of target groups the most; (2) Limited technical capacity, governance and institutional capacity of beneficiaries (e.g. farmers' organizations) in managing irrigation schemes, growing high value crops and linking themselves to markets.	Substantial	Moderate
Mitigations: KIIWP will employ participatory processes and methods in the development of sub-catchment plans, ensuring that the needs of all communities' representatives are taken into account including the poorest households. Community consultation, including community leaders and involving the most vulnerable households, will be undertaken at all stages of the development of project's activities, including the selection of siting of water infrastructure. The project will also ensure capacity development of farmers and farmers' organizations in areas including irrigation management (SC.A3), climate-smart agriculture and technologies (SC.A5), and business and marketing skills (SC.B1).		
Stakeholder Grievances	***Substantial***	***Moderate***
Risk: Establishment of irrigation schemes may raise complaints among local communities mainly due to conflict among water users, resettlement, conflict between workers and local community, etc. In this situation, Grievance procedures are required to ensure that Project Affected Persons (PAPs) are able to lodge complaints or concerns, without cost, and with the assurance of a timely and satisfactory resolution of the issue. The procedures also ensure that the entitlements are effectively transferred to the intended beneficiaries.	Substantial	Moderate
Mitigations: Stakeholders will be informed of the intention to implement the grievance mechanism, and the procedure will be communicated at the time that the RAPs are finalized. Grievances may arise from members of communities who are dissatisfied with eligibility criteria use, community planning and actual implementation or compensation. Specific procedures are detailed in the PIM.		

Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 10: Exit Strategy

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Annex 10: Exit Strategy

Institutional sustainability.

The KIIWP Exit Strategy is embedded in the intervention approach through: (i) the strategic approach of working directly with administrative structures and community leaders at District, sector and irrigation scheme/catchment levels; (ii) the empowerment of Infrastructure Management Institutions that will assume full responsibility for planning and implementation of watershed interventions and operation and maintenance of post-harvest infrastructure; (iii) the strengthening of FFS, Farmer Promoters and Cooperatives, including their back and forward linkages and access to markets, financial services and agriculture insurance. This institutional framework within which the Project will be implemented and the capacity developed will continue to exist after its completion to benefit the population and country. A full-scale exit strategy will be developed by the SPIU in consultation with relevant stakeholders one to two years before the project completion. The strategy should detail most institutional arrangements, legal aspects, ownership and post-project funding. The implementation of the exit strategy will be monitored by the SPIU/RAB with IFAD providing supervision/implementation support as necessary in collaboration with IFAD country office.

Involvement of local administrative structures. The administrators at District and sector levels have already been engaged with KIIWP1 activities and their involvement is crucial in sustaining the infrastructure management. At the District level, irrigation technicians, and water management field facilitators will be recruited by SPIU/RAB, and they will work together with the District, Sector and cell level staff in order to support the formation and strengthening of the Infrastructure Management Institutions in KIIWP2. The sector administrators and technical staff will ensure that KIIWP activities are integrated into the respective sector annual action plans and monitor project activities against agreed targets. Inclusion of the project activities in the sector annual plans would also mean securing the budget for sustaining the activities and ensure pathways for potential scale up of well-performing project activities. In addition, after irrigation schemes completion and fulfilling all conditions, the irrigation water users organizations (IWUOs) and water for livestock water users organizations (WLUOs) would sign an Infrastructure Management Transfer Agreement (IMTA) with RAB and it will be co-signed by Kayonza District Authorities and IWUOs.

Empowerment of Infrastructure Management Institutions. Interventions supported by KIIWP2 will be owned by community organizations that will be trained to operate and manage them. Infrastructure Management Institutions such as Sector- and District-level Steering Committees and Hydrographic Basin Committees will play an active role in the design, construction and operation and maintenance of infrastructure supported by KIIWP. These institutions will (i) ensure long-term sustainability of the irrigation schemes, (ii) develop drought contingency plans for the catchment areas, and (iii) ensure inclusive and equitable access to water for all members. In addition to the IMTA for large irrigation schemes, 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.

Capacity building of farmer field schools (FFS) and cooperatives. Using FFS as a basis for smallholder farmers to become accustomed to working together and sharing knowledge and information will build trust over time and this would help establishing cohesive water users organizations (WUOs). As for cooperatives, using long-term coaching and mentoring support by technical and field staff, as well as service providers would

increase their chances of success and long-term sustainability. The list of capacity building at the grassroots level in order to ensure sustainability of project results is summarized in the table below.

Outputs to be sustained	**Capacity building**
Maintenance of irrigation infrastructure	Infrastructure Management Institutions will be established and strengthened
Provision of farmers' extension services through FFS	Training FFS/Farmer Promoters
Operational cooperatives	Capacity building of cooperatives Linkages with financial services and insurances

Participation of private sector. KIIWP will involve private sector actors such as processors, exporters, and financial institutions operating at both local and national level. As part of the matching grant scheme, Category 3 Joint-venture grants are designed to promote and support linkages between cooperatives and off-takers to handle and process crop surpluses generated by irrigation development, for warehouses, handling and processing facilities. This public-private-producer partnership arrangement will ensure a win-win structure with cooperatives being able to access funding while the private sector (off-taker) can secure produce. This mutually beneficial business relationships between KIIWP target groups and private stakeholders will enhance the long-term sustainability of the project's investments.

Environmental sustainability and risk management.

As Kayonza is a drought-prone area, the environmental risk will remain during the implementation of the exit strategy and beyond. In order to mitigate the vulnerability to environmental conditions, KIIWP2 will use the watershed and catchment management approach, including participatory preparation of catchment management plans, will lead to longer term environmental rejuvenation and returns on improved soil and sustainable access to water. The project will also support and promote understanding and access of project beneficiaries to agricultural insurance offered under Rwanda's National Agricultural Insurance Scheme. In addition, the Project will promote climate smart agriculture (CSA) technologies and these will increase soil fertility, enhance resilience and reduce carbon emissions. The project beneficiaries will also be trained on climate risk and risk management.

Economic sustainability.

The Project will support enhanced storage and commercial sale of excess production to allow maintenance of investments and access to finance, value addition facilities and markets through FFS, Farmer Promoters, cooperatives and PPPs. This will ensure that farmers can dispose their surplus production, enhance their incomes and sustain their investments in agriculture.

Food and Nutrition Security.

The severe food and nutrition security challenges in Eastern Province are largely due to frequent droughts and high dependence on rain-fed agriculture. Using irrigation and catchment protection as the entry point is a recognition of the critical importance of water to sustainable rural livelihoods and food and nutrition security in the district. High nutrition-sensitive and CSA crops and cropping systems will have been introduced, with known requirements and results generated during the Project lifetime.

Women Empowerment

Women empowerment is key to addressing household food and nutrition security. This will ensure targeted support to women and mapping of their long-term inclusion pathway. The support will be delivered together with nutrition education and participatory approaches to enhance their inclusion and economic empowerment.

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 11: Mainstreaming themes – Eligibility criteria checklist

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Mainstreaming themes – Eligibility criteria checklist				
	☐ **Gender transformational**	☑ **Youth sensitive**	☑ **Nutrition sensitive**	☑ **Climate finance**
Situation analysis	☑ National gender policies, strategies and actors ☑ Gender roles and exclusion/discrimination ☑ Key livelihood problems and opportunities, by gender	☑ National youth policies, strategies and actors ☑ Main youth groups ☑ Challenges and opportunities by youth group	☑ National nutrition policies, strategies and actors ☑ Key nutrition problems and underlying causes, by group ☑ Nutritionally vulnerable beneficiaries, by group	
Theory of change	☑ Gender policy objectives (empowerment, voice, workload) ☑ Gender transformative pathways ☐ Policy engagement on GEWE	☑ Pathways to youth socioeconomic empowerment ☑ Youth employment included in project objectives/activities	☑ Nutrition pathways ☑ Causal linkage between problems, outcomes and impacts	

Logframe indicators	☑ Outreach disaggregated by sex
	☑ Women are > 40% of outreach beneficiaries
	• IFAD empowerment index (IE.2.1)
		☑ Outreach disaggregated by sex and youth	☑ Outreach disaggregated by sex and youth, and IPs (if appropriate)
			• Output level CIs
			  ◦ CI 1.1.8 Mandatory
			Outcome level CIs (at least one of below)
			  ◦ CI 1.2.8
			  ◦ CI 1.2.9	

Human and financial resources	☑ Staff with gender TORs ☑ Funds for gender activities ☐ Funds for IFAD empowerment index in M&E budget	☑ Staff with youth TORs ☑ Funds for youth activities	☑ Staff or partner with nutrition TORs ☑ Funds for nutrition activities	IFAD Adaptation Finance $4,718,000 IFAD Mitigation Finance $0 Total IFAD Climate-focused Finance $4,718,000
ECG Remarks	**Gender** The project includes some of the criteria that will contribute towards gender transformation. However it does not intend to be gender transformational. **Nutrition** The project design was informed by a nutrition situation analysis and pathways have been identified to reach the nutrition related objectives **Youth** The project includes a specific activities for youth engagement. ☐ No social inclusion themes			

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex 13: SECAP Clearance Sheet

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

SECAP Clearance Sheet

TO: Donal Brown
Associate Vice President, PMD

FROM: Nigel M. Brett
Director OPR

DATE: 03 September 2021

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

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

Country: Rwanda

Division: ESA

Country Programme Manager: Francesco Rispoli

Project Category: A

Executive Board:

Design 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

6.The ESIA and /or FPIC/FPIC Implementation Plan has been disclosed on IFAD website? **Effective disclosure date on IFAD website:** 30/11/2020 **Notes** No physical resettlement is foreseen therefore an ARAP has been developed	Yes
7.The Resettlement Action Plan (RAP) has been completed and reviewed by IFAD and the relevant national authorities	Yes
8. The review of the land acquisition and compensation process has been completed and reviewed by IFAD and the relevant national authorities	N/A
9.The RAF has been cleared by National Authorities for disclosure on IFAD website **Effective disclosure date on IFAD website:** 30/11/2020 **Notes** no RAF was produced but an ARAP was produced as part of the ESIA and disclosed	N/A

IFAD
Investing in rural people

Rwanda

Kayonza Irrigation and Integrated Watershed Management Project - Phase II

Project Design Report

Annex: Annex 14 Review of Feasibility studies and ESIAs

Mission Dates:	07-18 December 2020 and 18 January-05 February 2021
Document Date:	03/09/2021
Project No.	2000002350
Report No.	5743-RW

East and Southern Africa Division
Programme Management Department

Annex 14: Review of Feasibility studies and Environmental and Social Impact Assessments (ESIAs)

This annex summarizes the review of the feasibility studies (FSs) and Environmental and Social Impact Assessments (ESIAs) that was undertaken by the KIIWP2 design team that looked at technical, financial, economical, and environmental aspects of the FSs, and formulated recommendations that were used by the national team to adjust the Fs. They were also integrated in the design of KIIWP2.

In order to proceed from KIIWP1 to KIIWP2, verifiable triggers had been agreed upon:

i. FSs identify irrigation schemes that are financially, economically, environmentally and socially viable and sustainable;
ii. third party satisfactory review of FSs, ESIAs and Abbreviated Resettlement Action Plans (RAPs);
iii. ESIAs and RAPs are disclosed at local community level, national and IFAD website for a minimum 120 days;
iv. provision of a budget and commitment by Government of Rwanda to implement the RAP and other ESMP activities; and
v. revision of the PDR and PIM to incorporate the findings of KIIWP1.

Feasibility studies

In order to respond to the urgent demand of the Government of Rwanda (GoR) to tackle drought-related issues in the Eastern Province within the shortest possible time, IFAD together with GoR opted to implement KIIWP along two phases in order to facilitate an early project start up. One of the triggers to have KIIWP-2 approved, was the completion of the Feasibility Study of the Ndego and Kabare pumped irrigation system (2,010ha). The feasibility report was completed and shared with IFAD in October 2020 and the following, is the technical review note of Ndego and Kabare feasibility report and key recommendations were made to inform the upcoming detailed design phase of Ndego and Kabare irrigation schemes.

Socio-Economic context

A big percentage of the study area is still virgin, especially lowlands and hills where irrigation should be applicable. The agriculture development in Kayonza district presents a large potential in terms of social and economic welfare of the population”

The Socio-economic study report, revealed that residents welcome this irrigation project very much. They have been requesting this for many years. The residents’ biggest economic activity and major source of income is rain-fed traditional agriculture. The majority of the households have land plots of 0.5-1ha size (37.9%) and 1-2ha (26.3%). The land conflicts are generally not a problem, it was reported to be affecting only 3.2% of sampled households

Topography of the study area

The Topographic survey was conducted to characterize the elevations and slopes of the project area. The potential irrigation areas in the project area are composed of flat, rolling, and milder slope and a few sections undulating. All the catchment on these potential areas drains to the lakes. The slopes in the project area vary from 0-8% with an average of 5%, which is suitable for different types of irrigation systems. The altitude in the project areas varies between 1280 and 1360 m.a.s.l.

Soils and agriculture studies

A soil survey conducted over the defined irrigation gross area of 2,500ha, included soil sampling at 127 sampling zones in two depths (0-30cm and 30-60cm), soil pits and infiltration tests in 12 locations representative of the relevant soil series. Results indicated soil depths greater than 1m, mostly Loamy Sand and Sandy Loam soils with 55% to 90% sand content, medium to high soil bulk density (1.3 to 1.6 g/cc), infiltration rates within acceptable range (12-56mm/hr) and

generally high hydraulic conductivity (Ks 44-149mm/hr). Soils were generally acidic (pH 4.75-7.2), non-saline.

The residents generally practice subsistence agriculture and depend majorly on rain. The residents associate their level of poverty and low agricultural productivity to the low rainfall and drought conditions which occur regularly. Due to these unpredictable conditions, they are hesitant to invest in costly agricultural inputs and equipment (improved seeds, fertilizers, pesticides, machinery, etc.).

The irrigation systems that provide water to the farmers' crops throughout the year would be the game changer. The agricultural study identified the main crops grown in the area to be Beans, Soybeans, Maize, cassava and Sorghum. Based on these crops and considering other market-oriented crops, the Consultant proposed a cropping calendar and cropping pattern for the irrigation scheme.

The proposed crops include Maize, Soy beans, Common beans, French bean, Onions, Tomatoes, Watermelon, Banana, Irish potato, Chilies (Red pepper), Green pepper (Capsicum) and Avocado.

Land Husbandry (Catchment Rehabilitation and Protection)

The total arable land on hillsides constitutes a vast majority of the total agricultural land in the country, but erosion costs the country 1.4 million tons of fertile soils per year. Without the option of extensification, agricultural intensification must take place in the context of a potentially fertile, but challenging, physical environment, making good land husbandry a strict necessity to curtail erosion and otherwise maintain the quality of the soil, as well as an environmental prerogative.

All proposed activities are intended to improve hillside agricultural management through protection against soil erosion and enhancing sustained crop productivity as well as to improve plant cover and enhance ecosystem conservation in fragile land units in the project-affected area in both irrigated or rain fed areas.

The Land husbandry Study analyzed the slopes and soils in the project area and made recommendations of land husbandry and soil conservation technologies to improve hillside agricultural management by protecting against soil erosion, enhancing sustained crop productivity, improving plant cover and enhancing ecosystem conservation in fragile land units in the project area.

For Ndego and Kabare sectors, the catchment covers 2,491.75ha and the command area is 2,010 ha split into three blocks touching Kibare, Ihema and Nasho lakes respectively. The total command area is used for irrigated agriculture. Land husbandry technologies are proposed to be implemented in both catchment and the command area.

The proposed technologies include a drainage system, land levelling (terracing), contour buffer strips, contour ditches, contour bunds, agroforestry trees and shrubs, contour ploughing, silt traps and application of lime, mulching and compost.

The approach is agreeable and recommended technologies are acceptable to be implemented in the project area of Ndego and Kabare schemes.

Proposed technologies for Catchment Area

The total command area catchment of Ndego and Kabare project site is 2,491.75 ha accounting for 55.25 % of the total project site. The major portion, 86.17 % of the command area catchment is situated in 0-6% slope class while 6-16% slope category cover only 13.8% of the total agricultural area of the catchment.

The dominant land terrain 0-6%, the almost flat area will be treated with appropriate physical and biological measures while the land on 6-16% of the slope will be treated with the anti-erosive trenches supported with appropriate biological technologies.

The proposed technology to manage the catchment area is correct and recommended for implementation however this is a good land for irrigation development. The 2,492 ha area with 86.17% ranging from 0 to 6% can be fully irrigated.

Water Resources Development

The Hydrology and Water Resources study characterized the climatic and hydro-logical patterns in the area and modelled the water resources availability from the source lakes. The Ndego and Kabare irrigation schemesare located in the lower Akagera basin. The climate of the project area is dominated by two rainy seasons from March to May and from October to December (bimodal pattern).

The monthly rainfall varies from 110 mm in March, 162 mm in April and declining to 10.3 mm in July. The annual rainfall for the command areas is 998 mm with annual dependable rainfall of 772 mm. On average, 71% of the annual total rainfall falls during the wet seasons.

The area is characterized by a network of lakes hydrologically connected with the Akagera River, either directly through surface flows or through swampy areas.

The Akagera River is a major source of water to the area and to Lakes Nasho and Kibare. Draining an estimated surface area of 57,073km^2 (up to project area location) and with relatively high rainfall in upstream basin areas (>1600 mm), the river flows have varied historically from 63.2 m^3/s to a maximum of 621.9 m^3/s with a 21-year mean daily flow 231 m^3/s, based on flow records from 1971 to 1991. Inflows in to Lake Nasho is estimated to be about 4.79 million m3 per year and 7,500 million m3 for Lake Kibare. The irrigation water demand was estimated using FAO CROPWAT 8.0 as follows; Ihema, 4.6 million m3; Kibare, 3.61 million m3; Nasho, 2.63 million m3. Environmental flow targets are set using the Global Environment Flow Calcultator. Furthermore, a water allocation model was devised to model the lake water availability for irrigation. Water abstractions by other water users, environmental flows and domestic water supply were also incorporated in the model.

The results of the water allocation model show reliable source of water for irrigation development with high reliabilities (>80%, which is normal target for irrigation design) for both Lake Kibare and Lake Nasho.

The hydrological study seems to show a direct and indirect connection between the 3 lakes and the Akagera River. The projected level of abstraction from the lakes indicate no significant impact (in terms of water resources) to the Akagera transboundary waters.

The project will be implemented and an ecologically fragile ecosystem. The project area used to be part of the Akagera National Park with rich biodiversity. An expected increase in water exchange from the river into the lake will attract more sediment into the lake. There is a need to evaluate the long-term impact due to additional sedimentation into the lakes.

In terms of water quality, a more turbid water is expected in the lakes especially in Kibare Lake with direct connection with Akagera River. This change in water quality should be taken into consideration while designing the pumping station as well as the irrigation water application system (sprinklers nozzles).

Irrigation command area design and options

The delineation factors include slopes, proximity to the water sources, minimal elevation differences (max 65m was recommended), 25% extra for infield irrigation & drainage system, road networks and land suitability issues.

Fieldwork and studies during the delineation process indicate a larger potential irrigation area for future development. Three blocks were delineated with a total gross area of 2,500ha and net area of 2,010 ha. The topographic survey, soil study and preliminary layouts were carried out on this gross area.

Five irrigation options were assessed based on irrigation system types and water supply methods. The first 5 options were evaluated for their technical and financial viability.

The five options are: (i) Option 1 - Open channel conveyance for surface irrigation, (ii) Option 2 - Piped conveyance for pressurized and open channel conveyance for surface irrigation, (iii) Option 2B - Same as Option 2 with water supply for Ihema Block from Lake Kibare (no water pumped

from Lake Ihema) (iv) Option 3 - Fully pressurized irrigation system (Center Pivot Technology and Sprinkler) and (v) Option 3B - Same as Option 3 with water supply for Ihema Block from Lake Kibare (no water pumped from Lake Ihema)

The recommended irrigation technology (Option 3B - Fully pressurized irrigation system with Center Pivot Technology and Sprinkler) is agreeable as it offers tangible advantages as compared to the remaining four options. The feasibility report proposed a rationing between pivots and sprinklers as 70% and 30 % respectively.

Irrigation design review: While the feasibility study proposed fixed sprinklers, there is need to consider movable drag-line sprinklers with 2 to 3 shifts, during detailed designs. In addition, farmers will be assisted to select the irrigation system of choice, between centre pivots and sprinklers. This will reduce on investment cost, operation and management costs and improve on profitability of the project.

In terms of irrigation system lay-out, an integrated model is recommended. The integrated model will consist of keeping some areas between the irrigated areas free for other uses. The other uses include farm houses, animal sheds, manure production area, kitchen and nutritional gardens, etc. this will have advantages of keeping the farmers inside their farms and reduce the cost of transport of manure etc towards a quick and effective ownership.

In terms of pumping stations, the detailed design will exploit a possibility of using two clusters of pumps for lower command area and upper command area, in case direct pumping is found feasible. This may improve a lot in terms of power consumption.

Scheme management arrangements: The schemes will be divided into smaller units of about 200ha each, to facilitate management by WUO. The units may come together, on a voluntary basis, to form an apex organization for more integration for economies of scale in crop production, marketing and operation and management. The farmers will pay for full operation and maintenance costs.

Project Costing

The investment costs for the recommended option are about US$25,740 million for the 2,010 ha (US$12,806/ha).

Economic and Financial Analysis of Irrigation Schemes (EFA)

The investments are expected to increase water availability and shift crop production from rain-fed to irrigated agriculture. Increase in yields are expected accordingly, especially so considering the increased access to water during the dry season. Similarly, cropping intensity is also expected to increase. Water users are expected to contribute to the investment by paying about 15 percent of the initial investment cost for the construction/rehabilitation work and by covering O&M layouts. Command areas vary according to the irrigation scheme, orography, water reservoir capacity and the altitude of the water catchment area.

The table below summarizes the key profitability indicators of the irrigation schemes within the Ndego and Kabare area analysed in the EFA carried out during the KIIWP2 design mission. Further details are presented in Annex 4.

Summary of profitability results for irrigation schemes

Model	Command area	Financial			Economic		
		NPV (Rwf mil.) @ 11%	IRRf	B/C ratio	NPV (Rwf mil.) @ 8%	IRRe	B/C ratio

Kibare irrigation system	570 ha	2,303	15%	1.15	4,179	18%	1.34
Ihema irrigation system	700 ha	2,671	16%	1.15	5,000	18%	1.33
Nasho irrigation system	740 ha	1,332	13%	1.07	4,206	16%	1.28
Kanyeganyenge Dam and Irrigation Scheme	150 ha	91	12%	1.03	151	9%	1.05
Gishanda Dam and Irrigation Scheme	125 ha	111	12%	1.04	159	10%	1.06

Environmental and Social Impact Assessments (ESIAs)

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.

In 2018, the exact site boundaries and/or locations of interventions were not yet determined and feasibility studies were not yet carried out. However, in order to respond to the urgent demand of the Government of Rwanda (GoR) to tackle drought-related issues in the Eastern Province within the shortest possible time, IFAD together with GoR opted to implement KIIWP along two phases in order to facilitate an early project start up. During the design of KIIWP 1, an Environmental and Social Management Framework was carried out to guide the preparation of Environmental and Social Impact Assessments and related Environmental and Social Management Plans for pumped irrigation in Ndego and Kabare Sectors totaling 2000 ha, with an additional 275 ha of land to be developed for marshland irrigation in Rwinkwavu, Kabare and Kabarondo Sectors; and farm ponds to be constructed for rainwater irrigation in Muruma Sector, amounting to 10ha of land. It was 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. It was expected that the finalization of these studies will trigger the phase II dedicated to operationalization of large irrigation infrastructure activities and farm business development support.

In September 2020, the ESIA for Ndego and Kabare sectors, including 3 command areas totaling 2,010 ha were finalized and submitted to IFAD for review. A first virtual validation workshop was organized on 28 September 2020. The workshop gathered representatives from Ministry of Agriculture and Animal Resources (MINAGRI), Ministry of Environment (MoE), Rwanda Environmental Management Authority (REMA), Rwanda Water Resources Board (RWB), Rwanda Development Board (RDB), FONERWA, Rwanda Meteorological Agency (RMA), Kayonza District, Rwanda Housing Authority, World Bank's SPIU (implementing similar projects), CIAT and IFAD. The participants provided substantive comments on how to improve the quality of the report, especially data related to: i) ecological baseline of the project area in consideration of the characteristics of Kayonza District and Akagera National Park as a high biodiversity hotspot; ii) water resources baseline including potential wetland areas; iii) climatic conditions; iv) biophysical & socio-economic status (such as land use and cover, land tenure, etc.) for all proposed sitting for key irrigation infrastructures for all three irrigation block (pumping stations, balancing storage tanks, etc.) and; iv) the methodologies used for analyses of alternatives.

In November 2020, a revised version of ESIA for Ndego and Kabare was submitted to IFAD for final review. IFAD noted that the consultant had made commendable efforts in updating the report and most of the key issues were addressed and included in the revised report. Final minor comments were provided and addressed subsequently. On 07 December 2020, the final report

was shared with IFAD Webteam for disclosure on IFAD-SECAP disclosed documents on the below link:

https://www.ifad.org/documents/38711624/40206666/esia_rwanda_kayonza.pdf/23278175-56ba-b0a5-8e4e-634032cf2cc5

The ESIA estimated that the implementation of KIIWP in Ndego and Kabare sectors, including Ihema, Kibare and Nasho command areas, is likely to have several positive impacts. The positive impacts from the proposed activities include employment creation and poverty reduction, soil fertility improvement and hillside restoration, rural development, irrigation efficiency, improved access roads, among others. Potential adverse impacts include reduced water level in lakes during balancing storages (BS) filling, soil fertility loss due to land husbandry works, surface water pollution due to agrochemicals use, influx of people in search for employment, increased spread of waterborne diseases, incidence of crop pest and diseases, etc.

The adverse impacts from the irrigation, land husbandry, access roads and post-harvest infrastructures (PHI) constructions can be mitigated. The proposed mitigation measures to minimize negative impacts are the stabilization with vegetation of land husbandry infrastructures immediately after their construction; backfilling and stabilization of borrow pits; establishment of silt trap zone along drainage canals and around balancing storages; compensation of land, crops and trees on BS, borrow pits, PHI sites; regulating water abstraction for irrigation and other uses; adoption of water saving irrigation approach by beneficiaries, capacity building of beneficiaries in agrochemicals application, awareness campaign on the prevention of water borne disease and hazards related to unrestricted entry into the BS; etc.

Given the nature and location of the project, in the vicinity of the biodiversity hotspot, and considering the identified adverse impacts and proposed management and monitoring plans, the ESIA team concluded that, the project is feasible and there are no major negative environmental and social impacts that could result from its implementation which cannot be mitigated.

In terms of resettlement implications, there is no physical resettlement expected from project implementation. However, land acquisition is required for pressure pipes, pumping station and water balance storages. Furthermore, loss of income is expected during land husbandry works.

The ESIA recommends the key following mitigations measures to be mainstreamed in all projects' interventions:

- Integrated Pest Management for all blocks
- Compensation for affected assets (e.g. properties due to irrigation, LH, PHI and access roads works)
- Implementation of Grievance Redress Mechanisms
- Training of workers on occupational and health measures and adherence to them
- Planting of native trees to replace the ones lost
- Irrigation water quality tests (Level of bio-chemicals)
- Adoption of adequate measures for controlling flow of downstream usage (reparation of damages canals, structures and pipes)
- Control of spread of water borne diseases (bi-annual survey in project sites)
- Establishment of warning signposts around Balancing Storage and public awareness
- Control of water pollution
- Regulation of water level/ flow
- Capacity building of Grievance redress committees (GRCs) in every block and monitor GRM process
- Mitigation of soil erosion

- Preparation of Environmental management and Rehabilitation Plans for quarries, borrow pits and working areas
- Preparation and Implementation of employment and recruitment Policy including code of conduct
- Provision for workers occupational health and safety hazards
- First aid Kits and first aid helper will be provided at each working area
- Training of drivers and preparation of traffic management plan
- Sensitization on methods of HIV/AIDS prevention
- Rapid identification survey of nesting habitats and relocation areas
- Preparation and implementation of borrow pits management plan
- Specific area restricted to only authorize personnel, should be allocated for fuel storage
- Alternative water points for livestock and domestic uses and Provision of though for cattle in case of damages during the construction phase
- Sensitization on the importance of wild animals protection and reporting mechanism
- Sensitization of community on ownership, sustainability and vandalism of infrastructure
- Control of water weeds (mechanical and manual removal of weeds)

Due to a delayed launch of KIIWP phase I and incidence of the COVID-19 pandemic, the feasibility studies and ESIAs for Kanyeganyege, Gishanda, 5000 ha in the pipeline as well as hydrological surveys for rehabilitation and construction of valley tanks and boreholes were not finalised at the time of the design of KIIWP phase II. SPIU informed the mission teams that these studies will be finalised as follows:

Area	***Activity***	***Timeline***
Gishanda	Feasibility study	- Contract will be signed in May 2021 - Final report to be submitted to the SPIU by April 2022
	ESIA	- will start after getting the pre-feasibility study - Final report will be finalised in January 2022
Kanyeganyege	Feasibility study	- Contract will be signed by July 2021 - Final report to be submitted by April 2022
	ESIA	- will start after getting the pre-feasibility study - Final report will be finalised in April 2022
Pipeline for 5000 ha in the Eastern Province	Feasibility study	Contract will be signed in July 2021 - Final report to be submitted by July 2022
	ESIA	- will start after getting the pre-feasibility study - Final report will be finalised in July 2022
Construction of boreholes	Hydrological survey	- Initiated in February 2021
	Construction phase	10 boreholes to be finalized by August 2021
Valley tanks	Construction	10 valley tanks rehabilitated to be finalized by July 2021