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Report No: PAD4317

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PAPER

ON A

PROPOSED ADDITIONAL GRANT

IN THE AMOUNT OF
US\$5.99 MILLION

FROM THE GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAM

TO THE

REPUBLIC OF RWANDA

FOR THE

ADDITIONAL FINANCING FOR THE SUSTAINABLE AGRICULTURAL INTENSIFICATION
AND FOOD SECURITY PROJECT

JUNE 30, 2021

Agriculture and Food Global Practice
Eastern and Southern Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective May 31, 2021)

Currency Unit =	Rwandan Franc (RWF)
RWF 997 =	US\$1

FISCAL YEAR

January 1 - December 31

Regional Vice President: Hafez M. H. Ghanem

Country Director: Keith E. Hansen

Regional Director: Mark R. Lundell

Practice Manager: Shobha Shetty

Task Team Leader(s): Winston Dawes

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
BCC	Behavior Change Communication
BCR	Benefit-Cost Ratio
BNR	National Bank of Rwanda (<i>Banque Nationale du Rwanda</i>)
BP	Bank Procedure
CE	Citizen Engagement
CIP	Crop Intensification Program
COVID-19	Corona Virus Disease 2019
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CSA	Climate-Smart Agriculture
DG	Director General
DP	Development Partner
E&S	Environment & Social
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plans
ESF	Environment and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization of the United Nations
FAB	Farming as Business
FCS	Food Consumption Score
FFS	Farmers Field School
FM	Financial Management
FtMA	Farm to Market Alliance
GAFFSP	Global Agriculture and Food Security Program
GBV	Gender-Based Violence Sexual Exploitation and Abuse (SEA)/Sexual Harassment (SH)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoR	Government of Rwanda
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GRS	Grievance Redress System
ICR	Implementation Completion Report
ICT	Information and Communication Technology
IFR	Interim Financial Report
IPMP/PMF	Integrated Pest Management Plan
LWH	Land Husbandry, Water Harvesting, and Hillside Irrigation Project
M&E	Monitoring and Evaluation
MINAGRI	Ministry of Agriculture and Animal Resources
MIS	Management Information System
MTR	Mid-Term Review
NAP	National Agriculture Policy
NPV	Net Present Value
NSA	Nutrition-Sensitive Agriculture

NST	National Strategy for Transformation
OAG	Office of the Auditor General
OHS	Occupational Health Safety
O&M	Operations and Maintenance
OM	Operational Manual
OP	Operational Policy
PDO	Project Development Objective
PForR	Program-for-Results
PIM	Project Implementation Manual
PPP	Public-Private Partnership
PPSD	Project Procurement Strategy for Development
PRAMS	Procurement Risk Assessment and Management System
PSC	Project Steering Committee
PSTA	<i>Plan Stratégique pour la Transformation Agricole</i> (Strategic Plan for Agriculture Transformation)
RAB	Rwanda Agriculture and Animal Resources Board
RAP	Resettlement Action Plan
REU	Rwanda Economic Update
RF	Results Framework
RPF	Resettlement Policy Framework
RSA	Rapid Social Assessment
RSB	Rwanda Standards Board
RSSP	Rural Sector Support Project
RWF	Rwandan Franc
SACCO	Savings and Credit Cooperative
SAIP	Sustainable Agricultural Intensification and Food Security Project
SC	Steering Committee
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SHG	Self-Help Group
SH	Sexual Harassment
SLM	Sustainable Land Management
SME	Small and Medium Enterprises
SMS	Short Message Service
SORT	Systematic Operation Risk Rating Tool
SPIU	Single Project Implementing Unit
SSIT	Small Scale Irrigation Technology Development Program
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
ToC	Theory of Change
UK	United Kingdom
WB	World Bank
WFP	World Food Program
WHO	World Health Organization
WUA	Water Users Association

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BASIC INFORMATION – PARENT (Sustainable Agricultural Intensification and Food Security Project - P164520)

Country Rwanda	Product Line Recipient Executed Activities	Team Leader(s) Winston Dawes		
Project ID P164520	Financing Instrument Investment Project Financing	Resp CC SAEA2 (9244)	Req CC AECE2 (6542)	Practice Area (Lead) Agriculture and Food

Implementing Agency: Rwanda Agriculture and Animal Resources Board (RAB)

Is this a regionally tagged project?	
No	

Bank/IFC Collaboration
No

Approval Date 14-Sep-2018	Closing Date 31-Aug-2023	Expected Guarantee Expiration Date	Original Environmental Assessment Category Partial Assessment (B)	Current EA Category Partial Assessment (B)
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Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a Non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

Development Objective(s)

To increase agricultural productivity, market access, and food security of the targeted beneficiaries in the project areas.

Ratings (from Parent ISR)

	Implementation					Latest ISR
	10-Apr-2019	26-Jul-2019	21-Oct-2019	15-Apr-2020	09-Nov-2020	07-May-2021
Progress towards achievement of PDO	S	S	S	S	S	S
Overall Implementation Progress (IP)	S	S	S	S	S	MS
Overall Safeguards Rating	S	S	S	S	MS	S
Overall Risk	M	M	M	M	M	M

BASIC INFORMATION – ADDITIONAL FINANCING (Additional Financing for the Sustainable Agricultural Intensification and Food Security Project - P175912)

Project ID P175912	Project Name Additional Financing for the Sustainable Agricultural Intensification and Food Security Project	Additional Financing Type Scale Up	Urgent Need or Capacity Constraints No
Financing instrument Investment Project Financing	Product line Recipient Executed Activities	Approval Date 30-Jun-2021	
Projected Date of Full Disbursement	Bank/IFC Collaboration		




31-Dec-2024	No		
Is this a regionally tagged project?			
No			

Financing & Implementation Modalities

<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a Non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)
<input type="checkbox"/> Contingent Emergency Response Component (CERC)	

Disbursement Summary (from Parent ISR)

Source of Funds	Net Commitments	Total Disbursed	Remaining Balance	Disbursed
Grants	26.30	12.22	14.08	 46 %

PROJECT FINANCING DATA – ADDITIONAL FINANCING (Additional Financing for the Sustainable Agricultural Intensification and Food Security Project - P175912)

FINANCING DATA (US\$, Millions)

SUMMARY (Total Financing)

	Current Financing	Proposed Additional Financing	Total Proposed Financing
Total Project Cost	32.97	5.99	38.96
Total Financing	32.97	5.99	38.96
Financing Gap	0.00	0.00	0.00



DETAILS - Additional Financing

Non-World Bank Group Financing

Trust Funds	5.99
Global Agriculture and Food Security Program	5.99

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any other Policy waiver(s)?

Yes No

Explanation

The SAIP parent project (P164520) was approved under the old ESF. The project team has prepared an ESF policy waiver request for the AF in line with the Bank Policy, "Operational Policy Waivers"; Bank Procedure, "Operational Policy Waivers and Waivers of Other Operational Requirements" and Bank Procedure for Additional Financing for Investment Project Financing applying the World Bank Safeguard Policies. The AF activities will build on the ongoing original Project activities which will not change the environmental and social safeguards category. The residual environmental and social risks will continue to be site specific, predictable and can be mitigated, and therefore remain "Moderate".

Has the waiver(s) been endorsed or approved by Bank Management?

Approved by Management Endorsed by Management for Board Approval No

Explanation

On Monday, February 22, 2021, World Bank management approved a request for a waiver of the Environmental and Social Framework, the Environmental and Social Directive for Investment Project Financing, and the Directive on Addressing Risks and Impacts on Disadvantaged or Vulnerable Individuals or Groups for exceptional use of the proposed Additional Financing (AF) to scale-up the Rwanda: Sustainable Agricultural Intensification and Food Security Project (SAIP) Global Agriculture and Food Security Program Trust Fund Grant TFOA8221.

INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Winston Dawes	Team Leader (ADM Responsible)	Agriculture Economist	SAEA2
Mulugeta Dinka	Procurement Specialist (ADM Responsible)	Procurement	EAERU
Mkombozi Bosco Karake	Financial Management Specialist (ADM Responsible)	Financial Management	EAEG1
Christine Kasedde	Environmental Specialist (ADM Responsible)	Environmental Safeguards	SAEE2
George Bob Nkulanga	Social Specialist (ADM Responsible)	Social Development Safeguards	SAES2
Alexandra C. Sperling	Team Member	Legal	LEGAM
Antoinette Kamanzi	Team Member	Operations	AEMRW
Belinda Mutesi	Team Member	Administration	AEMRW
Bodomalala Sehenoarisoa Rabarijohn	Team Member	Administration	SAEA2
Esdras Byiringiro	Team Member	Agriculture Economist	SAEA2
Hayalsew Yilma	Team Member	Irrigation Specialist	SAEA3
Irene Bomani	Team Member	Agriculture Specialist	SAEA2
Irina Schuman	Team Member	Agriculture Economist	SAEA2
Jean O Owino	Team Member	Finance	WFACS
Ndiga Akech Odindo	Counsel	Lawyer	LEGAM
Wolfgang Mohammad Taghi Chadab	Team Member	Finance	WFACS



Extended Team

Name	Title	Organization	Location
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I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

Introduction

1. This Project Paper seeks the approval of the Eastern and Southern Central Africa Region Regional Vice President to provide a grant of US\$5,985,295 from the Global Agriculture and Food Security Program (GAFSP) as Additional Financing (AF) to the Republic of Rwanda for the ongoing Sustainable Agricultural Intensification and Food Security Project (SAIP) (P164520). The funds will support short to medium-term responses to offset the adverse socio-economic impacts from the ongoing Corona Virus Disease 2019 (COVID-19) global pandemic on the agriculture and food system in the project areas.
2. On January 30, 2020, the World Health Organization (WHO) declared the Coronavirus Disease 2019 (COVID-19) virus outbreak a global pandemic. The world went into lockdown and began witnessing the astounding pace of the global spread of COVID-19, its devastating health and socio-economic impacts, and implementation of unprecedented containment measures. As part of the World Bank's overall response to the pandemic, the GAFSP Steering Committee (SC) put out a call for proposals for additional funding from its Public Sector Window - COVID-19 Additional Financing. Among the GAFSP criteria for use of the additional funds was that proposed activities needed to be linked to an ongoing investment operation to facilitate the disbursement and use of the funds. In response, the Government of Rwanda (GoR) submitted a proposal for the additional funding to implement COVID-19 response activities under the ongoing SAIP.
3. The total original funding for the SAIP is US\$32,968,753. It includes a GAFSP grant in the amount of US\$26,300,000 and US\$6,668,753 from the GoR and beneficiary contributions. It was approved on September 14, 2018, became effective on December 18, 2018, and is currently scheduled to close on August 31, 2023. Its project development objective (PDO) is *"to increase agricultural productivity, market access, and food security of the targeted beneficiaries in the project areas"*.
4. The project is targeting men, women, and youth in rural households. The direct beneficiaries are an estimated 38,606 households, some of whom have grouped themselves into farmer organizations (Water Users Associations [WUAs], Self-Help Groups [SHGs], and cooperatives). Its indirect beneficiaries are about 200,000 individual family members of the targeted households, of which 88,000 are women.
5. The proposed AF will be used to build on and scale-up ongoing SAIP activities. It will also help mainstream several containment measures in select project sites to reduce the spread of COVID-19 during project implementation. The AF will target producer organizations with emphasis on the most vulnerable, youth and women beneficiaries who have been disproportionately impacted. It is expected to benefit an additional 7,082 households which would bring the total number of project beneficiaries to 45,688 households. The AF will not change the original project safeguards category or trigger new safeguards policies.

Background

6. The SAIP has been under implementation for two and a half years. It is among a series of World Bank funded investment operations directly contributing to Rwanda's ongoing transformation of the agriculture and food sector from a subsistence sector, to a knowledge-based value creating sector. The transformation is being guided by an array of frameworks, agriculture strategies and programs which have identified the policies,



regulations, and investment areas needed to accelerate inclusive productivity growth, expand nutritious food production, strengthen resilience to climate change and increase private sector investment in the sector. Rwanda's efforts to create an evolving enabling policy context and environment to modernize the sector is in line with its Vision 2050 which details a pathway to attain upper middle-income country status by 2035 and high-income status by 2050. The country's commitment is well articulated in among others the National Strategy for Transformation (NST1; 2017-2024); National Agriculture Policy (NAP) 2018-2030; and a series of successive evolving Strategic Plans for Agriculture Transformation (*Plans Stratégiques pour la Transformation Agricole - PSTA*) prepared between 2003 and 2018¹. The seven-year NST focuses on attaining the Vision 2050 economic, social, and governance transformation with a priority focus on climate smart agriculture (CSA), nutrition-sensitive agriculture (NSA), increasing market access for farmers, and support to institutions to shift their roles from market actors to private sector-enablers. The NAP highlights the rapid changes, main trends, challenges for agriculture and the food system at large, and provides a roadmap to facilitate achievement of a productive, green, and market-led agriculture sector by 2030. The fourth Strategic Plan for Agriculture Transformation/Plan Stratégique pour la Transformation Agricole (PSTA4) is an implementation plan for the NAP and is grounded on four pillars².

7. The SAIP contributes to the NTS priorities through its focus on CSA, NSA, and promoting market access for smallholder farmers, and primarily to two of the PSTA4 pillars: (a) productivity and commercialization for food security, nutrition, and incomes; and (b) resilience and sustainable intensification. The project is also contributing to the World Bank's corporate objectives of ending extreme poverty and promoting shared prosperity in a sustainable way. It is well-aligned with the World Bank Group's Country Partnership Strategy³ (CPS) for Rwanda FY14–20 (Report No. 87025-RW) and the new CPF FY21-26 (Report No. 148876-RW) both of which recognize and prioritize agriculture as a key contributor to economic growth. SAIP contributes to three key agriculture outcomes of the previous CPS: (i) CPS Outcome 5, 'improved agriculture productivity and sustainability'; (ii) CPS Outcome 6, 'improved access of rural /small farmers to inputs, financing, and markets'; and (iii) CPS Outcome 7, 'improved agriculture value chains'. It is predominantly in line with the new CPS' objective number 4 "increased agricultural productivity and commercialization".

8. The project builds on and is consolidating the results of two previously funded World Bank projects: the third Rural Sector Support Project (RSSP3) (P126440); and the Land Husbandry, Water Harvesting, and Hillside Irrigation Project (LWH) (P114931), and other schemes developed by the Ministry of Agriculture and Animal Resources (MINAGRI). The two projects are credited with having: (i) raised rural incomes and improved the livelihoods of over 685,000 people from more than 150,000 households in the project areas; (ii) moved beneficiary farmers from low-value subsistence production to commercial agriculture; (iii) increased productivity in the targeted irrigated hillside command areas⁴ and irrigated marshlands⁵; (iv) increased

¹ PSTA1 (2004-2008), PSTA2 (2009-2012), PSTA3 (2013-2017) and PSTA4 (2018-2024).

² (i) Productivity and commercialization for food security, nutrition, and incomes; (ii) Resilience and sustainable intensification; (iii) Inclusive employment and improved farmers' skills; and (iv) An effective enabling environment and responsive institutions. Women and youth are mainstreamed across all priority areas with specific measures and incentives to increase gender equity and introduce skilled youth to commercial farming and jobs along the agricultural value chains featured under pillar 4.

³ agriculture priorities include: (a) boosting productivity through soil conservation and improved land husbandry; (b) facilitating a transition from subsistence to commercial farming practices; (c) addressing underemployment in rural areas and raising rural incomes; (d) strengthening the enabling environment to attract and retain private investments; (e) encouraging entrepreneurship; (f) facilitating market access and (g) addressing child malnutrition in rural areas.

⁴ 10 times, from a baseline of US\$92 to US\$5,639 per hectare (LWH Implementation Completion Report [ICR] Report number 00004539).

⁵ 4 times, from a baseline of US\$662 to US\$2,865 per hectare (RSSP3 ICR Report number 00004786).

productivity⁶ in targeted hillside catchment areas under rainfed production systems through use of improved land husbandry technologies and adoption of improved farm methods; (v) increased the marketing of agriculture produce⁷; and (vi) created frameworks to link farmers to commodity buyers and private sector investors. As a follow-on complementary operation, SAIP was also designed to address some of the unmet challenges under the RSSP and LWH (water use efficiency, access to finance, connectivity to regional markets) to achieve higher results and greater impact for additional beneficiaries, with targeted involvement of youth and women. The project is being implemented by the Rwanda Agriculture and Animal Resources Development Board (RAB), a non-commercial public institution with administrative and financial autonomy under the supervision of the MINAGRI. The SAIP intervention areas are in eight RSSP and LWH sites⁸ in eight districts covering four provinces (see table 1 below).

Table 1. SAIP Original Project Sites and Summary of Beneficiaries

No	Site Name	Districts	#Households	# Cooperatives	# WUAs
1	Muyanza	Rulindo	12,071	6	1
2	Rwamagana -34	Rwamagana	5,606	2	1
3	Karongi 12	Karongi	2,074	2	1
4	Karongi 13	Rutsiro	1,381	1	1
5	Kayonza 4	Kayonza	3,319	1	1
6	Nyanza 23	Nyanza	4,700	3	1
7	Gatsibo 8	Gatsibo	1,804	1	1
8	Nyabihu	Nyabihu	7,651	2	n.a.
Total		8	38,606	18	7

Source: SAIP Project Appraisal Document (P164520)

9. **SAIP interventions are centered on promoting nutrition-sensitive and climate resilient agriculture technologies, improving post-harvest handling, processing, and marketing systems, and building private sector linkages.** The project is targeting four major nutrition-sensitive value chains: (a) vegetables and fruits for domestic, regional, and international markets; (b) maize for domestic and regional markets; (c) Irish potato for domestic and regional markets; and (d) beans for domestic markets. These value chains were selected based on: (a) market and growth potential (unmet demand, potential for productivity gains, and value addition); (b) relevance and development impact (nutrition improvement, opportunities for on- and off-farm employment, and income-generation potential); and (c) consideration of strategic factors and feasibility for change (national priority crops and potential impact of the project). Emphasis is also on continued capacity building initiatives as the RSSP and LWH clearly illustrated the criticality for the sector, of establishing strong producer organizations with solid management and entrepreneurial skills and capacity, including their negotiation capacity with commodity buyers and other value chain actors. The project includes targeted focus on women and youth given the sector disparities in gender and youth.

10. **The Project's theory of change (ToC) combines the transformative pathways of social capital, sustainable production, and market development.** The results should be improved livelihoods and food security of targeted smallholder farmers, through increased agricultural productivity, value addition and access

⁶ 2.6 times for maize, 3.8 for climbing beans, and 8.3 times for Irish potatoes (LWH ICR).

⁷ doubled share of commercialized commodities from project areas, from 35 percent to 80.6 percent in 2018 (LWH ICR).

⁸ selected from existing irrigation schemes and their catchment areas based on food security and nutrition needs; market potential and access; cooperative/groups readiness; and agronomic suitability and potential for productivity gains.



to markets. The ToC does not require updating for the AF as the impact pathway remains the same.

11. **The final project outcomes will be assessed through both PDO and intermediate-level indicators as detailed in the Results Framework (RF).** The PDO indicators are: (i) percentage increase in harvested yield of targeted crops; (ii) percentage increase of produced commodities in targeted value chains marketed by participating producers; (iii) Food Consumption Score; and (iv) number of farmers adopting improved agricultural technology, disaggregated by gender.

Original project design and scope

12. **Project Components.** The SAIP has four components.

13. **Component 1: Institutional Strengthening, Agriculture Productivity Enhancement, and Nutrition Improvement.** This component has three sub-components which collectively aim to strengthen beneficiary farmer organizations in the project areas to: (i) enhance agricultural productivity levels and profitability of the targeted value chains; (ii) improve household nutrition; and (iii) transform into dynamic, successful, climate-smart, and sustainable farming businesses with productive linkages and access to agricultural markets.

- **Sub-component 1.1: Strengthening farmer organizations.** This sub-component aims to further reinforce the targeted beneficiary farmer organizations, cooperatives, public sector extension agents and agribusiness Small and Medium Enterprise (SME)s. It uses a range of capacity-building activities⁹, the climate-smart farming as business (FAB) approach and Farmer Field Schools (FFSs), with emphasis on building women and youth leadership skills.
- **Sub-component 1.2: Agricultural productivity enhancements.** The sub-component is supporting CSA interventions to further increase productivity and profitability of the horticulture, maize, Irish potatoes, and bean value chains. Ongoing activities include support to farmers for use of improved climate-sensitive agricultural inputs, upgraded farm management practices, farm mechanization and technology including use of Information and Communications Technology (ICT) applications to improve and expand farmers' access to knowledge, agricultural information, and markets.
- **Sub-component 1.3: Improving nutrition outcomes at household level.** This sub-component aims to improve nutritional outcomes at the household level by increasing access to healthy and diversified foods¹⁰ and promoting use of good practices for better nutrition. Key activities include establishment of village nurseries for fruit trees; Technical Assistance (TA) for preservation and transformation of locally produced foods; nutrition education on good practices for improved nutrition and adoption of new varieties of nutrient-rich bio-fortified crops; Behavior Change Communication (BCC) for improved nutrition through social marketing campaigns, radio programs, ICT messaging, and healthy cooking menu/demo meals.

⁹ Demand-driven training on organizational management, business planning, making market-led production decisions, improved agricultural practices, good agricultural and hygiene practices for healthy and diverse food consumption technology, and inputs use, functional literacy and numeracy of farmers, improving soil fertility and integrated nutrient management; promoting conservation agriculture, and technology demonstration trails.

¹⁰ diverse vegetables and fruits, including bio-fortified foods such as iron-fortified beans and orange-fleshed sweet potatoes with Vitamin A.



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

- **Sub-component 2.1: Improved efficiency and expansion of existing irrigation schemes¹¹.** The sub-component aims to increase irrigation efficiency in these schemes from a range of 60 to 65 percent to 75 percent through use of water-efficient irrigation technologies. It is providing matching grants and a support package (maintenance and business plan development) to beneficiary farmers to allow them to purchase small-scale irrigation equipment (sprinklers, drip, gated-pipes, hose-furrow technologies) from the SSIT program to improve water use. Focus is on farmers (especially youth and/or women groups) in hillside sites without irrigation schemes within the project sites.
- **Sub-component 2.2: Strengthening irrigation capacity.** The sub-component is funding on-farm training in the handling, assembling, and proper use of different irrigation equipment to improve adaptation rates and improve irrigation practices among farmers. It is also funding targeted capacity building of WUAs, to enable them to become effective organizations, able to operate the irrigation systems they manage. This includes training on irrigation water management, to enable WUAs to collect and use water fees more effectively for the operation and maintenance (O&M) of the targeted irrigation schemes, and management skills¹².

15. **Component 3: Market Linkages and Value Addition Investment Support.** The component aims to strengthen the capacity of farmers' organizations and other value chain actors and improve their access to finance to bolster market linkages and value addition. It has two sub-components:

- **Sub-component 3.1: Capacity building to foster market linkages.** The sub-component is supporting capacity building for farmer groups in post-harvest handling in the selected value chains to reduce losses and perishability, and preserve the nutrition value of produce; support for pre-processing activities (cleaning, grading, sorting, and packaging); and matching grants to procure packaging, processing and preservation equipment and technology. Additional activities include: (a) support to selected cooperatives, farmers and agri-processors to obtain quality certification¹³ for processed foods to facilitate their access to domestic and premium export markets; (b) identification of financial services and products, and provision of skills¹⁴ to farmers' organizations, youth, and women groups, entrepreneurs, and micro and small enterprises; and (c) workshops and training for financial institutions and intermediaries to increase awareness of market/business potential and use of Savings and Credit Cooperatives (SACCOs) for agent banking.
- **Sub-component 3.2: Investment support to market linkages.** This sub-component provides matching grants to finance post-harvest¹⁵, marketing and processing facilities for participating cooperatives which

¹¹ hillside irrigation constructed under the LWHP.

¹² planning, organizational management, infrastructure O&M, O&M costing and water pricing, financial planning, accounting, and bookkeeping.

¹³ Quality Standard Mark (S-Mark) for processed goods, from the Rwanda Standards Board (RSB) and other quality standards.

¹⁴ business development planning, financial management (FM), culture of savings, credit use and portfolio management of selected SACCOs.

¹⁵ threshers, weighing balances, dryers, including solar bubble dryers, moisture meters, hermetic bags, aflatoxin kits.



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

16. **Component 4: Project Management and Technical Assistance.** The component supports overall project management as follows:

- **Sub-component 4.1: Project Management:** The sub-component funds management and coordination; monitoring and evaluation (M&E); communication and knowledge sharing; TA; establishment and operation of a grievance redress system (GRS); and project operating costs at the national and district levels.
- **Sub-component 4.2: Technical Assistance.** The sub-component is funding three technical areas to complement the project interventions: (a) extension services; (b) nutrition; and (c) implementation of the farmer led SSIT. The TA activities are being implemented by the Food and Agriculture Organization (FAO).

17. **Project Performance.** The progress towards achievement of the PDO is "Satisfactory" while the implementation progress is "Moderately Satisfactory". Financial management, procurement performance and environment and social safeguards performance are all rated "Satisfactory". Project safeguards implementation performance has been consistently rated "Satisfactory" or "Moderately Satisfactory" and there have been no major safeguards issues identified\reported since project launch. The environmental and social safeguards risks are rated "Moderate". The existing safeguards instruments and mitigation measures are used appropriately by the client. There are no outstanding audits and the project is substantially in compliance with the key grant covenants. Overall implementation is in line with the approved project Operational Manual (OM). A mid-term review of the project is scheduled to be conducted in March 2022.

18. **Project Implementation Status.** As of May 31, 2021, 36,186 targeted beneficiaries of the end target of 38,606 have adopted improved agriculture technology, of which 15,159 are women. Over 36,000 farmers have been reached with agriculture assets or services. Successful introduction of greenhouse farming demonstrations inspired beneficiary farmers to prepare and request funding for 51 greenhouse investment projects, of which 28 have been approved for project funding. TA (with matching grants for implementation and coaching services to ensure sustainability) for the development of new agri-businesses has helped beneficiaries prepare and submit 214 business plans and detailed designs of 142 small-scale irrigation projects covering 291ha, of which 231.5ha have already been implemented. The use of efficient irrigation techniques and technologies on 349ha¹⁶ in irrigation schemes resulted in a 50 percent decrease in labor investment, a 60 percent increase in crop production optimization, lower incidences of pest & diseases, and development of farmers' skills in the operation and management of new irrigation technologies. Over 57,697 beneficiaries (30,002 females) are benefiting from nutrition interventions. Household nutrition is improving from the consumption of among others bio-fortified sweet potatoes rich in vitamin A and beans, mushrooms which are rich in potassium, zinc, iron, fiber, selenium and antioxidants, fruits, and animal protein, after beneficiaries received and planted 3,975,000 cuttings of orange-fleshed sweet potatoes, 5.6 tons of iron fortified beans, 15,405kg of vegetable

¹⁶ drips, rain pipes, hosepipes and sprinklers for chili, French beans, tomatoes, watermelon, onions, and ginger.



seeds, 778,206 fruit tree seedlings, and poultry kits. US\$9.77 million (37 percent) of the grant has been disbursed.

19. **Before the pandemic there were early signs of increased productivity in all the project supported crops** (5.7 percent to 50 percent depending on the crop) from the provision of inputs (1,343 tons of lime, 10,546 tons of compost) and capacity building programs on good agricultural practices. Quantities and sales in all the supported crops had increased due to use of certified seeds from project funded seed production activities and extension services (training, demonstration plots and advisory services). Through the World Food Program (WFP)'s Farm to Market Alliance (FtMA) platform, participating maize cooperatives sold 1,231.4 tons valued at US\$303,600. Beans and Irish potato growers aggregated and sold 2,244 tons of beans and 4,408 tons of Irish potatoes and earned US\$981,523 and US\$1,085,263 respectively. Participating cooperatives had increased their exports of different crops. From January 2019 to March 2021, twenty-six exporting companies sourced 607 tons of chili and 34 tons of French beans among other fresh products, which were exported to the UK, Netherlands, China, and other EU countries.

Rationale

20. **Rwanda's economy, agriculture and food sector, and implementation of the SAIP have been significantly and negatively impacted by the COVID-19 spillover effects from the enormous, abrupt stop in global economic activity and unprecedented strict containment measures** (total lockdown including border closures, strict restrictions of inter-district movements, nightly curfews; social distancing, a ban on public places/events, and closure of restaurants, schools, churches and the Kigali International Airport) instituted between late March 2020 to early May 2020. Kigali, the capital city, and its rural areas went back into lockdown from mid-January to early February 2021 following a new surge and high numbers of COVID-19 cases and deaths). Per the World Bank's Rwanda Economic Update (REU) "*Protect and Promote Human Capital in a Post-COVID-19 World*" January 2021 edition no. 16, Rwanda's Gross Domestic Product (GDP) fell by 12.4 percent during the lockdown period. GDP dropped by approximately 0.2 percent for 2020, versus a projected increase of 8 percent before the COVID-19 outbreak. Public debt rose to an estimated 66 percent of GDP in 2020 due to the joint impact of reduced revenues and increased public spending on management of the COVID-19 crisis. This is 6 percent higher than projected in the 2019 REU-15. Rwanda's debt distress risk rating rose from "low" to "moderate" per the 2020 Debt Sustainability Analysis. Unemployment rose from 13 to 22 percent of the labor force. Between February and May 2020, the employment to population ratio declined from 48.3 to 43 percent, with a larger drop of 6.2 percent among female workers versus 4 percent among male workers. This variance is attributed in part to the gender differences in roles and responsibilities. 44 percent women versus 31 percent men are seasonal workers in the agriculture sector, and 4 percent women versus 1 percent men are more likely to be the main caretakers of sick family members. Household incomes fell by 6.3 percent and consumption prices rose by 2.9 percent due to increases in unemployment and losses in trade avenues and earnings.

21. **The ripple effects of the COVID-19 containment measures on Rwanda's agriculture and food sector include among others:** (i) major stress on the food system and disruptions to the agri-food chain (including farmers, traders and agro-processing SMEs, transportation of food); and the local and international supply and demand chains for agriculture commodities and imported farm inputs (fertilizers, pesticides, and horticultural seeds); (ii) sector-wide job losses and labor shortages due to mobility restrictions; (iii) increases in local and international transaction costs; (iv) reduced access to local and export markets; (v) an overall drop in export commodity prices (Rwanda's fresh horticulture exports have been among the most affected); (vi) reduced sales



and lower prices of agriculture produce; and (vii) increased food insecurity, and greater food nutrient vulnerabilities, especially for the most vulnerable and poor. This in turn has exacerbated poverty and hunger especially for vulnerable populations in rural areas who rely on farming for their food and income.

22. Implementation of key SAIP activities and budget execution was either significantly delayed or disrupted by COVID-19. Major disruptions to income generating activities for participating cooperatives, especially those involved in horticulture production for export, aggregation, and commercialization have financially weakened their ability to maintain production and operate their businesses. The most affected have been the small agro-business initiatives, especially those managed by youth and women with smaller capital investments. Implementation of the SSIT program which requires farmers' contributions was delayed as potential beneficiaries were unable to financially participate. Regular maintenance and rehabilitation of irrigation and land husbandry infrastructures ordinarily carried out by scheme users (WUAs and cooperatives) was halted. This has resulted in serious deterioration of some of the critical irrigation infrastructure. Initiatives to facilitate farmer access to seeds were disrupted by both mobility restrictions and the exported input shortages. Capacity building activities to strengthen market linkages, including training on postharvest handling, storage and production aggregation were also halted. This resulted in an increase in post-harvest losses. Similarly, mobilization of FAO international experts to provide technical assistance in the implementation of SAIP activities was not possible. As a result, project beneficiaries have faced among others: (i) reduced production and rise in food prices. For example, the price of beans (rich in iron) increased by 25 percent from March to May 2020; (ii) reduced consumption of nutritious foods especially by children under five years, pregnant and lactating women, with a subsequent rise in malnutrition levels; (iii) increased surplus of unsold produce and an increase in post-harvest losses due to reduced demand and sales from urban centers, the hospitality industry and trade, (volume of exported horticulture produce dropped from 2,015 tons in March to 688 tons in April 2020, revenues fell from US\$2.1 million to US\$1.2 million); and (vi) reduced prices of exported horticulture produce (exported chili dropped from 700 to 350 Rwandan Francs per Kilogram).

23. By design, the SAIP is inherently already COVID-19 responsive given its focus on expanding productivity and private sector investment in the agriculture and food sector; food security and nutrition; livelihood creation; resilience to climate change; and targeting vulnerable populations, particularly at risk households, women and youth. The range of proposed ongoing activities for scale-up, which are linked and bundled along the selected value chains, and the new COVID containment interventions at project post-harvest facilities will directly address in the short to medium-term, the socio-economic impacts of the pandemic on the project beneficiaries. The activities are in line with many of the short and medium-term measures proposed in the World Bank's "*COVID-19 and Food and Nutrition Security: Menu of Options for Response*" such as those aiming to: (i) minimize food disruptions in domestic food supply chains using producer organizations, farmer groups, self-help groups; (ii) support the recovery of producer organizations and agribusinesses to rebuild supply chains; (iii) support agriculture income generating activities including targeting vulnerable rural households, women and youth; (iv) protect the most vulnerable from declining nutritional status through improved access to nutrition commodities and outreach programs; (v) facilitate access to inputs through financial grants; (vi) ensure worker and food safety through protocols and guidelines including hygiene and social distancing; and (vii) diversify livelihoods. The AF contributes to the World Bank's 'building back better' agenda as presented in its Approach Paper "*Saving Lives, Scaling-up Impact and Getting Back on Track*" published in June 2020. It is particularly well-aligned with the social and economic relief stages of pillar 2: Protecting the Poor and Vulnerable; and pillar 3: Ensuring Sustainable Business Growth and Job Creation; and the resilient recovery stage of pillar 4: Strengthening Policies, Institutions, and Investments for Rebuilding Better. The AF will also complement the ongoing World



Bank funded Rwanda COVID-19 Emergency Response Project approved in April 2020. Where possible the project implementing unit will seek opportunities for knowledge sharing with this and other development partner funded operations which are supporting COVID-19 responses.

Alignment with the Country Partnership Framework (CPF) and the client's crisis response strategy

24. The AF is well-aligned with the new Rwanda CPF for FY2021-26 (Report No. 148876 - RW) in particular objective number 4 "increased agricultural productivity, and commercialization". The CPF also highlights and supports the World Bank's ongoing COVID-19 response in Rwanda. The AF is also in line with and will contribute to the GoR's strategic COVID-19 Preparedness and Response Plan and Economic Recovery Plan for the period May 2020 – December 2021. The plan identifies agriculture as one of the sectors expected to contribute to quick economic recovery from the effects of COVID-19 through intensification to increase production. The plan guides the GoR on priority measures to: (i) contain the pandemic; (ii) mitigate the impact of the COVID-19 economic crisis on households' income; (iii) increase agriculture production to ensure food self-sufficiency; (iv) support businesses and protect jobs; and (v) ensure a coordinated multi-sectoral government response.

II. DESCRIPTION OF ADDITIONAL FINANCING

25. The following key elements of the parent project remain unchanged: The overall design; PDO; project components and sub-components; institutional, implementation, fiduciary, and environmental and social safeguards arrangements; and environmental and social safeguards category. However, the AF will entail six key changes to the original project: (i) changes in component costs; (ii) addition of three project areas and one district which are adjacent to the original sites; (iii) implementation of select COVID-19 mitigation interventions in post-harvest facilities; (iv) repair of damaged irrigation infrastructure, (v) changes in the Results Framework (RF); and (vi) extension of the project closing date. The AF activities will be implemented within an 18-month period beginning immediately after effectiveness, in line with the GAFSP requirements.

26. **Changes in component costs.** The AF will cover the: (a) incremental costs of the scale-up of all project activities in the original eight project areas; (b) implementation and management costs of project activities in the three additional areas; and (c) cost of implementing select COVID-19 containment measures in the project's post-harvest facilities to minimize the spread of COVID-19 during implementation. The aim is to: (i) revive income generating activities including on/off farming activities, aggregation and commercialization of produce to support beneficiary farmer organizations and input agro-dealers that lost revenue streams and income due to the containment measures; (ii) strengthen crop production disrupted by the pandemic to boost food security and nutrition; (iii) complement ongoing national COVID-19 hygiene and sanitation mitigation measures in critical project areas; and (iv) expand the pool of beneficiaries. The goal is to directly benefit an additional 7,082 households who have also been impacted by the pandemic. In line with the parent project, the AF activities will continue to target producer organizations, with emphasis on the most vulnerable, youth and women beneficiaries. Emphasis will also be on reaching small businesses of youth and women who have been disproportionately affected by the pandemic. The planned AF activities remain aligned with the PDO.

27. **The bulk of the additional funds will be allocated to scale-up activities under components 1 and 2, in particular, agricultural productivity enhancement and improvement of water use efficiency, expansion of targeted irrigation schemes and rehabilitation of select damaged irrigation infrastructure.** Table 2 provides a detailed break-down of the AF allocations per component. The aim is to: (a) counteract the impacts from the



significant reduction of production output, decline of the value of agriculture exports and loss of sources of incomes; and help expand production and subsequent revenues from sales; (b) increase availability of safe, affordable and nutrient-rich food to reduce food nutrient vulnerabilities and food insecurity; (c) address labor shortages brought on by the pandemic; and (d) help participating businesses reach the pre COVID-19 levels and continue to grow, and ensure continuous demand and supply of horticulture produce from the participating beneficiaries.

28. **Component 1 AF activities will focus on expanding agriculture productivity** of the project's selected staple and horticulture produce¹⁷ and diversification of ongoing nutrition interventions. Priority activities will include the scale-up of: (i) provision of seeds and fertilizers; (ii) support to logistics and equipment costs for eligible companies involved in the export of fresh agriculture commodities; (iii) provision of light agricultural machinery to youth groups to increase productivity and offset labor shortages; and (iv) support to small livestock farming to increase accessibility to animal protein for household consumption as well as provide an alternative source of income.

29. **Component 2 AF activities will contribute to the component's aim of improving efficiency, expanding existing irrigation schemes, and strengthening irrigation capacity to increase crop productivity and farmers' resilience to climate volatility.** Priority activities will include: (i) increasing matching grants for the provision and installation of SSIT systems and related capacity building to beneficiaries, to improve water use efficiency in the original and new project areas. The AF aims to develop water use efficiency technologies on at least 200ha in the new Ngoma 22 site; (ii) scale-up of training to farmers in the proper use of irrigation equipment and to water user associations on irrigation water management; (iii) expand ongoing and planned maintenance and rehabilitation of irrigation and land husbandry infrastructures, including access roads and reservoirs; and (iv) repair damaged irrigation infrastructure including buffer zones and catchment areas, which were destroyed by floods and landslides in April-May 2020, and could not be routinely maintained and rehabilitated by the participating WUAs and cooperatives during the lockdown period. This subsequently impacted crop production during seasons B and C in both the rainfed and irrigated areas.

30. **Component 3 AF activities will include:** (i) scale-up of ongoing activities to strengthen the technical, institutional, managerial and marketing capacity of farmer organizations and value chain actors (capacity development of farmers organizations to access business related finance, capacity building in post-harvest and in pre-processing; agriculture sector related training to financial institutions; and development of business plans); (ii) scale-up of ongoing activities aimed at improving market linkages, including (matching grants to beneficiaries for the construction of processing facilities and purchase of required equipment, operation and maintenance of those facilities and equipment); (iii) construction of hand-washing amenities in post-harvest facilities; (iv) provision of personal protection supplies and equipment (facemasks, sanitizers, gloves) to minimize the spread of the corona virus in the post-harvest facilities; and (v) mobilization through community meetings, local radio spots, bulk Short Message Service (SMS) messages/SMS blasts, and any other communication tools; and training for the use of communication technologies to link farmers to local markets, to reduce face-to-face interactions.

¹⁷ maize, beans, Irish potatoes, vegetables, and fruits.

31. **Component 4 AF activities will include all additional project management aspects for the AF including:** (i) management, coordination; (ii) M&E; (iii) communication and knowledge sharing; (iv) additional staff, operating costs; O&M and (v) TA.

32. Table 2 below shows the original and revised project cost breakdown of the total project funding (GAFSP and GoR contribution).

Table 2: SAIP Original and Revised Costs (US\$)

Components	Activities	Original Funding (GAFSP and GoR contribution) (US\$)	Additional GAFSP Funding (US\$)	Revised Budget (US\$) (Original + Additional)
Component 1: Institutional Strengthening, Agricultural Productivity Enhancement and Nutrition Improvement	1.1. Strengthening farmers organizations	2,010,955	503,158	2,514,113
	1.2. Agricultural productivity enhancement	4,978,200	1,487,158	6,465,358
	1.3. Improving nutrition outcomes at household level	1,161,200	231,495	1,392,695
Component 2: Irrigation and Water Efficiency	2.1. Improvement of efficiency and expansion of existing irrigation schemes	7,660,500	1,390,000	9,050,500
	2.2. Strengthening irrigation capacity	902,400	50,000	952,400
Component 3: Market Linkages and Value Addition Investment Support	3.1. Capacity building to foster market linkages	3,137,660	615,923	3,753,583
	3.2. Investment support to market linkages	5,872,379	952,204	6,824,583
Component 4: Project Management and Technical Assistance	4.1. Project management	6,097,580	655,357	6,752,937
	4.2. Technical Assistance	1,500,000	100,000	1,600,000
TOTAL		32,968,753	5,985,295	38,954,048

33. **Addition of three new project areas and one new district adjacent to the current project sites which have experienced similar impacts from the pandemic.** The project areas will be expanded from *eight*¹⁸ to *eleven*¹⁹ to expand food production for consumption and commercial use as well as to help insulate households from potential future export bans of agriculture commodities. The three new areas are: (i) **Ngoma 22**¹⁹; (ii) **Rwangingo**²⁰; and (iii) **Nyabirasi**²¹ The project districts will be expanded from *eight*²² to *nine*. The additional district is **Ngoma district**. The additional areas and district meet the parent project's selection criteria²³ applied to the original areas and districts. Ngoma 22 already has an existing irrigation infrastructure (dam, night storages, irrigation canal networks and water flow system) and land husbandry terraces (soil bunds, levelling and agroforestry trees and grasses) covering 1880ha (300ha of irrigable land and 1,5806ha of rainfed areas).

¹⁸ Muyanza, Rwamagana-34, Karongi-12, Karongi-13, Kayonza-4, Nyanza-23, Gatsibo-8, Nyabihu.

¹⁹ is in the Ngoma District in the Eastern Province.

²⁰ is in the Gatsibo District in the Eastern Province.

²¹ is in the Rutsiro District in the Western Province.

²² Rulindo, Rwamagana, Karongi, Rutsiro, Kayonza, Nyanza, Gatsibo, Nyabihu.

²³ food security and nutrition potential; market potential and access; cooperative/groups readiness; market access; agronomic suitability; and potential for productivity gains.



Ngoma 22 will add 880 beneficiaries of which 346 are men and 534 are women. The Rwangingo site covers hillsides treated with sustainable land management (SLM) practices (terraces and ditches). AF activities will be implemented on 259ha²⁴ on hillsides in the water catchment of the Rwangingo dam. Rwangingo will add 1,513 beneficiaries, of which 1,056 are men and 457 are women. In Nyabirasi, the AF activities will be implemented on a total terraced area of 427ha, all rain-fed. It will add 2,393 beneficiaries of which 1,402 are men and 991 are women.

34. **Addition of select COVID-19 mitigation interventions.** Post-harvest facilities in the project areas are used not only for production aggregation, but also for trainings, workshops, and meetings, and therefore serve as major gathering places for many farmers. The AF will support improved hygiene and sanitation, and social distancing measures at all project post-harvest facilities. This will include the purchase of personal safety equipment (facemasks, gloves, sanitizers and so on), and construction of hand washing facilities, and so on. The AF will also support mobilization through community meetings, local radio spots, bulk SMS messages/SMS blasts, and any other communication tools, and training for use of communication technologies to link farmers to local markets. This would contribute to reducing face-to-face interactions.

35. **Extension of project closing date.** The GAFSP Steering Committee approved an extension of the closing date from *August 31, 2023 to August 30, 2024* to accommodate the AF implementation given the unpredictability of the ongoing pandemic and the extent of its future impacts.

36. **Modification of the Results Framework.** There are four main changes to the original RF as summarized below. Detailed changes are in the revised RF in section VIII.

(i) A new indicator *“Increase in annual net revenues made by beneficiary cooperatives”* has been added at intermediate level. The indicator will measure the beneficiary cooperatives’ revenues from income generating activities exclusively supported by the project including the AF scale-up. The method of measurement will be clearly defined in the M&E manual to eliminate any potential attribution challenges. In addition, the M&E plan will be adjusted to enhance measurement and tracking to reflect the AF scale-up.

(ii) Year four targets for 4 of the 5 PDO indicators, and 9 of the 12 intermediate level indicators have been recalibrated upwards in line with the AF scale-up. The upward target revisions are realistic and based on the current status of achievement, which for several indicators is already high despite the COVID-19 induced situation.

(ii) There is an additional year (year 5) with new targets to reflect the extended project timeframe.

(iii) The end of project targets has been revised to reflect the expanded project scope.

37. **The scope of the new COVID specific containment interventions in select post-harvest facilities is limited²⁵ and does not warrant the addition of a COVID specific indicator.** Project attribution would be difficult, given the GoR’s ongoing implementation of other similar national mitigation measures. By design, the existing indicators will capture the ensemble of the AF’s support to mitigating COVID impacts on the agriculture sector

²⁴ 129 ha terraces and 130 ha of ditches.

²⁵ allocated budget of about US\$100,000.



in the project areas.

III. KEY RISKS

38. The key risks related to this AF are the same risks identified for the parent project. The political and governance, macroeconomic, technical design of the project, institutional capacity for implementation and sustainability, fiduciary and environment and social risks were rated “Moderate”. The sector strategies and policies, and stakeholder risks were rated “Low”. The overall project risk was rated “Moderate”. These risk categories and assessments remain valid and are applicable to the AF. However, the macroeconomic and fiduciary risks have been elevated to “Substantial” given the negative impact of COVID-19 on Rwanda’s macroeconomic and fiscal situation and potential challenges in project financial management reporting given the COVID-19 containment measures. The considerable exposure of Rwanda’s key strategic sectors (agriculture, eco-tourism, and air transportation) to the COVID-19 pandemic could potentially have long-term negative effects on the economy. The overall project risk rating remains “Moderate” and is also applicable to the AF. .

IV. APPRAISAL SUMMARY

A. Economic and Financial Analysis

39. The project generates economic benefits from investments along the value chain of the agricultural commodities and cross-cutting thematic areas including maize, potato, climbing beans, tomato, onion, sweet pepper, watermelon, papaya, tree tomato, passion fruit, chili (bird-eye and hot), French beans, avocado and processing of maize. However, major disruptions to international and domestic vegetables and fruits supply chains and related logistical management process in the wake of COVID-19 lockdown measures are expected to have an impact on such economic benefits through: (i) reduced farm-gate prices of fruits and vegetables; (ii) maize and farm inputs price increase; (iii) higher unemployment and lower labor productivity; (iv) decreased production and augmented post-harvest losses. The Economic and Financial Analysis (EFA) and the sensitivity analysis have been revised to account for these impacts. The analytical details are summarized in Annex 1.

40. Based on the revised economic analysis, the net present value (NPV) is US\$33.2 million, while the economic internal rate of return (EIRR) was 14.7 percent and the Benefit-Cost Ratio (BCR) was 1.69 (down from 17 percent and 1.82, respectively, before the inclusion of the COVID-19 effect. The break-even is recorded in year 12 (it was in year 8 before the post COVID-19 revision).

41. The results of the sensitivity analysis demonstrate that the project can absorb substantial negative impacts and still generate an EIRR above the social discount rate, even with the potential medium-term impact of COVID-19. Thus, the analysis still supports the public investment decision.

42. With regards to the financial analysis, the financial performance indicators confirm the robustness of the crop and farm models, indicating that the proposed activities are still commercially viable even after the inclusion of COVID-19 impacts.



B. Technical

43. An update of the original technical assessment is not needed as most of the AF activities to be funded are a scale-up of ongoing activities of the parent project. In addition, the scope of the new COVID related activities does not impact the project design, rationale for supporting the project nor its strategic relevance. The AF does not impact the project design and maintains a focus on enhancing agriculture productivity through investments in improved agriculture practices and expansion of area under irrigation. The AF will contribute to the project's goal for: (a) improved household income; (b) increased asset accumulation; (c) adoption of climate-resilient agricultural production and livestock practices; and (d) increased market linkage for value-added produce in national and regional markets.

C. Financial Management

44. The fiduciary arrangements and systems assessments conducted for the parent project remain unchanged and valid for the AF. The assigned FM staff (Head of Finance and Administration, Chief Accountant and two Financial Management Specialists) are qualified and experienced with World Bank funded projects and are sufficient given the scope of the current projects managed by the Single Project Implementing Unit (SPIU). The existing disbursement and flow of funds arrangements, accounting and financial reporting standards, and internal control framework remain adequate and meet the World Bank's fiduciary requirements. The internal audit function is staffed with an experienced internal auditor and is guided by the internal audit charter and manual prepared by the Office of the Government Chief Internal Auditor. The project will continue to be audited by the Office of the Auditor General (OAG). It has continued to receive an unqualified/clean audit opinion on financial statements; on compliance with applicable laws, regulations and guidelines regulating public spending; and on realization of value for money in utilization of public funds.

45. The initial risks identified during preparation of the parent project have been well managed and no financial management issues have arisen. However, implementation support challenges, as well as delayed Interim Financial Reports (IFRs) and audit reports due to the COVID-19 containment measures could potentially add a new risk. The overall residual financial management (FM) risk shifts to "Substantial" given the emerging FM risks arising from COVID-19, this is despite the adequate staffing, acceptable existing FM procedures and auditing arrangements. FM performance monitoring will continue to be assessed during implementation support missions.

D. Procurement

46. A procurement capacity and risk assessment for the AF has not been conducted as the assessment and its findings conducted for the parent project remain valid. The AF will use the same procurement implementation and monitoring arrangements in place for the parent project which are in compliance with the 'World Bank Procurement Regulations for Borrowers under Investment Project Financing dated November 2020 hereafter referred to as 'Procurement Regulations'. The AF will also be subject to the World Bank's Anticorruption Guidelines dated July 1, 2016 and beneficiary disclosure requirements. AF related procurement implementation will continue to be carried out by the Single Projects Implementing Unit (SPIU) procurement staff who have gained extensive experience and a good track record in implementing World Bank-financed projects. There will be continued use of the Systematic tracking of Exchanges in Procurement (STEP) to plan, record and track procurement transactions. Overall current procurement management is "Satisfactory", and the procurement



risk rating remains “Moderate”.

47. The existing procurement profile remains unchanged. It comprises: (i) Works (construction of drying shelters, storage facilities, market centres and medium-scale irrigation schemes, and rehabilitation and expansion of post-harvest infrastructure and existing irrigation schemes); (ii) Goods (equipment and goods for maintenance and operation of existing irrigation schemes and post-harvest facilities, technology and equipment for agro-processing, IT and communication equipment and operating costs, COVID-19 safety equipment including face-masks, gloves, sanitizers etc.); and (iii) consultancy and non-consultancy services (consultants for supervision services for construction and rehabilitation works, consultancy services for Base-Line and End-Line Surveys, Mid-Term Review [MTR], Implementation Completion Report [ICR] and TA).

48. The RAB-SPIU has updated the Project Procurement Strategy for Development (PPSD) prepared for the parent project. It has also prepared an 18 - month Procurement Plan for the AF. Both documents have been reviewed and approved by the World Bank.

E. Environment and Social (including Safeguards)

Environment

49. **The environmental and social risk category and safeguards policies of the parent project will not change under the AF.** The assigned Environmental Assessment Category B remains as the AF activities will scale-up the original project activities which involve civil works (post-harvest infrastructure) and irrigation for increased agricultural production. The AF will not trigger additional safeguards policies. The safeguard policies triggered under the parent project and for which associated instruments were prepared and approved, include:

- (i) **Environmental Assessment (OP/BP 4.01).** Some of the project activities could potentially impact the environment. They include: (a) agricultural productivity enhancement under component 1; (b) small scale irrigation and water use efficiency under component 2; and (c) market and processing infrastructures under component 3. The residual environmental and social risks and impacts remain "moderate". They will continue to be site specific, are likely to be of low to moderate significance, and will be mitigated through site specific Environmental Management Plans (EMPs). Possible risks include: (i) soil erosion, vegetation cover loss, sedimentation and siltation from land husbandry activities; (ii) increased Occupational Health Safety (OHS) risks due to use of agrochemicals; (iii) soil and water quality degradation due to inappropriate use of pesticides and agrochemicals; (iv) loss of biodiversity and spread of pests and crop diseases; (v) water flow reduction in sites with irrigation; and (vi) loss of property (land or assets on land due to construction of post-harvest facilities). These potential impacts are similar to those of the parent project and were previously assessed. Additional risks could also arise from implementation of the new COVID-19 activities under component 3. Potential COVID-19 exposure to project beneficiaries will be minimized through implementation of the COVID-19 related AF investments, and complemented by the broader national containment protocols. For purposes of the AF, the parent project’s Environmental and Social Management Framework (ESMF²⁶), has been updated to take into account the expanded scope of activities and COVID-19 risk aspects, especially the health and safety aspects of project workers and beneficiaries,

²⁶ approved by the World Bank and disclosed in-country on June 8, 2018.



including labor and (Gender-based Violence) GBV measures, and the COVID-19 considerations for labor and OHS protocols. The updated ESMF was approved on June 22, 2021 and was re-disclosed in-country on June 23, 2021. The existing environmental and social screening tool for sub-projects was revised and fine-tuned and will guide the preparation of site-specific instruments Environmental and Social Impact Assessment (ESIA)/ESMPs for the three additional sites.

- (ii) **Natural Habitats (OP/BP 4.04).** Project activities involve agricultural intensification in marshlands and hillsides. The OP was triggered by precaution in the event of possible expansion of irrigation in existing irrigation schemes which may potentially contribute to degradation of natural habitats such as wetlands downstream of the command areas. The project design incorporates appropriate conservation and mitigation measures to remove or reduce adverse impacts on these ecosystems or their functions. Activities that risk significantly degrading or converting critical natural habitat will not be funded under the project. Significant degradation or conversion of natural habitats is not expected under the AF.
- (iii) **Pest Management (OP 4.09).** Agricultural production activities could lead to increased use of pesticides as means of enhancing productivity of selected crops. There are health and safety risks associated with handling, transportation, storage, use and disposal of pesticides and containers/packaging materials. These risks are envisaged to be moderate and can be mitigated with known measures. An Integrated Pest Management Plan (IPMP) for the parent project was approved and disclosed in-country on May 28, 2018. It will also guide integrated pest management during implementation of the AF.
- (iv) **Physical Cultural Resources (OP/BP 4.11).** Construction of postharvest handling facilities under component 3 could lead to opportunistic finds of physical cultural resources. “Chance Finds” procedures are included in the ESMF.
- (v) **Involuntary Resettlement (OP/BP 4.12).** The project could acquire more land for expanded irrigation under component 2 and postharvest handling facilities under component 3. A Resettlement Policy Framework (RPF) for the parent project was approved and disclosed in-country on May 21, 2018. It provides guidance for management of resettlement, citizen engagement and grievances issues. and will also cover the AF in its current form. It was agreed with the World Bank Safeguards Specialist that it will not be re-disclosed as there are no changes. In addition, if and as required, site specific Resettlement Action Plans (RAPs) would be prepared.
- (vi) **Safety of Dams (OP/BP 4.37).** The AF will not involve the construction or rehabilitation of any dams. However the irrigation and water efficiency activities rely on existing dams constructed under the LWH project [Kayonza (9.5 m high and 1,600,000 m3 volume), Rwamagana (14 m high and 1,500,000 m3 volume), Nyanza (19 m high and 1,820,000 m3 volume) and Muyanza (26m and 2,240,000m3 volume)], out of which Nyanza and Muyanza are large dams. World Bank cleared dam safety plans are in place and will continue to be implemented and monitored regularly through the project safeguards reporting.
- (vii) **Projects on International Water Ways (OP/BP 7.50).** The project sites are located in the tributaries of the Nile and Congo rivers, which are international rivers of transboundary significance. An



exception to notification of other riparians as detailed in paragraph 47 was approved for the parent project on May 23, 2018 and applies to the AF.

50. **The existing implementation arrangements are adequate and will remain the same.** The magnitude and scope of the proposed additional activities will be accommodated in the context of the ongoing project by relying on the borrower's existing implementation capacity and implementation arrangements relating to safeguards. The RAB/SPIU has a Social Safeguard Specialist and is in the process of hiring an Environmental Safeguards Specialist. The two staff will support the management of the Environment & Social (E&S) risks/impacts of the AF activities.

51. **Exception to the Riparian Notification Requirement: Operational Policy (OP)/Bank Procedure (BP) 7.50, Projects on International Water Ways.** OP/BP 7.50 was triggered as the SAIP irrigation activities were determined to be proportional to the average distribution in the two main river basins of Rusizi and Akagera. The Rusizi basin is part of the Lake Tanganyika basin. The Akagera basin is part of the Lake Victoria and the Nile basin. They are therefore international waterways for purposes of OP 7.50. An Exception to the Riparian Notification Requirement: OP/BP 7.50, for the parent project was approved on May 23, 2018 by the Africa Region Vice President in line with paragraph 7 (a) of OP 7.50. The activities under the 'Irrigation and Water Use Efficiency' component entail the upgrading, improvement, or rehabilitation of existing irrigation schemes comprising drainage canals and water control structures. Based on an overall analysis of the Nile and Tanganyika basins, including run-off, and subsequent World Bank team's assessment, these activities "will not adversely change the quantity of water flows of the other riparians"; "will not be adversely affected by the other riparians' possible water use"; and "do not exceed the original schemes, change their nature, or alter or expand the scope and extent to make it appear as new or different schemes". Under the proposed AF, these irrigation activities remain unchanged. They will be replicated in the three proposed additional sites, in existing schemes with existing irrigation infrastructure²⁷, in adherence with Environmental Assessment (OP4.01), Natural Habitats (OP 4.04), Pest Management (OP 4.09), Physical Cultural Resources (OP 4.11), Involuntary Resettlement (OP 4.12), Safety of Dams (OP/BP 4.37) and Projects on International Waterways (OP 7.50). The activities financed under the AF therefore fall under the exception to the notification requirement approved for the parent project.

52. **Operational Policy Waiver.** The SAIP parent project was approved under the previous Environmental and Social Safeguards Policies Framework and is substantially in compliance with all the environmental and social safeguards requirements. The proposed AF activities will not raise the environmental and social safeguards category of the Project to Category A as defined under OP/BP 4.01. The residual environmental and social risks and impacts of the AF activities would not be significant as described under OP/BP 4.01. They will continue to be site specific, predictable and can be managed through site specific EMPs, RAPs, and other instruments as needed, and therefore remain "Moderate". No other environmental risks are expected. The old Environmental and Social Safeguards Policies will apply to the AF. World Bank management approved on February 22, 2021 a waiver of the Environmental and Social Framework, the Environmental and Social Directive for Investment Project Financing, and the Directive on Addressing Risks and Impacts on Disadvantaged or Vulnerable Individuals. This is in line with the Bank Policy, "Operational Policy Waivers", and Bank Procedure, "Operational Policy Waivers and Waivers of Other Operational Requirements" and Bank Procedure for Additional Financing for Investment Project Financing applying the World Bank Safeguard Policies.

²⁷ also developed under the LWHP and RSSP.



Social

53. **The original project Category B remains as the AF will continue** to support the project's aim to improve livelihoods, food, and nutrition security through increased agricultural productivity, value addition, and access to markets. The civil works under components 2 and 3 may involve land acquisition at some of the project sites. Activities which could lead to potential resettlements include construction of post-harvest facilities (drying shelters, storage facilities, horticulture collection centers and cold rooms). The existing RPF for the parent project provides guidance on the management of social issues related to resettlement, citizen engagement, guidelines for managing the land acquisition process and grievance redress mechanisms during project implementation. The RPF for the parent project is sufficient to cover the AF activities.

54. **Citizen Engagement (CE).** The parent project includes the following ongoing CE activities which will continue under the AF: (a) community sensitization and awareness campaigns; (b) community outreach activities; and (c) community dialogues to support formation and strengthening of SHGs. Emphasis is on ensuring women and youth participation and leadership in the SHGs and cooperatives. Ongoing implementation of the existing Stakeholder Engagement Plan (SEP) will continue under the AF to ensure continuous engagement of all stakeholders throughout implementation and at project closure to assess satisfaction with the project. The outcomes of beneficiary feedback on project service delivery will be captured in the CE indicators included in the Results Framework.

55. **Gender and youth.** The SAIP is contributing to the GoR's efforts to mainstream gender and youth and engagement in gender-sensitive policy making and programming to address key constraints for Rwandese women (very high workloads, lack of access to and limited involvement in decisions on credit, and inability to control the use of income). Overall, the project aims to reach 42 percent women of the total number of the targeted beneficiaries. This will be done through the ongoing use of gender and youth sensitive technologies and approaches tailored to their needs, targeted gender sensitive capacity building/trainings²⁸, advocacy to financial institutions to increase access to finance and provide easily accessible financial products to address the issue of limited access to finance for women and youth, and introduction of ICT based solutions for agriculture with focus on strong youth participation. Under component 1, local extension experts (women and youth) are being trained to provide fee-based extension services at the local level in project areas where public sector extension agents are not present. Component 1 also provides skills development including leadership skills, and business training for youth and women. Focus is also on ensuring women and youth participation and leadership in the SHGs and cooperatives and identifying and providing opportunities for income-generating activities for them. These activities will be scaled up under the AF to contribute to the end of project goal.

56. **Vulnerable and disadvantaged persons/groups.** By design vulnerable/disadvantaged persons/groups were identified and are key targets under the parent Project. As mentioned in the preceding paragraph, the SAIP has targeted ongoing activities intended to close the identified gender and youth gaps. Households with undernourished children (0–5 years) The project also includes targeted interventions for households vulnerable to food insecurity and nutritionally vulnerable households²⁹ (approximately estimated at 20 percent of the total beneficiaries). Selected communities or special groups are benefitting from a number of activities including: (a) provision of seeds of iron-fortified beans and cuttings of orange flesh sweet potatoes and training on how to grow and prepare them for household consumption, poultry kit (chickens and vaccination) to promote

²⁸ which avoid time-consuming sessions, and ensure training is held close to residences.

²⁹ The aim is to target both undernutrition and malnutrition.



consumption of eggs and meat; (b) establishment of village nurseries for fruit trees; (c) training for households vulnerable to food insecurity through farmer field schools; (d) TA in food preservation tailored to meet the needs of the most vulnerable, and conservation and transformation of locally produced foods to ensure availability of nutrient-rich foods, beyond the two cropping seasons, when food production may be insufficient; and (e) establishment and improvement of existing gardens at pre-primary, primary, secondary, and vocational training schools. The configuration of the targeted groups participating in project activities includes female-headed households, households with pregnant and lactating women, households with children under two years, and households under the Ubudehe³⁰. Component 1. AF activities will continue to target the most vulnerable, and women and youth beneficiaries with small business initiatives, who have been disproportionately impacted by the pandemic. There are no new vulnerable groups expected to be identified in the proposed additional project sites. The SEP will be retro-fitted for COVID-19 considerations and used to ensure continued engagement of these groups during the AF implementation.

57. **Occupational Health Safety. Standard labor related risks are covered by the OHS provisions in the existing safeguard instruments.** The updated ESMF includes additional COVID-19 related guidance on worker safety. The SPIU will work closely with service providers to ensure related clauses are reflected in all activities and works contracts. The scale up of civil works is not expected to create additional traffic and road safety risks that would negatively impact the safety of project beneficiaries, communities, and workers. The AF will ensure that existing codes of conduct are widely made available in the new project areas. In keeping with standard operating procedures, the AF will remain vigilant in respecting the safety measures already anticipated and in place for the SAIP. Implementation of the COVID-19 specific measures will not require the use of security personnel.

58. **Gender-Based Violence (GBV)/Sexual Exploitation and Abuse (SEA)/Sexual Harassment (SH).** The fight against GBV/SEA/SH is among the Government's key priorities. Rwanda's 2008 Law on Prevention and Punishment of Gender-Based Violence has criminalized GBV/SEA/SH. It prohibits and requires mandatory reporting of cases by all community members. Law enforcement mechanisms are in place and operational, up to the lowest administration level. The AF is not expected to increase or exacerbate GBV/SEA/SH risks. A GBV action plan already exists under the parent project and will be extended to the AF. The AF will implement the required GBV/SEA/SH measures as reflected in the updated ESMF.

59. **The existing grievance redress mechanism (GRM) is robust and fully operational and will be extended to the additional sites.** It is gender and labor sensitive. GRM committees (GRCs) are in place and operational in all current project sites, are gender balanced and all the members have been trained in conflict resolution. Additional GRM committees will be established in the proposed new sites as needed and trained. Since project effectiveness, 43 complaints³¹ have been received and resolved. No GBV/OHS/SEASH complaints have been reported since the launch of the mechanism. The existing GRM will be updated to reflect adequate GBV sensitivity in relation to COVID-19.

³⁰ a long-standing Rwandan practice and cultural value of mutual assistance among people living in the same area to solve socio-economic issues. It was adopted by the GoR in 2000 as part of strategies to address poverty reduction. Category 1 is allocated to the poorest in communities.

³¹ Complaints received have included conflict over land boundaries, damage to land husbandry drainage systems, conflict over water use and distribution among users of the irrigated areas and land terraces, and land terraces damaged by poorly channeled rainwater.



60. **COVID-19 related risks.** The existing environmental and social risks assessment and instruments were prepared pre-pandemic and do not include COVID-19 specific considerations as detailed in the current ESF Guidance for COVID-19 response. Under the AF, the project team will use a tailored Rapid Social Assessment (RSA) to assess (potentially remotely) COVID-19 related risks and inform preparation of site specific COVID-19 containment measures as needed. The ESMF has been updated in line with the World Bank's COVID-19 Specific Risk Considerations, and redisclosed. The GRM will be updated to include COVID-19 related streamlined and efficient procedures for: (a) addressing labor complaints, including terms and conditions of work and occupational health and safety; (b) resolving SEA/SH complaints, with strict application of confidentiality, survivor-centricity, and survivor safety; and (c) implementing the COVID-19 enhanced consultation and engagement mechanisms.

61. Overall, implementation of the E&S safeguard activities of the parent project is managed fairly well and is in line with the instruments and tools developed. The SPIU has extensive experience and adequate expertise in managing World Bank operations and procedures. Its safeguards team is well qualified to manage the identified environmental and social safeguards issues, and monitor use and implementation of the Safeguards instruments. The team will also monitor the COVID-19 related community and occupational health and safety issues, and compliance with the mitigation measures. It will continue to be closely supported and guided by the World Bank team's environmental and social safeguards specialists, as well as service providers where warranted.

F. Other Safeguard Policies (if applicable)

Not applicable

V. WORLD BANK GRIEVANCE REDRESS

62. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service, please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

**VI. SUMMARY TABLE OF CHANGES**

	Changed	Not Changed
Results Framework	✓	
Components and Cost	✓	
Loan Closing Date(s)	✓	
Implementing Agency		✓
Project's Development Objectives		✓
Cancellations Proposed		✓
Reallocation between Disbursement Categories		✓
Disbursements Arrangements		✓
Safeguard Policies Triggered		✓
EA category		✓
Legal Covenants		✓
Institutional Arrangements		✓
Financial Management		✓
Procurement		✓
Other Change(s)		✓

VII. DETAILED CHANGE(S)**COMPONENTS**

Current Component Name	Current Cost (US\$, millions)	Action	Proposed Component Name	Proposed Cost (US\$, millions)
Component 1: Institutional Strengthening, Agriculture Productivity Enhancement and Nutrition Improvement	7.68	Revised	Component 1: Institutional Strengthening, Agriculture Productivity Enhancement and Nutrition Improvement	9.90



Component 2: Irrigation and water use efficiency	7.19	Revised	Component 2: Irrigation and water use efficiency	8.63
Component 3: Market Linkages and Value Addition Investment Support	7.30	Revised	Component 3: Market Linkages and Value Addition Investment Support	8.87
Component 4: Project Management and Technical Assistance	4.13	Revised	Component 4: Project Management and Technical Assistance	4.88
TOTAL	26.30			32.28

LOAN CLOSING DATE(S)

Ln/Cr/Tf	Status	Original Closing	Current Closing(s)	Proposed Closing	Proposed Deadline for Withdrawal Applications
TF-A8221	Effective	31-Aug-2023	31-Aug-2023	30-Aug-2024	30-Dec-2024

Expected Disbursements (in US\$)

Fiscal Year	Annual	Cumulative
2018	0.00	0.00
2019	3,500,000.00	3,500,000.00
2020	8,950,000.00	12,450,000.00
2021	7,902,950.00	20,352,950.00
2022	7,500,000.00	27,852,950.00
2023	4,432,345.00	32,285,295.00

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Latest ISR Rating	Current Rating
Political and Governance	● Moderate	● Moderate
Macroeconomic	● Substantial	● Substantial
Sector Strategies and Policies	● Low	● Low
Technical Design of Project or Program	● Low	● Low
Institutional Capacity for Implementation and Sustainability	● Moderate	● Moderate



Fiduciary	● Moderate	● Substantial
Environment and Social	● Moderate	● Moderate
Stakeholders	● Low	● Low
Other		
Overall	● Moderate	● Moderate

LEGAL COVENANTS – Additional Financing for the Sustainable Agricultural Intensification and Food Security Project (P175912)

Sections and Description

No information available

Conditions

Type	Financing source	Description
Effectiveness	Trust Funds	<p>GA Article V.</p> <p>5.01. This Agreement shall not become effective until evidence satisfactory to the World Bank has been furnished to the World Bank that the conditions specified below have been satisfied:</p> <p>(a) the execution and delivery of this Agreement on behalf of the Recipient and the Project Agreement on behalf of the Project Implementing Entity have been duly authorized or ratified by all necessary governmental and corporate action; and</p> <p>(b) the Subsidiary Agreement has been executed on behalf of the Recipient and the Project Implementing Entity.</p> <p>5.02. As part of the evidence to be furnished pursuant to Section 5.01, there shall be furnished to the World Bank an opinion or opinions satisfactory to the World Bank of counsel acceptable to the World Bank or, if the World Bank so requests, a certificate satisfactory to the World Bank of a competent official of the Member Country, showing the following matters:</p> <p>(a) on behalf of the Recipient, that this Agreement</p>



		<p>has been duly authorized or ratified by, and executed and delivered on its behalf and is legally binding upon it in accordance with its terms;</p> <p>(b) on behalf of the Project Implementing Entity, that the Project Agreement has been duly authorized by, and executed and delivered on its behalf and is legally binding upon it in accordance with its terms; and</p> <p>(c) on behalf of the Recipient and the Project Implementing Entity, the Subsidiary Agreement has been duly authorized by the Recipient and the Project Implementing Entity and is legally binding upon each such party in accordance with its terms</p>
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VIII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Rwanda

Additional Financing for the Sustainable Agricultural Intensification and Food Security Project

Project Development Objective(s)

To increase agricultural productivity, market access, and food security of the targeted beneficiaries in the project areas.

Project Development Objective Indicators by Objectives/ Outcomes

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Increase agricultural productivity, market access and food security of targeted beneficiaries								
Percentage increase in harvested yield of targeted crops (Percentage)		0.00	3.00	6.00	9.00	12.00	15.00	17.00
<i>Action: This indicator has been Revised</i>								
Percentage increase of produced commodities in targeted value chains marketed by participating producers (Percentage)		0.00	5.00	10.00	15.00	20.00	23.00	25.00
<i>Action: This indicator has been Revised</i>								
Food Consumption Score (Percentage)		83.00	86.00					90.00
<i>Action: This indicator has been Revised</i>								

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Farmers adopting improved agricultural technology (CRI, Number)		34,664.00	35,358.00	36,065.00	36,786.00	40,387.00	43,871.00	45,688.00
<i>Action: This indicator has been Revised</i>								
Farmers adopting improved agricultural technology - Female (CRI, Number)		14,512.00	14,802.00	15,098.00	15,400.00	16,125.00	18,375.00	19,189.00
<i>Action: This indicator has been Revised</i>								
Farmers adopting improved agricultural technology - male (CRI, Number)		20,152.00	20,550.00	20,967.00	21,386.00	24,262.00	25,496.00	26,499.00
<i>Action: This indicator has been Revised</i>								

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Institutional Strengthening, Agriculture Productivity Enhancement and Nutrition Improvement								
Number of producer-based organizations supported by GAFSP (GAFSP core 4) (Number)		0.00	874.00	1,048.00	1,233.00	1,633.00	1,883.00	2,397.00

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Action: This indicator has been Revised								
Number of people receiving improved nutrition services and products (GAFSP core 11) (Number)		0.00	58,000.00	96,000.00	145,000.00	193,000.00	215,000.00	230,000.00
Action: This indicator has been Revised								
Number receiving improved nutrition services and products - Female (Number)		0.00	24,360.00	40,320.00	60,900.00	81,060.00	90,300.00	96,600.00
Action: This indicator has been Revised								
Farmers reached with agricultural assets or services (CRI, Number)		0.00	19,303.00	24,129.00	28,955.00	35,780.00	41,119.00	45,688.00
Action: This indicator has been Revised								
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	8,108.00	10,134.00	12,161.00	15,028.00	17,270.00	19,189.00
Action: This indicator has been Revised								
Increase in annual net revenues made by beneficiary cooperatives (Percentage)		0.00	0.00	0.00	10.00	25.00	40.00	50.00
Action: This indicator is New								

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Irrigation and water use efficiency								
Area provided with new/improved irrigation or drainage services (CRI, Hectare(Ha))		0.00	125.00	625.00	1,375.00	2,575.00	2,700.00	2,900.00
<i>Action: This indicator has been Revised</i>								
Area provided with new irrigation or drainage services (CRI, Hectare(Ha))		0.00	50.00	250.00	550.00	950.00	1,000.00	1,200.00
<i>Action: This indicator has been Revised</i>								
Area provided with improved irrigation or drainage services (CRI, Hectare(Ha))		0.00	75.00	375.00	825.00	1,625.00	1,700.00	1,700.00
<i>Action: This indicator has been Revised</i>								
Number of farmers benefiting from the project supported small-scale irrigation interventions (Number)		0.00	100.00	500.00	1,100.00	1,900.00	2,000.00	2,400.00
<i>Action: This indicator has been Revised</i>								
Number of farmers benefiting from the project supported small-scale irrigation		0.00	42.00	210.00	462.00	798.00	840.00	1,008.00

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
technologies - Female (Number)								
Action: This indicator has been Revised								
Number of users paying water fees to the water users associations (Number)		914.00	1,387.00	2,775.00	4,162.00	5,549.00	6,937.00	9,330.00
Action: This indicator has been Revised								
Number of users paying water fees to the water users associations - Female (Number)		383.00	583.00	1,165.00	1,748.00	2,331.00	2,913.00	3,904.00
Action: This indicator has been Revised								
Market Linkages and Value Addition Investment Support								
Volume of agricultural production processed by post harvest facilities established with project support -GAFSP core 9 (Metric ton)		2,181.00	2,290.00	4,690.00	7,602.00	18,888.00	20,988.00	23,088.00
Action: This indicator has been Revised								
Number of farmers organization - buyer linkages established (Number)		0.00	8.00	12.00	16.00	24.00	32.00	38.00
Action: This indicator has been Revised								

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Value of contracts/agreements negotiated through linkages established (Amount(USD))		0.00	137,400.00	281,400.00	456,000.00	649,400.00	842,700.00	850,000.00
Action: This indicator has been Revised								
Amount of credit mobilized by farmers and farmers organization (Amount(USD))		0.00	50,000.00	112,500.00	185,500.00	275,000.00	375,000.00	400,000.00
Action: This indicator has been Revised								
Project Management and Technical Assistance								
Number of knowledge products produced by the project (Number)		0.00	7.00	10.00	15.00	20.00	20.00	20.00
Action: This indicator has been Revised								
Percentage of beneficiaries satisfied with the services provided by the project (Percentage)		0.00	100.00	100.00	100.00			100.00
Action: This indicator has been Revised								

Monitoring & Evaluation Plan: PDO Indicators					
Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Percentage increase in harvested yield of targeted crops		Semi-annually	Project MIS	Farmers surveys	SPIU
Percentage increase of produced commodities in targeted value chains marketed by participating producers		Semi-annually	Project MIS	Farmer surveys and cooperatives records	<i>SPIU</i>
Food Consumption Score		Baseline, Mid-Term and End line	Project MIS	Surveys	SPIU
Farmers adopting improved agricultural technology	<p>This indicator measures the number of farmers (of agricultural products) who have adopted an improved agricultural technology promoted by operations supported by the World Bank.</p> <p>NB: "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber and non-timber forest products.</p> <p>Adoption refers to a</p>	Semi-annual	Project MIS		



	<p>change of practice or change in use of a technology that was introduced or promoted by the project.</p> <p>Technology includes a change in practices compared to currently used practices or technologies (seed preparation, planting time, feeding schedule, feeding ingredients, postharvest storage/ processing, etc.). If the project introduces or promotes a technology package in which the benefit depends on the application of the entire package (e.g., a combination of inputs such as a new variety and advice on agronomic practices such as soil preparation, changes in seeding time, fertilizer schedule, plant protection, etc.), this counts as one technology.</p> <p>Farmers are people engaged in farming of agricultural products or members of an agriculture</p>				
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	related business (disaggregated by men and women) targeted by the project.				
Farmers adopting improved agricultural technology - Female		Semi-annual	Project MIS	Household surveys	SPIU
Farmers adopting improved agricultural technology - male		Semi-annual	Project MIS	Surveys	SPIU

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of producer-based organizations supported by GAFSP (GAFSP core 4)		Semi-annually	Project MIS	Field staff reports	SPIU
Number of people receiving improved nutrition services and products (GAFSP core 11)		Semi-annually	Project MIS	Staff reports	SPIU
Number receiving improved nutrition services and products -Female		Semi annual	Project MIS	Field staff and monitoring reports	SPIU
Farmers reached with agricultural assets or services	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or	Semi-annually	Project MIS	Field staff and project monitoring reports	SPIU



	<p>"Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and</p>				
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	finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.				
Farmers reached with agricultural assets or services - Female		Semi annual	Project MIS	Field staff and monitoring reports	SPIU
Increase in annual net revenues made by beneficiary cooperatives					
Area provided with new/improved irrigation or drainage services	This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).	Semi-annually	Project MIS	Staff reports and farmers surveys	SPIU
Area provided with new irrigation or drainage services	Measures in hectares the total area of land provided with new or improved irrigation or drainage services in operations supported by the World Bank.	Semi-annually	Project MIS	Staff reports and surveys	SPIU

Area provided with improved irrigation or drainage services	Measures in hectares the total area of land provided with new or improved irrigation or drainage services in operations supported by the World Bank.	Semi-annually	Project MIS	Project reports and surveys	SPIU
Number of farmers benefiting from the project supported small-scale irrigation interventions		Semi-annually	Project MIS	Staff reports and surveys	SPIU
Number of farmers benefiting from the project supported small-scale irrigation technologies - Female		Semi-annual	Project MIS	Project reports	SPIU
Number of users paying water fees to the water users associations		Semi-annually	SPIU MIS	Staff reports and surveys	SPIU
Number of users paying water fees to the water users associations - Female		Semi-annual	Project MIS	WUAs records and project monitoring	SPIU
Volume of agricultural production processed by post harvest facilities established with project support -GAFSP core 9		Semi-annually	Project MIS	Staff reports and surveys	SPIU
Number of farmers organization - buyer linkages established		Semi-annually	Project MIS	Staff reports and surveys	SPIU
Value of contracts/agreements negotiated through linkages established					
Amount of credit mobilized by farmers and farmers organization		semi-annually	Project MIS	Staff reports and surveys	SPIU

Number of knowledge products produced by the project		Semi-annually	Project MIS	Staff reports	SPIU
Percentage of beneficiaries satisfied with the services provided by the project		Baseline, Mid-term and end of project	Project MIS	Beneficiary surveys	SPIU

ANNEX 1. REVISED ECONOMIC AND FINANCIAL ANALYSIS

Introduction

1. This annex presents the update of the economic and financial analysis and sensitivity analysis for the Sustainable Agricultural Intensification and Food Security Project taking into account the Additional Financing for COVID-19 response. It describes the revised analytical assumptions incorporating the potential impact of COVID-19 disruptions on the local and international supply and demand chains for agriculture commodities. It reports the revised EIRR and NPV and the sensitivity analysis.

2. At the international level, the fall in demand, as well as severe disruptions to global value chains, reduced world trade by 8 percent in the first eight months of 2020, compared to same period in 2019 (WB, 2021b). Amid a decline in global economic activity and international transport, world supply and demand for fresh vegetable and fruit products experienced COVID-19 related disruptions and contractions through several channels of transmission. On the demand side, macroeconomic indicators point to a global recession with adverse effects that would extend beyond 2021 and beyond (FAO, 2020). Global food prices rose close to 20 percent in the last year (January 2020-January 2021), consistent with broad movements of other commodity prices and US currency trends (WB, 2021a).

3. In Eastern Africa, a slow economic recovery after the gradual phasing out since mid-2020 of several measures introduced in early 2020 to contain the spread of COVID-19, continues to weaken demand, exerting downward pressure on prices (FAO, 2021) while global crude oil and fertilizer prices keep increasing (FEWS NET, 2021).

COVID-19 impact on agriculture and fresh vegetables and fruit chains in Rwanda

4. Major disruptions to international and domestic food supply chains and logistical management processes along the various components of the value chains in the wake of the lockdown measures have affected agriculture supply and demand in Rwanda. Trade flows by air were impacted by the closure of the Kigali International Airport. Shocks in the international demand of exportable products reduced the movement of food through the channels of international trade which in Rwanda is estimated by 2022 to decline to US\$1.73 million, which is equivalent to about 17.7 percent of the current national GDP estimated at US\$9.78 million (Bizoza and Sibomana, 2020). Coupled with this, high food price inflation for energy and imported commodities reflect supply chain disruptions due to COVID-19 social distancing measures and currency devaluation (the Rwandan franc devaluated by 6 percent with respect to the US\$ over the period March 2020-May 2021), financially weakening chain operators.

5. Farmers and agro-dealers face shortages in farm inputs (seeds, fertilizers, and pesticides) due to market limitations, price inflation and financial weakness which make them unable to acquire inputs to maintain production and operate businesses. Producers without adequate storage facilities, including cold storage, found themselves with food that they could not sell. As borders closed and demand for certain food items dropped, food producers reliant on selling their crops via distant export markets were highly vulnerable, particularly those focused on perishable food products, such as fresh fruits and vegetables. They face losses as consumption patterns shift towards cheaper staples, too. Farmers experiencing acute hunger may also prioritize consuming seeds as food today over planting seeds for tomorrow, raising the threat of future production reduction (WB, 2021a).

6. Disruptions to food supply chains also resulted when food system workers experienced high rates of COVID-19 illness. The adverse effects of the physical distancing measures have tended to be more immediate and pronounced for the relatively labor-intensive production and trade of vegetables and fruits than for most other food commodities, particularly staple foods. Given their high perishability, such products require timely and well-coordinated harvesting and post-harvest handling, as well as uninterrupted cold chains (FAO, 2020). Additionally, prolonged labor shortages due to mobility restrictions could diminish next season's crop, especially in relation to labor intensive

food production (Rwigema, 2021). Rob et al. (2020) record an average decline in labor productivity of 1.4 percent because of labor-related shocks. This increases overall labor costs.

7. In Rwanda, overall demand for fresh produce - including vegetables, potatoes and fresh fruits dropped due to: home consumption due to households' income loss and restrictions in movements; disruption in the logistical flow because of the protective behavior; shocks in international demand, especially for exportable crops; closure of rural food markets and schools; reduced activities in the hospitality industry as well as other touristic related services and other food service facilities. Reduced demand and sales of agriculture produce increased the surplus of unsold produce and generalized lower prices in rural areas³². Shifts in diets to less nutritious food and unhealthy diets are expected to further depress demand for fresh products in the future (Rwigema, 2021).

8. All this resulted in reduced yields and production, increased post-harvest losses, higher input prices and production costs (both on-farm and processing), and reduced output farm-gate prices. Under these circumstances, the profitability of many farms has been severely affected, with industry sources reporting difficulties arising from cancelled orders (FAO, 2020). Even if there is much uncertainty about the duration of COVID-19 and the extent to which the on-going policies by the government of Rwanda will be effective in reducing the impact of the pandemic on the food chain, the adverse impact of the COVID-19 crisis is expected to last in the long term, especially on capital accumulation and productivity (WB, 2021b), and therefore during the remaining project years.

Methodology and revised analytical assumptions

9. The impact of the pandemic on agriculture and food chains in Rwanda described above is expected to affect the costs and the benefits of SAIP activities. While the structure of the EFA (number and type of financial models, number of beneficiaries, type, and amount of environmental benefits) remains unchanged, some analytical assumptions are revised to reflect the COVID-19 impacts. They are presented as follows.

10. **Costs.** The additional financing increases the total project budget of the combined GAFSP and the GoR's contributions from US\$32.97m to US\$38.96m.

11. **Benefits.** The estimated flow of benefits has been modified with respect to the original version of the EFA (pre-revision) according to the following assumptions:

- a. **Output and input price changes.** The depression of farm-gate output prices is reflected in the analysis by reduced farm-gate output prices by 15 percent and 10 percent for exported and locally traded outputs, respectively. Such assumptions are in line with WB (2021b) which estimates a decrease in GDP from the agriculture sector by 16.1 percent by the year 2025. Only the price of maize is assumed to increase (by 2 percent) driven by the international price (WB, 2021c). On the other hand, and in line with the trends reported in the commodity markets outlook (WB, 2021c), we assume that internationally tradeable inputs increase by 10 percent over the timeframe of the analysis³³. The price of non-tradeable inputs (such as organic fertilizer, e.g. compost or manure) or locally traded (e.g., staking equipment, mulching material, simple tools, or equipment) is unchanged. However, price fluctuations may of course affect output and input markets in different ways (Rwigema, 2021). In the sensitivity analysis further changes in output and input prices are simulated; and the project's economic results are tested accordingly.

³² However, due to the disruptions in the value chain, retail food prices in urban areas have been showing an upward trend, mainly for staple commodities such as beans, maize, and salt (Rwigema, 2021).

³³ For example, fertilizer prices are projected to average 27 percent higher in 2021 but recede in 2022 as demand moderates and production capacity increases (WB, 2021c).

- b. **Labor.** Employment fell sharply in Rwanda during the lockdown period, particularly in the agriculture, storage, and food service activities, with recorded lower salaries (WB, 2021b). However, the pandemic has decreased labor productivity as a result of the COVID-19 limitations, and in turn indirectly increased labor costs. Such costs therefore remain unchanged with respect to the original EFA.
- c. **Post-harvest losses.** Disruptions in the value chains for vegetables and fruits are reflected in the analysis through reduced production due to post-harvest losses. This is also in line with the decreased employment in the storage and food services sectors (WB, 2021b). A 15 percent reduced production is assumed for all crops included in the analysis except maize.
- d. **Adoption rate.** COVID-19 can add barriers to extension activities and innovation adoption by households. This is reflected in the analysis through a reduction in farmers' adoption rates from 45 percent to 40 percent with respect to the previous EFA (before current revision). In the revised analysis, the households' adoption rate is assumed to increase progressively from 10 percent in year 2 to 40 percent in year 4, then remaining stable up to year 20. Similarly, the adoption rate has been reduced from 100 percent to 80 percent for the processing activities with respect to the previous EFA. This translates to a reduction of the corresponding flow of benefits from the farm and processing models, respectively.

12. The revised net incremental benefits resulting from the analysis are used to calculate the viability of the project measured through the EIRR and NPV indicators. The timeframe (20 years) and discount rates (12 percent in the financial analysis and 6 percent in the economic analysis) are unchanged. The analysis has been run in a very conservative way: for example, crop yields' in the With Project (WP) scenario increase on average by 63 percent, a value which is conservative for sustainable agriculture intensification practices. Also, the adoption rates are kept at a very low level, considering the negative impact of the COVID-19 pandemic on the agriculture sector (and particularly on the production of vegetables and fruits).

13. **Sensitivity analysis.** It is clearly not easy to make predictions about future trends in costs and prices, particularly after a relatively new and complex economic situation caused by the COVID-19 pandemic. The analytical assumptions are therefore tested through a revised sensitivity analysis which simulated costs and benefits increases, further decline in output prices, further increases in input prices including labor costs, and further decreases in farmers' adoption rates.

Financial analysis

14. The project supported commodities and cross-cutting thematic areas include maize, potato, climbing beans, tomato, onion, sweet pepper, watermelon, papaya, tree tomato, passion fruit, chili (bird-eye and hot), French bean, avocado and processing of maize. The farm models developed at project design are unchanged, except for the revised assumptions summarized above. After the revision, the NPVs of the net incremental benefits per hectare (and the benefit-cost ratios) range from US\$667 (and a B/C ratio of 1.02) for maize to US\$41,949 (and a B/C ratio of 5.87) for tomato. The financial performance indicators confirm the robustness of the crop and farm models, indicating that the proposed activities are still commercially viable even after the inclusion of COVID-19 impacts (Table 1.1) below.

Table 1.1: Summary of the financial analysis of the crop models post COVID-19

Crop	NPV @ 12 percent discount (US\$)	Benefits/ Costs
Avocado	8,044	2.80
Climbing bean	1,885	2.09
Chili BE	6,821	1.08
Chili hot peppers	22,817	3.61
French bean	17,317	1.75
Maize	685	1.08
Onion	10,888	3.40
Passion fruit	9,066	1.98
Papaya	13,764	2.20
Potato	22,581	4.15
Sweet pepper	14,652	3.56
Tree tomato	2,306	2.20
Tomato	41,949	5.87
Watermelon	2,111	1.02

Economic analysis

15. The project generates economic benefits from investments in development pathways related to social capital, sustainable production, and business and market development. They accrue from investments along the value chains of the agricultural commodities and cross-cutting thematic areas supported by the project. Their quantification is based on the results of the farm and enterprise or micro-processing models. Economic benefits are estimated using economic prices (instead of the financial ones).

16. The economic analysis uses economic costs computed using the Costab software. They amount to US\$35.7 million from year 1 to 5, and US\$1.87 million per annum (5 percent of the investment costs per annum) from year 6 to year 20. The resulting economic NPV is about US\$33.2 million. The EIRR is 14.7 percent and the Benefit-Cost Ratio (BCR) is 1.69 (down from 17 percent and 1.82, respectively, before the revision of the EFA). The break-even is recorded in year 12 (it was in year 8 before the post COVID-19 revision).

17. The sensitivity analysis has been revised specifically adding hypotheses related to the new assumptions linked to the potential impact of the COVID-19, namely: (i) further decline (with respect to the base case) of farm-gate output prices for fresh vegetables and fruits; (ii) further decrease in farmers' adoption rates; and (iii) further increase in the input prices including labor. The results demonstrate that the project can absorb substantial negative impacts and still generate an EIRR above the social discount rate, even in view of the potential medium-term impact of COVID-19. Thus, based on conservative assumptions, the analysis still supports the public investment decision. It is worth noting that further decreases in farm gate export output prices will not make the project unprofitable

if they will be below 50 percent (in addition to input price increases by 10-15 percent and 10 percent price decrease for locally traded outputs).

Table 1.2: Project sensitivity analysis post COVID-19

Scenario	EIRR (%)	NPV (US\$ 000)	BCR
1. Base case	14.7	32,201	1.69
2. Costs overrun by 10 percent	13.0	27,372	1.54
3. Cost overrun by 20 percent	11.5	22,726	1.41
4. Decrease in benefits by 10 percent	12.8	24,170	1.52
5. Decrease in benefits by 20 percent	10.8	16,322	1.35
6. Benefits delayed by two years	13.9	30,169	1.65
7. Both 3 and 5 occur	7.0	3,762	1.06
8. All output prices decline by 20 percent	13.2	26,004	1.56
9. Scenario 8 and input prices increase by 20 percent (including labor costs)	13.1	25,221	1.54
10. Scenario 9 and farmers' adoption rate decreases to 30 percent	9.0	9436	1.20

18. **Environmental benefits.** It is not expected that the project's environmental benefits will be affected by COVID-19 impacts. Thus, the EX-ACT modelling used to assess the project's public good benefits in the form of its climate change mitigation potential has not been revised. On average, the positive impact on GHG is 751 tCO_{2e} per annum. Following the World Bank guidelines, three scenarios are simulated, using the low and high range social cost of carbon and at market prices (US\$8 per ton). The corresponding NPVs and EIRRs are summarized in Table 1.33.

Table 1.3: Results of the economic analysis with the environmental benefits

	Market Carbon price scenario	Low Carbon price scenario	High Carbon price scenario
NPV w ENV Benefits (USD)	49,641	68,456	70,901
EIRR w ENV Benefits (%)	27.2%	37.5%	54.4%

19. A summary of the project's economic analysis is in Table 1.4.

Table 1.4: Summary of the economic analysis of the project post COVID-19 (US\$ 000)

	Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Yr-6	Yr-7	Yr-8	Yr-9	Yr 10-20	Yr-11	Yr-12	Yr-13	Yr-14	Yr-15	Yr-16	Yr-17	Yr-18	Yr-19	Yr-20
Project benefits																				
Total Project Benefits	0	294	1,896	3,371	4,630	7,413	8,355	7,074	8,190	8,187	6,529	12,253	12,250	11,127	12,243	12,240	11,117	12,233	12,230	11,106
Project costs																				
Economic costs	13,492	8,355	7,906	5,515	2,246															
Other costs																				
Maintenance and fees						1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876
Total Project Costs	13,492	8,355	7,906	5,515	2,246	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876
TOTAL PROJECT INCREMENTAL NET BENEFITS	-13,492	-8,061	-6,010	-2,144	2,384	5,538	6,479	5,198	6,315	6,311	4,654	10,378	10,374	9,251	10,368	10,364	9,241	10,358	10,354	9,231

NPV (in USD '000) @ 0.06 **32,201**
 EIRR **14.7%**
 Social discount rate **6%**

Project benefit stream	0	294	1,896	3,371	4,630	7,413	8,355	7,074	8,190	8,187	6,529	12,253	12,250	11,127	12,243	12,240	11,117	12,233	12,230	11,106
NPVb (in USD) @ 0.06	78,664																			
Project cost stream	13,492	8,355	7,906	5,515	2,246	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876
NPVc (in USD) @ 0.06	46,462																			
Project net incremental benefits	-13,492	-8,061	-6,010	-2,144	2,384	5,538	6,479	5,198	6,315	6,311	4,654	10,378	10,374	9,251	10,368	10,364	9,241	10,358	10,354	9,231
NPV (in USD) @ 0.06	32,201																			
Break-Even in Year-12	-12,728	-19,903	-24,949	-26,647	-24,866	-20,962	-16,653	-13,392	-9,654	-6,130	-3,678	1,479	6,343	10,435	14,761	18,841	22,272	25,901	29,323	32,201

Switching values	Appraisal value	Switching value	% change
Incremental benefits	78,664	46,462	-41%
Incremental costs	46,462	78,664	69%
BCR	1.69		

Costs Inc. 100% cost
 Benefits 100% ben

With Environmental co-benefits

Market price of carbon (USD/tCO2)		8																		
Carbon prices - Low* (USD/tCO2)	39	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	55	56	57	58
Carbon prices - High* (USD/tCO2)	78	78	80	82	84	86	87	89	91	94	96	98	100	102	105	107	109	112	114	117
Uptake	0.2	0.4	0.6	0.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total tCO2 emission over 20 years (EX-ACT)		13,510	tCO2																	
Total tCO2 emission per year (EX-ACT)		751	tCO2																	
Environmental co-benefits @ market price (8 USD/tCO2)	325	325	325	325	325	325	325	325	325	325	0	0	0	0	0	0	0	0	0	0
Environmental co-benefits @ low estimate price (avg. 49 USD/t)	1,583	1,624	1,664	1,705	1,746	1,786	1,827	1,867	1,908	1,949	1,989	2,030	2,070	2,111	2,152	2,233	2,273	2,314	2,354	
Environmental co-benefits @ high estimate price (avg. 98 USD/t)	3,166	3,248	3,329	3,410	3,491	3,572	3,653	3,734	3,815	3,896	3,977	4,058	4,139	4,220	4,301	4,382	4,463	4,544	4,625	
<i>Total Benefit with ENV Market Price</i>	618	2,221	3,696	4,955	7,738	8,680	7,398	8,515	8,512	6,530	12,254	12,250	11,127	12,244	12,240	11,117	12,234	12,230	11,107	
<i>Total Benefit with ENV Low Price</i>	1,877	3,520	5,035	6,335	9,159	10,141	8,900	10,058	10,095	8,478	14,242	14,280	13,197	14,354	14,391	13,349	14,507	14,544	13,461	
<i>Total Benefit with ENV High Price</i>	3,460	5,144	6,700	8,040	10,904	11,887	10,687	11,885	12,003	6,533	12,257	12,254	11,131	12,248	12,244	11,121	12,238	12,235	11,111	
Total Net Benefit Without ENV Benefits	-8,061	-6,010	-2,144	2,384	5,538	6,479	5,198	6,315	6,311	4,654	10,378	10,374	9,251	10,368	10,364	9,241	10,358	10,354	9,231	
Total Net Benefit With ENV Benefits @ Market Price (USD)	-7,737	-5,685	-1,819	2,708	5,862	6,804	5,523	6,640	6,636	4,654	10,378	10,375	9,251	10,368	10,365	9,241	10,358	10,355	9,231	
Total Net Benefit With ENV Benefits @ Low Price (USD)	-6,478	-4,386	-480	4,089	7,283	8,266	7,025	8,182	8,219	6,602	12,367	12,404	11,321	12,479	12,516	11,474	12,631	12,668	11,585	
Total Net Benefit With ENV Benefits @ High Price (USD)	-4,895	-2,762	1,185	5,794	9,029	10,011	8,811	10,009	10,127	4,657	10,382	10,378	9,255	10,372	10,369	9,245	10,362	10,359	9,236	

	Market	Low	High
NPV w ENV Benefits (USD)	49,836	68,650	71,095
EIRR w ENV Benefits (%)	27.3%	37.6%	54.5%
NPVb	85,594	104,408	106,853
NPVc	46,462	46,462	46,462
BCR ratio	1.84	2.25	2.30
Switcting values - benefit	-46%	-55%	-57%
Switcting values - cost	84%	125%	130%
ENV Benefits as a percentage of total	4.4%	30.6%	33.0%

* Source: World Bank Guidance notes on shadow price of carbon; September, 2017



References

Bizoza A.R., Sibomana S., 2020. Indicative Socio-Economic Impacts of the Novel Coronavirus (COVID-19) Outbreak in Eastern Africa: Case of Rwanda. Available at SSRN

FAO, 2020. Food outlook, November. <http://www.fao.org/3/cb1993en/cb1993en.pdf>

FAO, 2021. Food price monitoring and analysis (FAPMA) bulletin. 11/05/2021. GIEWS - Global Information and Early Warning System on Food and Agriculture. <http://www.fao.org/giews/food-prices/regional-roundups/detail/en/c/1398609/>

FEWS NET, 2021. Price watch, March 2021. April 30, 2021. https://fews.net/sites/default/files/documents/reports/PW_Global_202103_FINAL_1.pdf

Rob V., Will M., Laborde D., 2020. How much will global poverty increase because of COVID-19? Washington D.C., USA: International Food Policy Research Institute

Rwigema, P.C., 2021. Impact of Covid-19 lockdown on food security in Rwanda. *The Strategic Journal of Business & Change Management*, 8 (1), 899 – 925.

WB, 2021a. Food Security and COVID-19. Brief. May 2021. The World Bank. www.worldbank.org/en/topic/agriculture/brief/food-security-and-covid-19

WB, 2021b. Protect and Promote Human Capital in a Post-COVID-19 World Rwanda Economic Update, Edition No. 16, January. The World Bank. <https://documents1.worldbank.org/curated/en/593761612554686869/pdf/Rwanda-Economic-Update-Protect-and-Promote-Human-Capital-in-a-post-COVID-19-World.pdf>

WB, 2021c. Commodity markets outlook, April 2021. The World Bank. <https://www.worldbank.org/en/research/commodity-markets>