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IMPLEMENTATION COMPLETION AND RESULTS REPORT

IDA-50640 AND IDA-54030

ON A

CREDIT

IN THE AMOUNT OF SDR 62.6 MILLION

(US\$ 95.9 MILLION EQUIVALENT)

TO THE

REPUBLIC OF RWANDA

FOR A

THIRD RURAL SECTOR SUPPORT PROJECT (P126440)

APRIL 25, 2019

CURRENCY EQUIVALENTS

(Exchange Rate Effective October 31, 2018)

Currency Unit = Rwanda Francs (RWF)

887.43 = US\$1

US\$ 1.382 = SDR 1

FISCAL YEAR

July 1 - June 30

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AIF	Africa Improved Food
APL	Adaptable Program Loan
ARAP	Abbreviated Resettlement Action Plan
CAS	Country Assistance Strategy
CFE	Common Framework for Engagement
CPS	Country Partnership Strategy
DOL	Division of Labor
EAX	East Africa Commodity Exchange
EFA	Economic and Financial Analysis
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
ESMF	Environmental and Social Management Framework
FA	Financing Agreement
FIRR	Financial Internal Rate of Return
FM	Financial Management
GDP	Gross Domestic Product
GoR	Government of Rwanda
GRC	Grievance Redress Committee
EICV	Integrated Household Living Survey
LWH	Land Husbandry, Water Harvesting and Hillside Irrigation
ICR	Implementation Completion and Results Report
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IMTA	Irrigation Management Tripartite Agreement
ISM	Implementation Support Mission
M&E	Monitoring and Evaluation
MINAGRI	Ministry of Agriculture and Animal Resources
MTR	Mid-Term Review
NAEB	National Agriculture Export Development Board
NPV	Net Present Value
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PAH	Project Affected Household
PAP	Project Affected Person
PDO	Project Development Objective
PIU	Project Implementation Unit
PMP	Pest Management Plan
PSTA	Strategic Plan for the Transformation of Agriculture
RAB	Rwanda Agriculture and Animal Resources Development Board
RAP	Resettlement Action Plan
RCA	Rwanda Cooperative Agency

RDB	Rwanda Development Board
RGCC	Rwanda Grain and Cereals Corporation
RPF	Resettlement Policy Framework
RSSP	Rural Sector Support Project
RWF	Rwandan Franc
SACCO	Savings and Credit Cooperative
SAIP	Sustainable Agriculture Intensification and Food Security Project
SHG	Self-Help Group
SPIU	Single Project Implementation Unit
SSIT	Small-Scale Irrigation Technology Development Program
SWAp	Sector Wide Approach
TTL	Task Team Leader
USD	United States Dollar
WUA	Water User Association
XDR	Special Drawing Rights

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P126440	Third Rural Sector Support Project
Country	Financing Instrument
Rwanda	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Republic of Rwanda/ Ministry of Finance and Economic Planning	Rwanda Agriculture Board

Project Development Objective (PDO)

Original PDO

In line with the overall APL objective and its programmatic phasing, the Project Development Objectives (PDOs) for RSSP3 are to:

- (i) Increase the agricultural productivity of organized farmers in the marshlands and hillsides of sub-watersheds targeted for development in an environmentally sustainable manner;and
- (ii) Strengthen their participation in market-based value chains.

PDO as stated in the legal agreement

Both in the PAD and in the Legal Agreement the second (ii) part of the PDO reads: "Strengthen the participation of women and men beneficiaries in market-based value chains".



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
IDA-50640	80,000,000	80,000,000	76,011,559
IDA-54030	15,900,000	15,900,000	14,511,155
Total	95,900,000	95,900,000	90,522,714
Non-World Bank Financing			
Borrower/Recipient	0	0	0
Total	0	0	0
Total Project Cost	95,900,000	95,900,000	90,522,713

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
01-Mar-2012	20-Jun-2012	02-Nov-2015	30-Oct-2017	30-Oct-2018

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
05-Dec-2017	89.83	Change in Implementing Agency

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Substantial

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	15-Nov-2012	Satisfactory	Satisfactory	7.99



02	09-Jul-2013	Satisfactory	Satisfactory	17.73
03	05-Jan-2014	Satisfactory	Satisfactory	28.54
04	27-Jul-2014	Satisfactory	Satisfactory	37.33
05	30-Jan-2015	Satisfactory	Satisfactory	42.78
06	27-Jun-2015	Satisfactory	Satisfactory	48.60
07	10-Feb-2016	Satisfactory	Satisfactory	55.55
08	27-Sep-2016	Satisfactory	Satisfactory	76.72
09	14-Apr-2017	Satisfactory	Satisfactory	85.31
10	23-Oct-2017	Satisfactory	Satisfactory	89.83
11	07-May-2018	Satisfactory	Satisfactory	89.83
12	30-Oct-2018	Satisfactory	Satisfactory	90.52

SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Agriculture, Fishing and Forestry 64

Agricultural Extension, Research, and Other Support Activities 5

Irrigation and Drainage 25

Public Administration - Agriculture, Fishing & Forestry 7

Other Agriculture, Fishing and Forestry 27

Industry, Trade and Services 36

Agricultural markets, commercialization and agri-business 36

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)



Finance	0
Finance for Development	3
Agriculture Finance	3
Urban and Rural Development	0
Rural Development	70
Rural Markets	3
Rural Infrastructure and service delivery	27
Land Administration and Management	40
Environment and Natural Resource Management	0
Renewable Natural Resources Asset Management	26
Biodiversity	13
Landscape Management	13
Private Sector Development	100
Jobs	100

ADM STAFF

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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. At appraisal, Rwanda was making great strides in economic growth and poverty reduction, with agriculture as a major contributor. Between 2000 and 2011, the real Gross Domestic Product (GDP) grew annually at 6.75 percent, while agriculture value added grew at 4.1 percent. In 2011, the farming sector (forestry and fisheries excluded) comprised 27 percent of the country's economy and constituted 78 percent of total employment (National Institute of Statistics, Rwanda). Food crops were the bulk of Rwanda's agricultural output (64 percent in 2011), while also being the main source of domestic food security. The Integrated Household Living Survey (EICV) revealed that, in 2010/11, 52 percent of households deriving more than half of their income from agriculture were in poverty, down from a 63 percent in 2005/6. Considering that the poor depended disproportionately higher than the non-poor on farm income (with revenues from agriculture representing 56 percent and 44 percent of total incomes, respectively) agriculture development must have played an important role in poverty reduction.
2. The Government of Rwanda stressed that agriculture should continue to play a leading role in the country's development, but it would have to modernize. Rwanda's long-term vision, articulated in the country's Vision 2020 document, was to become a middle-income country by the year 2020. Agriculture, a fundamental pillar of this vision, would have to transform from a subsistence system to a market-oriented one, with the help of sector policies that would promote intensification, productivity increases, and value addition.
3. The Third Rural Sector Support Project (RSSP3, hereafter referred to as the Project) was part of a three-phase adaptable program loan (APL), aiming to help the Government of Rwanda (GoR) implement these policies. An urgent priority for Government to address its structural food deficit and increased share of marketed production was the development for irrigation of 60,000 ha of marshlands, along with the sustainable development of surrounding hillsides. These are the two main pillars supported by the RSSP APL series. The RSSP projects became a flagship vehicle for marshland development by the Ministry of Agriculture and Animal Resources (MINAGRI).
4. The APL phases followed a coherent succession, which progressed from capacity building to adopt sustainable intensification technologies in developed marshlands and surrounding hillsides (RSSP1, approved on March 21, 2009 and closed on June 30, 2008) to accelerating intensification and commercialization (RSSP2, approved on June 24, 2008, closed on October 31, 2012), and, finally, to diversifying economic activities to increase and stabilize rural incomes (RSSP3, approved on March 1, 2012 and closed on October 30, 2018). The three phases were built one upon the other; activities completed during one phase laid out a strong foundation for the next phase. For instance, Phase 1 covered much of the hillside protection and marshland development studies; based on these, Phase 2 had a strong focus on agricultural intensification through a mix of infrastructure investment and capacity building; Phase 3 continued these investments, while also helping many of the young farmer organizations set up during Phase 2 to develop into mature, sustainable structures. For details, please see *Annexes 6 and 7*.



5. The Project was firmly embedded into the Government's strategic planning. It started at the transition between Rwanda's Strategic Plan for the Transformation of Agriculture Phase II (PSTA II), covering 2009-12, and the Plan's third phase, PSTA III, covering 2013-17. These 5-year strategic plans are the country's main tool for outlining its vision and programs for agriculture in the medium term. The two generations of PSTA set forth a coherent blueprint for the farming sector, viewed as a priority sector for ensuring economic growth and poverty reduction. PSTA III explicitly outlined a vision for agriculture development based on intensification and commercialization, which are also the two pillars driving the Project. Both PSTAs relied on four programs, centering on the same themes and priorities: (i) sector intensification; (ii) technology/knowledge development and transfer, as well as professionalization of farmers; (iii) value chain development, with PSTA III putting more emphasis on private sector development; and (iv) institutional development, with PSTA III focusing more on cross-cutting issues such as mainstreaming gender, youth and environment issues into agriculture programs. PSTA II introduced the Sector Wide Approach (SWAp) for implementation, involving coordination of development partners around a country-owned program, which was *de facto* continued into PSTA III implementation. The Project was designed to cover a major portion of PSTA II's first two programs.

6. PSTA II demonstrated success, and PSTA III committed to scaling it up, while also addressing some of the remaining challenges. During PSTA II, there were notable improvements in farm productivity, mainly due to better land management practices, irrigation, and an increased use of inputs (including certified seeds and agrochemicals). Building on these achievements and scaling them up was one of the commitments undertaken under PSTA III. At the same time, two major challenges remained, namely: (a) ensuring environmental sustainability of farming, mainly through addressing soil erosion and promoting water conservation, and (b) linking farm production to domestic and foreign markets, through actions downstream of agri-food value chains.

7. This Project was also fully aligned with the Bank's Country Assistance Strategy (CAS) for Rwanda for FY09-12 and designed to contribute to its Outcome 1.1.: sustainably raising agricultural production, particularly of food crops. The CAS was framed around two strategic themes: (a) promote economic transformation and growth, and (b) reduce social vulnerability. Agriculture production, with an emphasis on sustainable approaches, was one of the four components of the CAS's first strategic theme. To achieve greater impact, the CAS foresaw that interventions to increase commercialization of agriculture should complement support to agricultural production. The Project design, with its double focus on increasing productivity and commercialization of marshland and adjacent hillside agriculture was well suited to respond to these CAS objectives. At the same time, this is in line with the Division of Labor (DOL) exercise that the Government of Rwanda conducted to strategically orient the sectoral involvement of the various development partners; as such, the Bank's priority sectors were agriculture, energy and transport.

Theory of Change (Results Chain)

8. The Project embarked on achieving two outcomes: increasing productivity of irrigated marshlands and adjacent, non-irrigated hillsides, as well as strengthening the participation of targeted beneficiaries in market-based value chains. These would jointly contribute to longer-term outcomes, such as more sustainable management of natural resources in the rural areas, diversification of incomes in rural communities, and professionalization of agriculture. While the latter was not explicitly mentioned as a higher-level objective in the

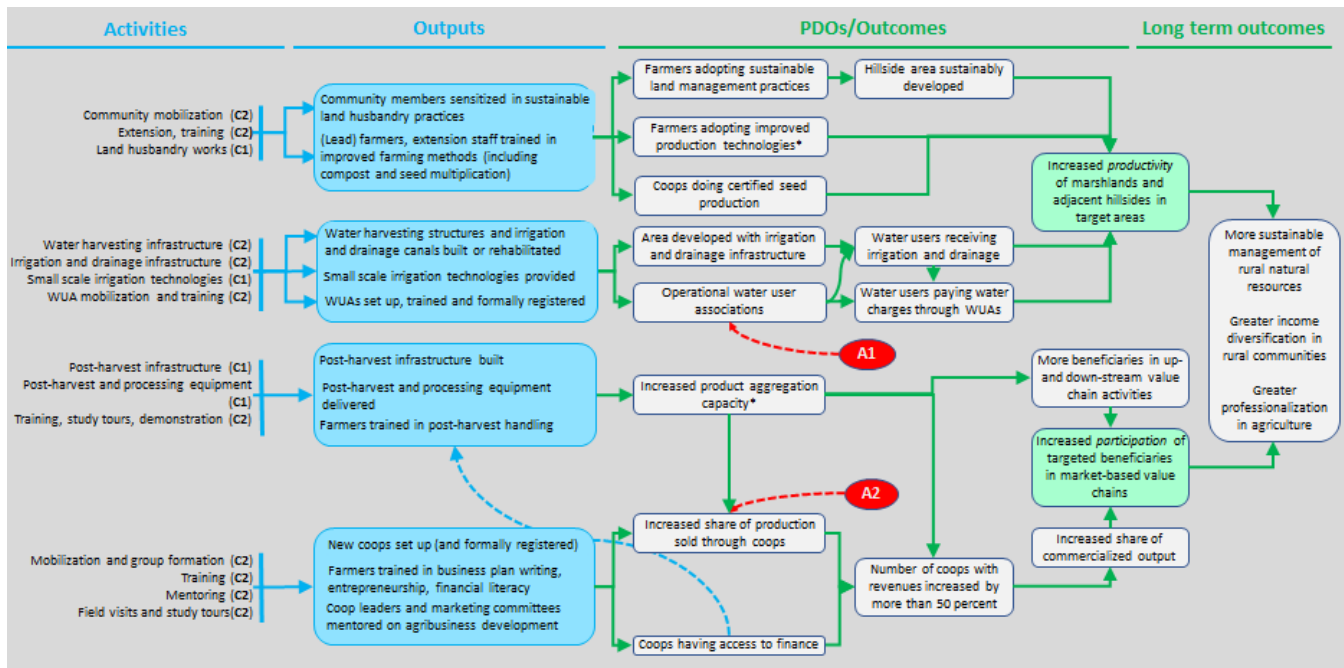


Project Appraisal Document (PAD), it is still an important outcome of the Project, and, at the same time one of the strategic priorities of the Government’s PSTA II and III.

9. The Project targeted a very wide range of beneficiaries, the majority of whom were small farmers involved in staple crop production (rice, maize, beans, potatoes, horticulture). By also focusing on a variety of other value chain actors (including microfinance institutions, extension service providers, traders) and on establishing the needed linkages between farmers and these actors, the Project was well positioned to contribute to improving the livelihoods of these smallholders (see Annex 8 for testimonies from beneficiaries).

10. While the PAD did not include a Theory of Change or a Results Chain, one is presented in Figure 1 below, as inferred from the Project description at appraisal. It is understood that the achievement of the Project development objectives rested on critical assumptions (A1 and A2 in the chart below). A1 pertained to the continued capacity of water user associations (WUAs) to effectively provide services to their users, while being able to recover their water fees. On this, the Project focused greatly on mobilizing and building capacity among its WUAs. A2 referred to the ability of cooperatives and other aggregators to find market outlets for their farmers’ produce. To address this, the Project focused on improving agribusiness and marketing skills among its beneficiaries, improving quality and reducing post-harvest losses through better post-harvest technology and handling, as well as on linking farmer cooperatives to potential buyers (see paragraph 30).

Figure 1: The Project’s Theory of Change



Note: Boxes marked with * indicate intermediate outcomes implied in the PAD narrative but not tracked through specific indicators



Project Development Objectives (PDOs)

11. As stated in the Financing Agreement (FA) and in line with the PAD, the development objectives of the Project were to: (i) increase the productivity of organized farmers in the marshlands and hillsides of sub-watersheds targeted for development in an environmentally sustainable manner; and (ii) strengthen the participation of women and men beneficiaries in market-based value chains.

Key Expected Outcomes and Outcome Indicators

12. Project performance was assessed against two outcomes, measured by four outcome indicators:

- Objective 1: Increase productivity of marshland and adjacent hillside agriculture in target areas, measured by two indicators¹, namely productivity of targeted irrigated marshlands (dollars/ha), and productivity of targeted non-irrigated hillsides (dollars/ha). Both productivity indicators are showing the change in the value of crop production (calculated as output value minus input and labor costs) per unit of land; and
- Objective 2: Increase value chain participation of targeted beneficiaries, measured by the share of marketed crops from target areas (percentage) in the total crop production, as well as by the number of Project beneficiaries involved in upstream (e.g. seed production, composting, nurseries, inputs) and downstream (e.g. transport, processing) activities along the value chains supported by the Project.

Components

13. Component 1: Infrastructure for Marshland, Hillside and Commodity Chain Development (Appraisal: US\$ 65.4 million; closing: US\$ 75.9 million)²: Component 1 aimed at developing the physical infrastructure needed to increase agricultural productivity and commercialization in the target areas. It included three sub-components: (1.1) rehabilitation and development of irrigation in cultivated marshlands; (1.2) promotion of sustainable land management practices on associated hillsides; and (1.3) development of economic infrastructure for value chain development. Activities financed under this sub-component covered: feasibility and design studies, as well as construction and supervision work for marshlands irrigation (to include small dams, irrigation and drainage canals, and related access roads); adoption of sustainable land management practices (such as grass strips, contour bunding, radical terraces, lime and compost application, pasture improvement through trees and grass planting, reforestation of hillsides unsuitable for intensive farming etc.); as well as building post-harvest infrastructures (such as drying facilities for rice and maize, storage facilities, collection centers) and providing post-harvest and processing equipment (such as palettes, moisture meters, combined maize threshers and winnowers).

14. Component 2: Capacity for Marshland, Hillside and Commodity Chain Development (Appraisal: US\$ 7.5 million; closing: US\$ 6.9 million)³: Component 2 contributed to the overall objectives of the Project by financing its “soft” investments, in complementarity with Component 1. It had three sub-components, namely: (2.1) capacity building for farmers organizations and cooperatives; (2.2) capacity building for improved production technologies; and (2.3) capacity building for value chain development. Activities financed under this component covered:

¹ Expressed in economic terms, the productivity indicators allowed for comparison and aggregation across diverse multi-crop production and marketing systems, as well as the factoring in of any changes in crop production and marketing patterns during project implementation; however, one drawback was the use of a fixed exchange rate when converting the indicator value from Rwandan francs into US dollars, which means that the indicator values do not properly take into account the depreciation of the national currency during the lifetime of the Project. This is further discussed in Section IV.

² Inclusive of Government contribution; the end-of-project disbursement for this component was US\$ 74.5 million.

³ Inclusive of Government contribution; the end-of-project disbursement for this component was US\$ 5.4 million.



mobilization and group formation to strengthen the capacity of water user associations or cooperatives to improve their governance and management capacity and to provide services to their members; upscaling of the Farmers Field Schools (FFS); coaching of interested cooperatives to become certified seed producers; extension to support intensification of rainfed hillside production; as well as training of individual farmers, cooperatives and agribusiness centers on business management and marketing principles.

15. Component 3 – Project Coordination and Support (Appraisal: US\$ 5.5 million; closing: US\$ 11.6 million)⁴:

Component 3 aimed at ensuring that Project activities were effectively managed under the Single Project Implementation Unit (SPIU) established in 2012 and embedded into MINAGRI. The SPIU was set-up both as part of a Government-wide rationalization, and to facilitate the implementation of the agriculture sector's programs under a Sector-Wide Approach (SWAp) structure. The SPIU became responsible for implementing both RSP and LWH (Land Husbandry, Water Harvesting and Hillside Irrigation Project) activities, and took on board the experienced RSP2 project implementation team. This component covered Project management costs, such as staff salaries, equipment, operational expenses, as well as implementation of environment and social safeguards and of monitoring and evaluation.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

16. The PDO has not changed during project implementation. The corresponding PDO-level outcome targets have not changed, either. Nonetheless, the targets for four intermediate results indicators, including the indicator measuring the number of direct project beneficiaries, were revised upwards once, in 2014, as a reflection of allocation of additional financial resources and extension of the Project closing date.

Revised PDO Indicators

17. The PDO indicators did not change during Project implementation.

Revised Components

18. There were no changes in the design of the Project components during its implementation. The only relevant development in Component 3 was the change in the implementation agency, described in paragraph 19.

Other Changes

19. The Project was restructured two times. The first restructuring was approved on April 3, 2014, following the processing of an additional IDA credit to the Republic of Rwanda in the amount of US\$ 15.9 million. On this occasion, the following three changes were made: (i) the Project closing date was extended by 12 months, through October 30, 2018; (ii) the results framework was revisited to increase the targets for four indicators, commensurate with the additional resources available; and (iii) resources were reallocated across disbursement categories. The second restructuring took place in 2018, to reflect a transfer of the Project implementation responsibilities from MINAGRI to the Rwanda Agriculture and Animal Resources Development Board (RAB). The Government of Rwanda requested this change through a letter to the Bank dated July 19, 2017. The transfer was

⁴ Inclusive of Government contribution; the end-of-project disbursement for this component was US\$ 10.5 million.



part of a Government-wide reform aiming at increasing the efficiency of public administration, by focusing the role of line ministries on policy-making and monitoring, while tasking designated agencies with the implementation of policies and programs.

20. The Project Mid-Term Review (MTR), covering the period from June 2012 through October 2015 confirmed the satisfactory progress of Project implementation to that date. Most intermediary targets had been achieved or exceeded. The only indicators showing progress somewhat slower than projected were the area with improved irrigation and drainage services (at 81 percent of the 2015 target), and the number of operational WUAs (at 84 percent of its 2015 target). Nonetheless, these were eventually achieved in 2017 (thus allowing time for capacity building on the respective sites before Project closing), and 2018, respectively. The main recommendation of the MTR was a budget reallocation by components and sub-components. Its main reasons were: (i) a relative reduction of irrigation costs, thanks to more local companies successfully participating in bids than originally anticipated; (ii) sharing of some of the capacity building costs in hillsides and value chains development (Component 2) with other relevant institutions and service providers; and (iii) higher than initially estimated costs of post-harvest infrastructures (Component 1.3) and project management and coordination (Component 3). As a result, the following budget reallocations took place before the end of 2015, without triggering a change in disbursement categories: Component 1 saw a budget decrease by US\$ 0.8 million; Component 2 had a budget decrease by US\$ 2.8 million; whereas Component 3 saw a corresponding increase of US\$ 3.6 million.

21. Between Project appraisal and closing, the Rwandan franc lost 25 percent of its value to one unit of Special Drawing Rights (XDR), in which both International Development Association (IDA) credits were denominated. This led to a total exchange rate loss of about US\$ 5.4 million, of which US\$ 4.0 million under IDA credit 50640, and the rest under IDA credit 54030. This loss has been recovered from the contingencies embedded in the Project, which were altogether worth US\$ 6.6 million.

Rationale for Changes and Their Implication on the Original Theory of Change

22. The reasons for each Project restructuring are outlined in paragraph 19. Neither of these has affected the original Theory of Change. In fact, the MTR reconfirmed the soundness and relevance of the Theory of Change.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating (Rating: High)

23. The Project continued to be consistent with and relevant for the Government vision and strategy at its closing. Rwanda's Vision 2050 now captures the new long-term aspirations for the country and is about ensuring high standard of living for all Rwandans and attaining upper middle-income country status by 2035 and high-income status by 2050. The National Strategy for Transformation 2017-24 lays out the economic, social and governance pillars that would support achieving Vision 2050; increasing agriculture productivity and production, as well as sustainably exploiting natural resources remain key objectives of the economic transformation, to which the Project activities contributed directly. The Project closing in October 2018 coincided with the transition of the sector strategy from PSTA III to PSTA IV. The new PSTA continues and accelerates changes begun under PSTA III to



enhance productivity and profitability and encourage private investment. The Project Theory of Change continued to be strongly aligned with these strategic government objectives.

24. The Project’s Theory of Change remained highly relevant for the World Bank engagement in Rwanda’s agriculture at closing. The Country Partnership Strategy (CPS), FY14-18, rested on three themes, and agriculture was a key focus sector under the second theme. The CPS was explicit in stating that intensifying agricultural productivity would remain central in the IDA program, and that investments would equally facilitate transition to more commercial farming practices. These were, in fact, the twin development objectives of the Project, to which it contributed through promoting better management of natural resources, strengthening agri-food value chains, and improving farmers’ practices, knowledge and skills. At the same time, the CPF channeled IFC focus towards improving advisory services on horticulture in Rwanda and agri-business investments, thus complementing and reinforcing the effects of Project interventions. The Project itself contributed directly and substantially to three of the CPS outcomes under Theme 2: (i) improved agriculture productivity and sustainability; (ii) improved access of rural/small farmers to inputs, financing and markets; and (iii) improved agriculture value chains/linkages.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome (Rating: Substantial)

25. The Project achieved its development objectives of increasing productivity of irrigated marshlands and adjacent, non-irrigated hillsides in target areas, as well as strengthening participation of targeted beneficiaries in market-based value chains; the indicators presented in *Table 1* have reached or exceeded their targets..

Table 1: Summary of the main Project results (PDO level indicators)

PDO indicator	Unit of measure	Baseline	Target	End-of-project value	End-of-project value relative to target (% or percentage points, p.p.)
Agricultural productivity in irrigated marshlands	US\$/ha	662	1,375	2,865	208%
Agricultural productivity in non-irrigated hillsides	US\$/ha	470	1,038	1,133	109%
Share of commercialized agricultural products, in marshlands ⁵	%	W: 43 M: 45	W: 90 M: 90	W: 93 M: 93	W: 3 p.p. M: 3 p.p.
Share of commercialized agricultural products, in hillsides ⁶	%	W: 43 M: 45	W: 60 M: 60	W: 78 M: 79	W: 18 p.p. M: 19 p.p.
Project beneficiaries involved in up- and downstream value chain activities	number	896	6,206	33,973	547%
Farmers who adopted sustainable land management practices ⁷	%	W: 32 M: 36	W: 90 M: 90	W: 95.5 M: 96.5	W: 5.5 p.p. M: 6.5 p.p.

⁵ This indicator is measured as total value of crops sold over total value of crops produced

⁶ This indicator is measured as total value of crops sold over total value of crops produced

⁷ The sustainable land management practices and rain water harvesting technologies that the Project introduced included: (i) grass strips, contour bunding and improved radical terracing, as appropriate for slope category and soil depth; (ii) pasture improvement through trees and grass planting; (iii) dam and canal buffer zone protection; (iv) afforestation of critical hillside ecosystems unsuitable for intensive agriculture and animal production and shallow soils, and (v) construction of bench terraces and ditches for soil erosion control. Other techniques such as liming and organic materials application were introduced, while crop rotation, double cropping and contour cultivation and mulching were encouraged.



Direct beneficiaries	number	51,936	101,500	101,774	100.3%
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26. *The end project value for agricultural productivity in irrigated marshlands and non-irrigated hillsides exceeded their targets by 208% and 109% respectively.* These values, however, were calculated based on a fixed exchange rate of rate of US\$ 1 = RWF 600 as defined in the PAD. The Rwandan franc devalued relative to the US dollar by more than 30 percent between 2012 and 2019. Taking the devaluation into account, the end-of-Project value for marshland productivity would be US\$ 1,955/ha, which is still 3 times more than the baseline and exceeds the end project target of US\$ 1, 375/ha. For the hillsides, this would be US\$ 770, which is below the unadjusted target of US\$ 1,038/ha, but still 1.6 times more than the baseline.⁸ While for hillside crops, this is largely in line with the increase in physical yields, there are additional factors that explain the gains in the monetary productivity of marshland crops, proving the transformative impact of the Project: a switch from less profitable crops to more lucrative rice production (see also *Annex 8*), changes in revenue and cost structures (to reflect technical and allocative efficiencies etc.), increases in cropping intensity, etc.

27. *Agricultural productivity in irrigated marshlands* increased mainly thanks to: (i) additional new irrigated area through infrastructure development (4,103 ha were newly developed)⁹ and more reliable water availability to areas previously deprived of water (3,194 ha were rehabilitated), benefiting nearly 71,000 users; (ii) use of better quality certified seeds through project supported cooperatives (the use of improved seeds increased from 5 percent in 2013A¹⁰ to 80 percent in 2018B; 17 marshland cooperatives were certified as seed producers for rice only, while another 4 were certified for rice together with other crops); (iii) use of better technology and/or management practices through farmer capacity building using the farmer field schools (FFS) and other extension approaches (the Project installed 25 FFS in the marshlands and trained 2,500 farmers on various issues including pest and disease control as well as rice harvesting), and (iv) better organization, knowledge and skills among farmers/water users (the Project set up 17 new WUAs and strengthened capacity in a total of 42 WUAs, or 11 percent above target, all of which were trained and 25 became fully registered). Indeed, yields for rice, which is the main crop cultivated in the irrigated marshlands, increased from about 4 tons/ha, at baseline, to about 5 tons/ha at Project closing. In contrast, the national average was 3 tons/ha at appraisal and 3.4 tons/ha at Project closing.

28. *Agricultural productivity in non-irrigated hillsides* increased thanks to: (i) improved land management practices (9,312 ha benefited from improvements through radical terracing¹¹); (ii) adoption of improved technologies and practices (7 cooperatives in the hillsides became certified seed producers for maize and beans, while 210,895 tons of well decomposed and good compost were produced and used to improve soil fertility); and (iii) better farmers' knowledge and skills (10,464 farmers received training in compost making, 850 farmer field schools were installed on the hillsides, to support with establishment of tree nurseries, adapted fruit management techniques, etc.). The physical productivity of crops cultivated in the hillsides also increased considerably between the start of the Project and its closing: maize (from 1.5 tons/ha to 3.5 tons/ha, against a national average of 1.8 tons/ha); bush beans (from

⁸ In RWF nominal terms, the agricultural productivity in irrigated marshlands and non-irrigated hillsides increased from RWF 397,200 to RWF 1,719,000 (4.3 times), and, respectively, from RWF 282,000 to RWF 679,800 (2.4 times) from the baseline.

⁹ 7 sites were newly developed. These were Rwagitima, Gacaca, Rwinkwaku, Nyirabirande-Ndongozi, Rugende, Kigali, and Rwangino-Karangazi.

¹⁰ There are three agricultural seasons in Rwanda: season A (October to January), season B (February to May), and season C (June to September, in marshlands and irrigated areas).

¹¹ The rest up to 18,030 ha recorded in the results framework had different types of land husbandry technologies implemented, i.e. ditches, forests, pasture improvement, and banana field protection.



0.3 tons/ha to 1.3 tons/ha, against a national average of 0.8 tons/ha); climbing beans (from 0.8 tons/ha to 2.6 tons/ha, against a national average of 1.0 tons/ha), and Irish potatoes (from 3 tons/ha to 21 tons/ha, against a national average of 8.6 tons/ha).

29. *The share of farmers adopting sustainable land management practices, both in the hillsides and in the marshlands*, increased primarily thanks to capacity development activities, through training, demonstration plots, extension and coaching (see also paragraph 27). In addition to their involvement in productivity enhancing practices, beneficiaries also participated in activities that contributed mainly to ecosystem rehabilitation and land protection (e.g. 2,676.8 ha were covered with forest, while 3,283 ha of embankment were protected with grasses and another 2,398 with agroforestry trees). As a result, 1,172 ha of marginal land in the marshlands and hillsides were brought into productive use. Infrastructure and better water management (see also paragraph 41 on WUA performance) allowed for increased protection of marshlands against soil erosion, runoffs, and other forms of land degradation, and led to their improved productivity. The embankments protected with grasses and the areas planted agroforestry trees were used for fodder production for livestock and helped achieve the environmentally-friendly zero grazing policy, adopted by the Government to curb soil erosion.

30. *The share of commercialized agricultural products, both in the marshlands and in the hillsides, as well as the number of beneficiaries linked to upstream and downstream value chain activities* increased mainly thanks to capacity building activities, including group formation and mobilization of farmers. The Project facilitated the setting up of 3,382 Self-Help Groups (SHGs), each counting 20 to 30 members; the SHGs were further organized into 355 zones, and then into 51 cooperatives (15 in the hillsides and 36 in the marshlands). At the same time, it provided dedicated training and mentoring to its beneficiaries (e.g. 9,695 lead farmers received training in governance and management of their groups, as well as financial literacy and procurement, while cooperative leaders and marketing committees received mentoring on agribusiness and value chain development). As a result, farmers acquired better bargaining power relative to their upstream and downstream value chain partners, as well as the needed skills to market their products. At the same time, they improved their ability to attract funding, as 40 cooperatives out of 51 were implementing projects with funding from commercial banks or other financial institutions at Project closing. Activities to improve post-harvest handling¹² and marketing also played a role towards achieving these results. Support to the Federation of Rice Cooperatives helped organize the national seasonal price negotiations between cooperatives and millers. Other initiatives facilitated linkages between hillside producers (beans, maize) and key buyers, such as Africa Improved Food (AIF), PRODEV, MINIMEX, Bugesera Agribusiness Company, East Africa Exchange, Rwanda Grain and Cereals Corporation (RGCC) and local traders.

Justification of Overall Efficacy Rating

31. Achievement of the PDO is deemed **Substantial**. The Project exceeded all its PDO indicators targets. There were some shortcomings in calculating the agricultural productivity in irrigated marshlands and non-irrigated hillsides in USD terms (using fixed exchange rates), but after taking this into account, overall the project still substantially achieved its targets.

¹² E.g. building of 21 storage facilities, 62 rice drying grounds, and 9 maize collection and drying centers.



C. EFFICIENCY

Assessment of Efficiency and Rating (*Rating: Substantial*)

32. The ex-ante Economic and Financial Analysis (EFA) at appraisal estimated an economic internal rate of return (EIRR) of 55 percent for marshlands and 112 percent for the entire project when using a stochastic model. When using a deterministic model, the figures differed slightly, at 58 percent and 93 percent, respectively, with the latter including infrastructure for both scenarios. A discount period of 21 years and a discount rate of 12 percent was used to assess the project cash flow. The financial net present value (FNPV) and economic net present value (ENPV) was estimated to be USD 218 million and USD 228 million, respectively. An estimated 15,878 ha (5,769 ha of marshland and 10,109 ha of hillside) were foreseen to benefit from the Project.

33. The ex-post EFA developed four crop models to capture the benefits of the project, using staple and cash crops: maize, bush bean, potato and rice. These models served as the basis for three representative farm models: maize and bush beans, potato and bush beans and marshland rice, estimated for an area of 15,560 ha. The first two models represent the hillside and the latter model represents the marshland.

34. The Project has a positive financial and economic rate of return with an adoption rate of 40 percent for new farming practices and technologies. The Project has an FIRR of 96 percent and an EIRR of 88 percent, and an FNPV of USD 1.3 billion and an ENPV of USD 1.5 billion. The Project benefit to cost ratios (BCRs) are 14.9 and 14.1, respectively. The number of planned and actual hectares realized are closely aligned at 15,878 ha planned compared to 15,560 ha actual. However, the appraisal and the ex-post analyses used rather different crop models, as it was difficult to anticipate the changes in cropping patterns at Project inception. Due to the difficulties in determining the cropping pattern, the analysis uses low adoption figures that are highly surpassable, given the broad nature of the program within the Rwandan context. The change in cropping patterns (away from the low yielding cassava, sweet potatoes and bananas modeled at appraisal) is the main factor that explains the jump in NPV.

35. The Project generated large positive environmental benefits, as measured by the CO₂ emissions reductions using the FAO EX-ACT tool. Total emissions reductions equaled 443,149 tons over a twenty-year period. Environmental co-benefits as a percentage of total benefits equaled 4.5 percent, 21 percent and 35 percent for market, low and high shadow prices, respectively. These figures are in line with portfolio averages and regional targets of the World Bank. The EIRR returns a value of 142 percent when using the market price of carbon. Due to the high value of return, an EIRR does not register for the low and high shadow prices. The NPV increases from USD 1.5 billion without environmental co-benefits, to USD 1.8 billion, USD 2.2 million and USD 2.6 billion when using the market, low and high shadow prices of carbon.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

36. The overall outcome rating is **Satisfactory**, based on the above assessments of:

- Relevance of Objectives (Rating: High);
- Efficacy of Achieving Objectives (Rating: Substantial);
- Efficiency (Rating: Substantial).



E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

37. From the outset, the Project had an explicit focus on ensuring fair gender representation. All relevant indicators in the results framework were disaggregated by gender and were tracked accordingly throughout Project implementation. As such, 42.1 percent of all direct Project beneficiaries were women, while women also represented 45 percent of the Project beneficiaries participating in upstream and downstream value chain activities. Gender representation was also embedded in the various Project implementation mechanisms; for instance, a gender representative was included in each Grievance Redress Committee (GRC). Finally, gender-sensitive and gender-inclusive provisions were effectively integrated in the implementation of various Project activities. For instance, they were explicitly incorporated in the training and other capacity building activities; also, by promoting female extension workers and female lead farmers, the Project set positive examples that helped encourage more women to get involved in farming and other related value chain activities.

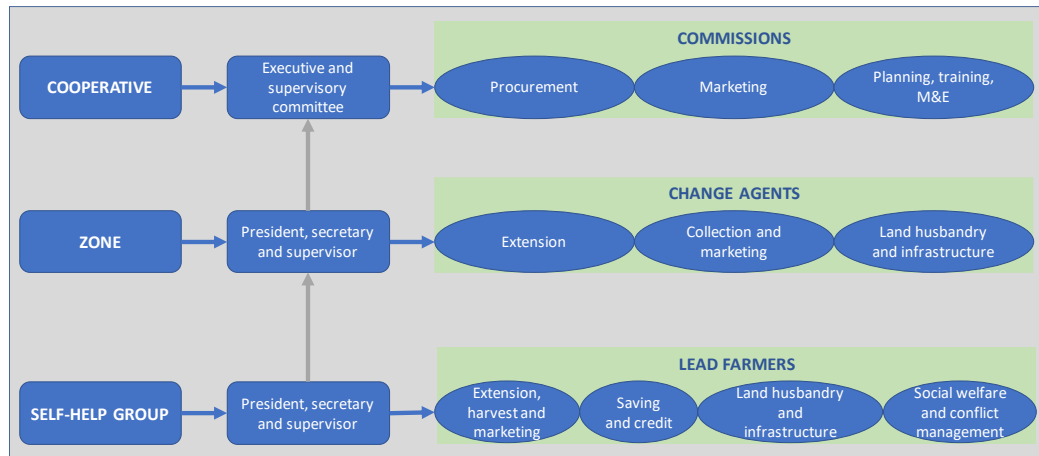
Institutional Strengthening

38. By design, the Project had a strong commitment to strengthening individual and institutional capacities, especially at farmer level, as expressed in the objectives and activities of its second component. Of relevance on an institutional level are the achievements that translated into the setting up and strengthening of various farmer organizations and WUAs but also district irrigation steering committees (DISCs).

39. *Farmer organizations:* As mentioned in paragraph 30, the Project facilitated the setting up of farmers' SHGs, zones and cooperatives, all of which were essential both for ensuring that capacity building activities had a strong outreach as well as for facilitating the farmers' increased participation in agricultural value chains.

40. *Figure 2* below shows the architecture of the various levels of farmers' organizations, which allowed knowledge to cascade effectively down to individual farmers and set the ground for good uptake of new technologies and practices. *Box 1* **Error! Reference source not found.** features one of the successful rice cooperatives that have benefitted from the Project. Overall, better organization of producers has led to efficiency gains through improved mechanization, access to finance (40 cooperatives out of 51), utilization of better inputs (such as certified seeds, produced in 28 out of 51 cooperatives), reduction of post-harvest losses, and diversification of income sources.

Figure 2: Structure of Farmer Organizations, at Different Territorial Levels



Source: MINAGRI

Box 1: COPRORIZ Ntende (Gatsibo District, Eastern Province)

Following Project intervention in the Ntende marshland, rice farmers formed a strong cooperative, which later turned out to be a successful business venture, which have become pathway to prosperity for many smallholders.

Before the Project, farmers were only cultivating 55 ha of rice, and were facing serious constraints due to floods and poor drainage. In addition to this, they were relying on poor agricultural practices, altogether leading to poor performance.

The RSP projects developed a good irrigation and drainage infrastructure, allowing the cultivation of 600 ha of land, strengthened farmer organization by developing SHGs, zones and one cooperative, COPRORIZ Ntende, and helped build their capacity.

As a result, rice productivity increased from 2.5 tons per hectare, in 2010 to 5.5 tons per hectare at the end of the Project; the cooperative, now counting 3,761 members, is producing more than 10,000 tons of rice a year.

Through the cooperative, rice farmers have pooled their resources and created economies of scale in production and value addition. The introduction of storage and drying facilities led to the reduction of post-harvest losses experienced by the rice farming communities before RSP intervention. COPRORIZ has become a platform for knowledge exchange (through the farmer field schools) advocacy, networking, information exchange and market access. The cooperative also acquired seven trucks, which transport rice produce to markets. It also provides a pension worth RWF 30,000 per season to its elderly and vulnerable members who can no longer cultivate rice. Finally, the cooperative has invested in a wide range of ventures that include a hotel of RWF 300 million, with 40 rooms, conference facilities, a restaurant and a bar, and gardens.

Source: MINAGRI

41. *Water user associations*: Regulation and formal organization of water management in agriculture are new in Rwanda. WUAs were regulated for the first time following the Ministerial Order no. 001/11.30 of November 23, 2011. The Project was instrumental for setting up WUAs to manage the new irrigation systems developed in the marshlands, while LWH achieved similar results in the hillsides. The Project facilitated the setting up of 17 new WUAs, while the remaining 25 set under RSP1 and RSP2 were strengthened and formalized. At Project closing,



most of the 42 WUAs could ensure water management and distribution to farmers and govern themselves. Their water fee recovery rates were high, at 95.7 percent overall, with some variation from site to site. The contractual relationship between WUAs and cooperatives was essential for ensuring fee recovery; cooperatives deducted their members' due water fees directly from their sales proceeds at harvest and transferred these funds to the WUAs.

42. District irrigation steering committees: The Project played an important role in the strengthening of the DISCs, which are responsible for monitoring the performance of their respective WUAs. These district-level structures also took up responsibilities regarding the maintenance of the irrigation infrastructure upon Project closure, through signing Irrigation Management Transfer Agreement (IMTAs) with WUAs and RAB.

Poverty Reduction and Shared Prosperity

43. With the Project targeting smallholders, it contributed directly to the World Bank's twin goals of ending extreme poverty and boosting shared prosperity in a sustainable manner. Through productivity gains from farming and through diversification of their income sources, Project beneficiaries were able to accumulate assets and improve their livelihoods (see *Box 2* for a beneficiary testimony). Cooperatives became vehicles for generating employment, boosting rice production for home consumption and markets, empowering the vulnerable, especially the women and elderly, and promoting social cohesion and inclusion. Field visits during ICR preparation revealed that many cooperatives developed social funds to help their members absorb expenses related to various life events, acquire health insurance, cover their children's school fees or collect small pensions upon retirement. At the same time, they contributed to increasing the welfare of their members by guaranteeing their micro-loans or initiating livestock diversification activities, by emulating the government's "One Cow per Poor Family" program.

Box 2: Beneficiary testimony – Mr. Peter Muyango (Kayigiro village, Nyagatare district, Eastern Province)

Mr. Muyango depended on livestock income before embarking on rice farming. Income generated from livestock was not enough to sustain his family.

The development of the Muvumba marshland in Eastern Province in 2011, through the Project, allowed converting the formerly pasture area into a rice field. Lack of knowledge and investment capital is what prevented farmers from switching to the more profitable rice production in the past:

"Before RSSP intervened in our area, I didn't want to engage in rice farming because I thought it was tiresome and required heavy investments. We were taught how to make our marshland productive. RSSP staff worked with us in the marshland trying out sustainable agriculture practices and providing us with training and capacity-building. After the training, I started rice farming on 2 ha of land where I harvested 11 tons," says Mr. Muyango.

With the income thus gained, he bought three Friesian cows worth RWF 300,000 each. He even managed to pay for school fees for his children. "From rice sales, I managed to build a house worth RWF 17 million. I can look after a family of 10 now, and all my children are in school. I thank the Government of Rwanda and RSSP for offering us real and affordable means to break out of poverty and obtain food security," he says. "I am currently investing my money in buying more plots for rice cultivation in the marshland. Perhaps in 5 years, I will be a successful rice farmer in Rwanda and in the region".

Source: MINAGRI



Other Unintended Outcomes and Impacts

44. *Supplemental income and environmental benefits from composting*: The Project introduced composting and trained farmers accordingly mainly to improve soil fertility in the hillsides. However, just like under LWH, composting proved able to generate an income stream of its own. Cumulatively, farmers grouped in SHGs collected a total income of RWF 522,211,800 (US\$ 588,454 equivalent) from the surplus of compost sold. This benefited mostly landless rural dwellers. At the same time, composting helps combat climate change by sequestering carbon, through converting waste materials into organic fertilizers. These, along with the other Project environmental co-benefits, are captured in the Efficiency analysis, see *Annex 4*.

45. *Multiplier effects downstream (rice mills)*: By increasing rice production throughout the country and by better organizing its harvest and collection, the Project has greatly contributed to the strengthening of the rice milling industry in Rwanda. With demand growing over the years and the Project helping boost the rice supply, the rice milling sector has grown considerably, to employ thousands of traders and millers. This shows the maturity of the institutions that were supported by the Project, and the potential for future sustainability.

46. *Positive spillovers upstream and downstream*: several of the Project supported cooperatives reinvested their profits into tractor and equipment acquisition, to increase productivity, but also into trucks, to increase market access. At the same time, the cooperatives certified as seed multipliers contributed to lowering the costs of these inputs and facilitated increased access to smallholder farmers. All these activities contributed to job creation and further poverty reduction in the rural areas.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

47. Clear articulation with Government objectives and continuity with previous RSSP phases: Continuing a SWAp logic, the Project committed to financing a part of the Government's sectoral strategy, notably the two PSTA II components focusing on agricultural intensification and value chain development, respectively. Placing the Project under the coherent PSTA framework allowed important complementarities as well as cross-fertilization with LWH, especially when designing the interventions in the hillsides adjacent to marshlands. Continuity and coherence with the previous RSSP phases were also important factors in the Project preparation. For instance, the rice marketing study conducted under RSSP2, which contributed to MINAGRI's formulation and Cabinet approval of an enhanced rice processing and marketing policy, remained key for guiding investments under the current Project (see also paragraph 4).

48. Early closing of RSSP2: The Project followed in the footsteps of RSSP2, which finished physical works one year ahead of schedule and met the triggers to move to the third phase by the end of 2011. In this context, the preparation of RSSP3 was accelerated and the Project preparation calendar was advanced. A combined RSSP2 supervision and RSSP3 preparation mission allowed for a smooth transition between the two phases.

49. Lessons learned from previous phases of RSSP: The Project took on board four lessons that came through during the implementation of RSSP1 and RSSP2: (i) the need to improve farmers' business skills,



through methods complementary to the already established methodology of lead farmers – this was done through participatory value chain approaches; (ii) close coordination between infrastructure development and farmer capacity building to ensure effective maintenance and operation of the respective structures – this was done through activities focusing on WUA capacity building as well as farmer capacity building for various post-harvest activities; (iii) the need to provide adequate resources for the capacity building activities – this was done through the financial allocation at design stage (see paragraph 20 on ulterior reallocation); and (iv) provision of adequate contingencies to mitigate various financial risks – this was done through the allocation of US\$ 6.6 million in physical and price contingencies (see paragraph 21 on their use).

B. KEY FACTORS DURING IMPLEMENTATION

50. Strong start, following transition from RSSP2: The Project was able to build on the experience and approaches of RSSP2, while also retaining its well-qualified implementation team. As such, it had a strong start, and at the end of its first year of implementation it already had a disbursed and committed budget equivalent to 46 percent of the total Project budget.

51. Strong alignment with PSTA: The Project was firmly anchored into the PSTA II and PSTA III, both during its design, and during its implementation. This has brought a sound commitment from senior management in MINAGRI for the successful implementation of RSSP3.

52. Full engagement and good coordination of Government and the Project implementing agency: The merger of the RSSP and LWH PIUs, finalized in 2012, ensured administrative efficiency and synergies between two projects similar in scope and complementary in geographic coverage. The resulting SPIU team became more flexible and adaptable to evolving Project implementation needs, while also more effective in developing and retaining experienced staff members. The SPIU had adequate capacity to ensure the implementation of environmental and social safeguards policy instruments. The SPIU environmental and social safeguards staff provided technical oversight and ensured effective EMP and RAP implementation; and overall project compliance with Bank policies.

53. Cross-fertilization with LWH: With LWH having a head start (effective in June 2010), there were important lessons from its implementation that could be transferred to the Project, especially for its activities targeted at the hillsides. For instance, comprehensive land husbandry on the hillsides, learned from LWH to curb erosion, was a good approach to transfer, to the extent permitted by budget constraints. It was also a good model to generate jobs through a labor-intensive approach.

54. Factors external to the Project did not significantly affect implementation. The macroeconomic framework in Rwanda was relatively stable and fiscal management predictable, without impact on counterpart funding. The country enjoyed political stability during the implementation timeframe; any changes that occurred in the composition of senior- and middle-management of MINAGRI did not affect the coherence of project implementation; handovers were smooth and well-handled. The drought and erratic rainfall patterns that struck the East of the country in 2016, however, impacted the Project households in the affected areas to some degree.



IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

55. The M&E design built on the strong framework developed under previous RSSP phases, while also duly considering lessons learned. Overall, the Project relied on similar indicators as RSSP2, which was to be expected given the continuity of the development objectives and project activities. However, the indicators under the Project were further refined and better aligned with a coherent results chain, even if the Project did not explicitly include a results chain in the PAD. There were some further improvements relative to RSSP2, such as focus on productivity as a measure of efficiency, rather than production as a measure of output.

56. The M&E system was set up for effective data collection, and integration into the MINAGRI management information system (MIS). The SPIU relied on a small M&E team at the center, supported by several M&E assistants placed in the districts where the Project was active. A participatory M&E system was established at the base integrating farmers in the SHGs, the zone level and the cooperative level. Data thus collected was aggregated and analyzed at the central level and fed into the activities of MINAGRI's Directorate General for Planning. Project performance could be tracked on a weekly, monthly, bi-annual and annual basis.

57. The data collection and validation system was sound. The Project relied on several data collection methods, in line with its diverse set of indicators. For instance, production and marketing related data was collected through Project cooperatives' seasonal reports, complemented by bi-annual surveys. Validation of data collected from cooperatives was done through field visits in a sample of plots. Infrastructure and land husbandry related data was collected by district level M&E specialists and triangulated with contractors' reports.

58. There were some methodological shortcomings primarily in the definition of the indicators for agricultural productivity in irrigated marshlands and non-irrigated hillsides. Using nominal exchange rates to measure the percentage increases from the baseline rather than using a fixed RWF to US\$ exchange rate would have allowed for a more accurate measurement of impacts. To clarify attribution between the various RSSP phases, the ICR team collected additional data from the SPIU, and this is summarized in *Annexes 6 and 7*.

M&E Implementation

59. The monitoring of progress across all Project components was detailed and timely, as shown by the Bank's supervision reports. The methodology used for indicator definition and data collection was consistent, and there were no changes in indicators or methodology during Project implementation. Only some targets were adjusted following the additional financing. Overall, the indicators tracked generated solid time series and reliable comparisons across Project beneficiaries and sites. Beneficiary surveys were extensively used (biannually, for several indicators).

60. The use of a SPIU for both the Project and LWH provided important efficiency gains. The two projects relied on the same guidelines and M&E manuals following the PIU merger in 2012, although some data collection methodologies differed for certain indicators (e.g. farm productivity was measured differently under this Project



relative to LWH). Nonetheless, data collection followed the same structure and process, and, when feasible, joint surveys were conducted to reduce costs.

M&E Utilization

61. The information generated by the Project's M&E system was routinely used for operational decisions throughout Project implementation; it was also readily available for review and action during World Bank missions. Some of the data was included in MINAGRI's quarterly and annual reports, and in the reporting related to monitoring the SPIU's performance contract (*imihigo*) with MINAGRI. Such performance contracts, both individual and institutional, are entrenched in Rwanda's culture and rooted in pre-colonial practice. This culture created a favorable environment for an effective use of the Project's results framework.

Justification of Overall Rating of Quality of M&E

62. The overall rating of the M&E system is deemed **Substantial** as some moderate shortcomings were observed, particularly regarding the methodology for calculating the PDO indicators related to farm productivity, and regarding the distinction between the results of each of the RSSP phases.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

63. *Environmental compliance:* The project was categorized as environmental assessment Category B. The potential environmental impacts were anticipated to be short term, site-specific, and easy to implement corrective actions, to avoid and minimize negative impacts. The project triggered Environmental Assessment (OP/BP 4.01); Natural Habitats (OP/BP 4.04); Pest Management (OP 4.09); Physical Cultural Resources (OP/BP 4.11); Safety of Dams (OP/BP 4.37); and Projects on International Waterways (OP/BP 7.50).

64. At project appraisal stage, the subprojects were not yet confirmed, and the locations of the subproject implementation sites had not yet been established. A framework approach was adopted where an Environmental and Social Management Framework (ESMF) was prepared and disclosed prior to appraisal. This approach required that subproject specific Environmental Assessments of Environmental Management Plans (ESMP) be prepared upon approval and prior to sub-project implementation. The ESMF provided recommendations for when subproject specific EIAs or EMPs will be needed. EIAs/EMPs for the sub-projects were prepared upon identification and cleared prior to sub-project implementation.

65. The safeguards policy instruments prepared under RSSP 2 were adopted to cover the additional activities and scope of operations planned under RSSP 3. An ESMF and a Pest Management Plan (PMP) were prepared, in this respect. Both the ESMF and PMP were received by the Bank on November 16, 2011, disclosed in country on November 21, 2011, and submitted to InfoShop on November 21, 2011. The project also adopted small dam safety guidelines and issued a riparian notification in compliance with OP/BP 4.37 and OP/BP 7.50 respectively.

66. The SPIU, at the start, had a safeguards team consisting of 1 environmental and 2 social safeguards staff that provided technical oversight and supported the implementation of the safeguards policy instruments



prepared during project implementation. The team was expanded to include more social safeguards staff during implementation. Most of the safeguards team was retained after the restructuring of the SPIU to RAB from MINAGRI, without negatively impacting the Project's safeguards performance. Other safeguards implementation entities included contractors, supervising firms, districts, cooperatives and WUAs. Awareness raising campaigns and safeguards training was conducted for all implementation partners, before implementation of subprojects began.

67. *Social compliance:* The Project triggered the policy on Involuntary Resettlement (OP/BP 4.12). The Project prepared and disclosed sixteen (16) Resettlement Action Plans (RAPs). These sites are Gacaca, Rwinkwavu, Cyili, Rwagitima extension, Nyirabirande - Ndongezi, Kigali marshlands, Karangazi- Rwangingo, Mirayi, Mushaduka, Rugende, Kamiranzovu, Kilimbi, Mukunguli extension, Migina and Kabuye. The reports were disclosed locally and on the World Bank's external website

68. All the project affected households (PAHs) were compensated as per the Rwanda expropriation law and World Bank policy on involuntary resettlement. There were 4,737 Project Affected Households (PAHs), of which 2 required relocation and were compensated in cash; there were 171 vulnerable PAPs who were offered additional assistance. The total amount of compensation used for PAHs was over RWF 796,131,900 (or USD 884,591 million). The PAHs were compensated as per RAP before the start of civil works and 1,530 PAHs were offered employment opportunities during the terracing phase, as one of the livelihood restoration measures adopted under this project. All PAHs were compensated according to Rwanda's expropriation law no. 32/2015 of 11/06/2015; in case of discrepancy on entitlement between the expropriation law and the Bank's OP.4.12, the Bank policy was applied. The private land acquired for the project activities is 113.6 ha.

69. The Project offered equal opportunities for men and women, and youth. For gender, the project ensured that for any compensation to be made, the land titles and the bank accounts were issued in the names of both spouses as per the Rwandan law requirements.

70. The Project established and operationalized Grievance Redress Committees (GRCs) in all subproject sites. A GRC was made up of 5-7 members (i.e. President, vice president, Gender representative, Village leader, Cell executive secretary, project representative and contractor or consultant representatives). Ninety two (92) common grievances recorded included: (i) beneficiaries who claimed compensation but had not been affected; (ii) Project Affected Persons (PAPs) who claimed compensation of assets after the cutoff date; (iii) inactive or missing bank accounts, which delayed compensation; (iv) conflicts over neighboring plots among neighbors; (v) successions, divorces and other family issues impacting ownership of assets; (vi) disagreement over resettlement/compensation value between the PAP and independent evaluator; (vii) lack of land titles, which delayed both compensation and construction works; and (viii) complaints about offsite impacts like soil erosion, runoffs, dust, etc. All grievances under this Project were resolved.

71. *Financial management:* The Financial Management (FM) system was adequate throughout implementation and the quality of the financial reports has substantially improved. The very low turnover of FM staff has helped build and maintain capacity with the SPIU, which impacted positively the project FM rating. This has been Satisfactory throughout the project implementation. Good quality financial reports



and audit reports have been prepared and submitted timely to the World Bank with unqualified audit opinion on financial statement.

72. *Procurement:* In general, Procurement was carried out in accordance with the agreed procedures. The SPIU complied with the Bank's procurement rules and regulations throughout with support from the Bank procurement specialist. During the first few years of the project, there were some delays in the completion of design studies, which had impact on the planned construction works. In addition, non-responsive bids due to lack of capacity of local contractors to carryout dams and irrigation contracts, lack of realistic procurement plan, low efficiency of internal tender committee and inadequate contract monitoring function were problems encountered during the first few years of the project implementation. Nevertheless, the SPIU and Bank team re-enforced implementation supervision support and hands-on support and could turn around the project performance. The SPIU implemented Bank recommendations at each stage of the ISM and performance of procurement function improved a lot starting mid-2015.

73. Even though, the procurement performance was downgraded from Satisfactory (S) to Moderately Satisfactory (MS) from 2017 on, due to understaffing of the procurement unit, this had little impact on procurement performance of the project as other projects under the SPIU were closing and the existing staffs were able to manage the work load.

74. Procurement plans were prepared and updated timely during project implementation and all procurement activities were completed before the project closing date. Regarding the use of STEP, the SPIU has used STEP effectively for Procurement Plans and activities transaction and uploaded all documents in STEP on time.

C. BANK PERFORMANCE

Quality at Entry

75. The quality at entry is rated **Satisfactory**. As noted, the Project had a robust design, well aligned with the Government and Bank priorities, and thoroughly informed by lessons learned from the previous RSSP phases, as well as from the early LWH experience. As such, the Project was an integral part of a high-priority government program, PSTA II, and became MINAGRI's flagship vehicle for marshland development. However, the Project shows some shortcomings regarding M&E, as discussed above. The institutional arrangements were solid and clear; the FM system was adequately designed with clear identification and risk and effective mitigating measures. Project risks were, by and large, well identified and clearly understood. While the currency depreciation risks may have been underestimated, it was well managed using Project contingency funds and did not affect the Project outcomes.

Quality of Supervision

76. The quality at of supervision is rated **Satisfactory**. The Bank missions were regular, benefited from enough resources, and mobilized adequate expertise to assess progress along all Project components and activities, including the specific aspects related to the implementation of environmental and social safeguards. The consistently solid Project performance was recorded in the overall satisfactory ratings throughout Project lifetime. The frequent combination of the Project supervision missions with the supervision of LWH facilitated efficiency gains



and synergies between the two projects. The Project MTR brought into focus the need for a budget reallocation between components, as well as the currency exchange loss, which was eventually resolved by tapping into the Project's contingency funds. The initial project proposal envisioned the implementation of irrigation with groundwater in sites where the shallow aquifer is productive enough and not very deep (seven meters maximum). At the MTR, it became clear that, although the project team made efforts to identify the most feasible sites, the detailed studies proved the identified sites not feasible to implement this technology. While this approach was considered and dropped, the Project maintained and achieved its target of developing 7,000 ha with irrigation infrastructure. The FM system was adequate throughout implementation and the quality of financial reports has substantially improved. The very low turnover of the FM staff has helped build and maintain capacity with the SPIU, which impacted positively the project FM rating. The implementation status reports (ISRs) and aide-memoires provided candid and accurate assessments of the Project implementation progress and of the issues requiring attention at the time.

Justification of Overall Rating of Bank Performance

77. The Bank performance is rated **Satisfactory**. Overall, the design was robust, well aligned with government and Bank priorities, and supervision was effective, relying on regular missions, good coordination with other Bank-funded projects, and sound assessment of the Project implementation progress, despite some minor shortcomings regarding the M&E framework.

D. RISK TO DEVELOPMENT OUTCOME

78. The risk that the development outcomes achieved by closing will not be maintained is **low**.

79. The Project achieved good results in terms of ensuring the financial sustainability of many of its farmer organizations. All 51 cooperatives are now registered with the Rwanda Cooperative Agency (RCA) and all of them received the needed skills regarding governance, financial management and agribusiness. However, some of the cooperatives, particularly those established in the closing years of the Project (of which most in the hillsides), would require additional capacity building for them to be financially sustainable, which typically takes 2-3 years. Some of them reported having only limited resources to pay their staff and difficulty with covering their operational costs. Continuing the efforts to link with potential buyers, such as AIF, RGCC, PRODEV, would help address these concerns.

80. At the end of October 2018, tripartite Irrigation Management Transfer Agreement (IMTAs) were signed between WUAs, the districts and RAB for all the project financed irrigation structure. The IMTAs set out the responsibilities among the different agencies for the management of the irrigation infrastructure and spell out water cost recovery. Collected water use fees are composed of operation and maintenance of an irrigation scheme, reserve fund for major water infrastructure repairs and an irrigation trust fund for contribution to other government irrigation programs. At Project closing, cost recovery for the irrigated areas was around 95 percent. However, there is need for continuing capacity building of the WUAs regarding the operation and maintenance of Project-developed infrastructure, especially for irrigation. WUAs as well as districts have noted the need for additional engineering and other skills required for system maintenance. Such capacity building efforts will be supported through the on-going SAIP. There is continued Government



focus on strengthening and scaling up achievements so far, and mitigating some of the perceived risks to sustainability, both through own resources, and with the help of development partners, during the implementation of PSTA IV.

81. The implementation of irrigation and drainage systems to allow the exploitation of marshlands has contributed among other things to improve rice-cropping intensification. The Project has put in place buffer zones to handle the drainage water. For environmental sustainability continued monitoring of water quality in the area would be important.

V. LESSONS AND RECOMMENDATIONS

82. Several lessons were derived from the Project, while also remaining relevant beyond the Rwandan agriculture context.

83. Importance of continuity and strategic articulation: The Project proved that important impacts can be achieved if a strategically relevant approach is continued and perfected over time. This is what happened during the three RSSP phases, which built one upon another (see paragraph 4). It is relevant that, despite its difficult start, RSSP1 managed to turn around and provide valuable lessons and direction to the next two phases. The Government's long-term vision for the agriculture sector, articulated in the Vision documents and in the successive PSTA generations, was equally a determining success factor. It enabled pursuing a coherent policy in the sector and government commitment to stay on course, across over a decade of RSSP interventions, under a stable regulatory and institutional environment.

84. Building local capacity by spurring demand in new fields: The relevance and benefits of irrigation are now well documented and understood in the Rwandan agriculture context, yet much of the infrastructure and accompanying governance structure were developed and introduced through the RSSP projects (in the marshlands) and LWH (in the hillsides). In fact, the model developed under RSSP has become the basis for similar work by other development partners (IFAD, AfDB) and is laying the foundation for national irrigation roll-out and further agricultural intensification. Understandably, the first RSSP phases relied heavily on foreign contractors, since local capacity was missing. However, over time, local capacity began to grow, especially as the Project encouraged local companies to participate in joint ventures with the foreign ones, to gain experience and financial capacity. A positive side-effect of this was the reduction of costs associated with construction works, given that local companies were able to become more competitive. At the same time, one of the related lessons learned through the RSSP series was that it was important to build the WUA capacities early on, as soon as the new infrastructure was built, to ensure appropriate uptake and operation.

85. Ingredients of replicability and sustainability: The successive RSSP interventions revealed that, besides a favorable policy environment (see paragraph 83), there is a critical mass of interventions targeted at value chain actors that can turn around the respective value chains, and set them on a path of sustainable performance (see *Box 3*). As demonstrated across the RSSP-LWH projects, they could also be replicated in other agri-food sectors, thus allowing results to be scaled up and unlocking multiplier effects in rural areas. At the same time, by working along the entire value chain (both upstream through e.g. seed multiplication,



and downstream through e.g. post-harvest handling and organization of producers) and enabling the increased and higher quality production to reach markets, the Project contributed to the sustainable adoption of new technologies by farmers.

Box 3: Key ingredients for successful agri-food value chain development

Sensitization: Rwandan farmers, like many others around the world, were hesitant to invest in higher quality inputs, given the uncertain benefits they deemed they would obtain. The Project successfully overcame their reticence by putting a great focus on sensitization, demonstration plots and farmer field schools that demonstrated the achievable benefits.

Aggregation: The Project put significant effort into mobilizing and developing farmer organizations, following a progression from self-help groups to registered cooperatives. The progression ensured that the institutions reached adequate levels of maturity before taking up greater responsibilities, while aggregation ultimately empowered small agricultural producers to establish themselves up- and down-stream their respective value chains.

Technology dissemination through farmers: Training and empowering farmer-owned cooperatives to become certified seed multipliers proved critical for ensuring both a reduction in the input costs and high adoption rates among producers.

Value chain partnerships: The Project put great emphasis on facilitating partnerships between its farmer beneficiaries and a variety of value chain actors, including traders, financial institutions, and processors (such as rice mills). By taking a holistic approach to value chain development, the Project ensured that no gaps were left on the path from farm to market. Fostering participation of corporate value chain partners, but also building the capacity of farmers to undertake the obligations entailed by such partnerships helped set Project interventions on a sustainable path.

Complementary infrastructure and soft-skill development: The Project amply demonstrated the vital importance of matching infrastructure development/acquisition with building adequate skills among its users. This was important to ensure that the infrastructures developed through the Project would be used sustainably. The successive RSSP phases were able to provide the continuity and sequencing that were needed to ensure that both the hard- and soft-investments were able to reach sufficient levels of maturity by the closing of the Program.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Increase the agricultural productivity of organized farmers in marshlands and hillsides

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1. (a) Productivity of targeted areas (\$/ha) in irrigated marshlands	Amount(USD)	662.00 30-Jun-2012	1375.00 30-Oct-2017	1375.00 30-Oct-2018	2865.00 30-Oct-2018

Comments (achievements against targets):

The values are expressed at a fixed currency exchange rate (as per PAD), and do not take into account the depreciation of the Rwandan franc over the Project lifetime.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
1. (b) Productivity of targeted areas (\$/ha) in Non-irrigated hillsides	Amount(USD)	470.00 30-Jun-2012	1038.00 30-Oct-2017	1038.00 30-Oct-2018	1133.42 30-Oct-2018



Comments (achievements against targets):

The values are expressed at a fixed currency exchange rate (as per PAD), and do not take into account the depreciation of the Rwandan franc over the Project lifetime.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
4. Male Farmers in areas targeted by RSSP that have adopted sustainable land management practices on the hillsides or marshlands (%)	Percentage	36.26 30-Jun-2012	90.00 30-Oct-2017	90.00 30-Oct-2018	96.50 30-Oct-2018
4. Female Farmers in areas targeted by RSSP that have adopted sustainable land management practices on the hillsides or marshlands of which women (%)	Percentage	32.35 29-Jun-2012	90.00 30-Oct-2017	90.00 30-Oct-2018	95.50 30-Oct-2018

Comments (achievements against targets):

Objective/Outcome: Strengthen the participation of women and men beneficiaries in market-based value chains

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.a Share of commercialized	Percentage	43.12	90.00	90.00	92.68



agricultural products from the targeted marshland (%) for Women		30-Jun-2012	30-Oct-2017	30-Oct-2018	30-Oct-2018
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Comments (achievements against targets):
 The baseline value in the PAD also includes reference to 78.9% for RSSP2 rice data. 43.12% is for RSSP3 alone.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.b Share of commercialized agricultural products from the targeted marshland (%) for men	Percentage	44.71 30-Jun-2012	90.00 30-Oct-2017	90.00 30-Oct-2018	92.69 30-Oct-2018

Comments (achievements against targets):
 The baseline value in the PAD also includes reference to 78.9% for RSSP2 rice data. 44.71% is for RSSP3 alone.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.c Share of commercialized agricultural products from the targeted hillside (%) for Women	Percentage	43.12 30-Jun-2012	60.00 30-Oct-2017	60.00 30-Oct-2018	78.00 30-Oct-2018



Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
2.d Share of commercialized agricultural products from the targeted hillside (%) for Men	Percentage	44.71 30-Jun-2012	60.00 30-Oct-2017	60.00 30-Oct-2018	78.70 30-Oct-2018

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
3. Project beneficiaries involved in up and downstream activities along the value chain	Number	896.00 30-Jun-2012	6206.00 30-Oct-2017	6206.00 30-Oct-2018	33973.00 30-Oct-2018
3. (b) Percentage of female project beneficiaries involved in up and downstream activities along the value chain	Percentage	42.00	42.00 30-Oct-2017	42.00 30-Oct-2018	45.00

Comments (achievements against targets):

The PAD specifies that the baseline for RSSP3 alone is 0.



A.2 Intermediate Results Indicators

Component: Infrastructure for Marshland, Hillside and Commodity Chain Development

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Land area where sustainable land mgt. practices were adopted as a result of proj	Hectare(Ha)	0.00 30-Jun-2012	17000.00 30-Oct-2017	17200.00 30-Oct-2018	18030.00 30-Oct-2018

Comments (achievements against targets):

The target was increased following the Project restructuring (Additional Financing) in 2014.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area provided with irrigation and drainage services (ha)	Hectare(Ha)	0.00 21-Oct-2011	6000.00 30-Oct-2017	7000.00 30-Oct-2018	7297.00 30-Oct-2018
Area provided with irrigation and drainage services - Improved (ha)	Hectare(Ha)	0.00 30-Jun-2012	6000.00 30-Oct-2017	7000.00 30-Oct-2018	7297.00 30-Oct-2018

Comments (achievements against targets):



The target was increased following the Project restructuring (Additional Financing) in 2014.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Water users provided with new/improved irrigation and drainage services (number)	Number	33473.00 30-Jun-2012	63473.00 30-Oct-2017	64973.00 30-Oct-2018	70932.00 30-Oct-2018
Water users provided with irrigation and drainage services - female (number)	Number	13389.00 30-Jun-2012	25389.00 30-Oct-2017	26019.00 30-Oct-2018	30707.00 30-Oct-2018

Comments (achievements against targets):

The target was increased following the Project restructuring (Additional Financing) in 2014.

Component: Capacity for Marshland, Hillside and Commodity Chain Development

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
9. Number of Cooperatives which have increased their revenues by 50% relative to the baseline	Number	0.00 30-Jun-2012	30.00 30-Oct-2017	30.00 30-Oct-2018	30.00 30-Oct-2018



Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
10. a) Share of production sold through cooperatives for marshlands	Percentage	44.00 30-Jun-2012	70.00 30-Oct-2017	70.00 30-Oct-2018	92.69 30-Oct-2018
10. b) Share of production sold through R SSP3 marshland cooperatives	Percentage	44.00 30-Jun-2012	70.00 31-Oct-2018	70.00 30-Oct-2018	92.69 30-Oct-2018
10. c) Increase in share of production sold through hillside cooperatives	Percentage	0.00 30-Jun-2012	50.00 31-Oct-2018	50.00 30-Oct-2018	61.60 30-Oct-2018

Comments (achievements against targets):

The indicator does not distinguish between R SSP2 and R SSP3 coops. For this reason, the same aggregated values are featured under 10b.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	51936.00 30-Jun-2012	100000.00 30-Oct-2017	101500.00 30-Oct-2018	101774.00 30-Oct-2018
Female beneficiaries	Percentage	42.00	42.00	42.00	42.00



			30-Oct-2017	30-Oct-2018	
Comments (achievements against targets): The target was increased following the Project restructuring (Additional Financing) in 2014.					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
11. Coops having access to finance	Number	6.00 30-Jun-2012	30.00 30-Oct-2017	30.00 30-Oct-2018	40.00 30-Oct-2018
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
12. Users in irrigated marshlands rehabilitated or developed by the Project (RSSP1, RSSP2, RSSP3) paying water charges through WUAs	Percentage	79.00 30-Jun-2012	95.00 30-Oct-2017	95.00 30-Oct-2018	95.70 30-Oct-2018
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at
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				Target	Completion
Operational water user associations created and/or strengthened (number)	Number	22.00 30-Jun-2012	38.00 30-Oct-2017	38.00 30-Oct-2018	42.00 30-Oct-2018
Comments (achievements against targets):					
Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
14. Coops doing certified seed production	Number	7.00 30-Jun-2012	17.00 30-Oct-2017	17.00 30-Oct-2018	28.00 30-Oct-2018
Comments (achievements against targets):					



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Increase productivity of marshland and adjacent hillside agriculture in target areas	
Outcome Indicators	<ol style="list-style-type: none"> 1. Productivity of targeted irrigated marshlands (dollars/ha) 2. Productivity of targeted non-irrigated hillsides (dollars/ha)
Intermediate Results Indicators	<ol style="list-style-type: none"> 1. Area provided with improved irrigation and drainage services 2. Water users provided with irrigation and drainage (disaggregated by gender) 3. Hillsides sustainably developed by the Project
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	<p>Component 1:</p> <ol style="list-style-type: none"> 1. 4,117,720 agro-forestry trees planted for soil erosion control 2. 1,657,192 trees planted for ecosystem rehabilitation 3. 149,000 trees and 184,440 shrubs planted as part of the silt trap zone for dam protection 4. 29,780 beneficiaries (of which 14,579 women) were trained in sustainable land management practices 5. 6 new small dams/reservoirs built 6. 3 sites developed with river weirs <p>Component 2:</p> <ol style="list-style-type: none"> 7. 17 new WUAs set up 8. 42 WUAs, and 1,923 water users trained 9. 10,464 farmers trained on compost making 10. 1,936 lead farmers (hillsides) and 60 lead farmers (marshlands) trained in seed production 11. 19 rice varieties tested in 9 marshlands 12. 25 farmer field school plots set up in the marshlands, and 2,500 farmers trained 13. 850 farmer field school plots set up in the hillsides 14. 2,180 lead farmers trained on lead farmer extension approach



	15. 1,258 lead farmers trained on good agriculture practices
Objective/Outcome 2: Increase value chain participation of targeted beneficiaries	
Outcome Indicators	<ol style="list-style-type: none">1. Share of marketed crops from target areas in total crop production2. Number of Project beneficiaries involved in upstream and downstream activities along the value chains supported by the Project
Intermediate Results Indicators	<ol style="list-style-type: none">1. Number of cooperatives which have increased their net revenues by 50 percent relative to the baseline2. Increase in share of production sold through cooperatives (disaggregated by marshland and hillsides)3. Coops having access to finance (number)4. Users in irrigated marshlands rehabilitated or developed by the project (RSSP1, RSSP2, RSSP3) paying water charges through WUAs5. Operational water user associations6. Coops doing certified seed production
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	<p>Component 1:</p> <ol style="list-style-type: none">1. 21 storage facilities, 62 rice drying grounds and 9 maize dryers and collection centers built2. 4,100 palettes, 18 moisture meters, 30 weighing machines, 16 combined maize threshers and winnowers, 11 maize shelters, 25 collapsible dryers distributed or built for demonstration <p>Component 2:</p> <ol style="list-style-type: none">3. 9,695 farmers (of which 4,957 women) trained on community mobilization and cooperative/group governance4. 51 cooperatives set up (to include 355 zones, and 3,382 SHGs)5. 31 study tours for 1,047 beneficiaries (33 percent women) on how to improve coop management, crop production and marketing, access



and use of financial services, women's empowerment, business creation

6. 1,117 farmers (54 percent) received refresher training on post-harvest and handling, entrepreneurship and business plans.

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Meena Munshi	Task Team Leader
Noreen Beg	Senior Environmental Specialist
Hawanty Page	Senior Program Assistant
Chantal Kajangwe	Procurement Specialist
Svetlana Khvostova	Operations Analyst
Lorraine Ronchi	Task Team Leader (initial preparation)
Hardwick Tchale	Task Team Leader (appraisal)
Belinda Mutesi	ET Temporary
Otieno Ayany	Financial Management Specialist
Diego Garrido Martin	Consultant
Valens Mwumvaneza	Rural Development Specialist
Thierry Lassalle	Institutional Development Specialist (FAO)
Amadou Soumaila	Lead Irrigation Specialist (FAO)
Alberta Mascaretti	Agricultural Officer (FAO)
Supervision/ICR	
Aimee Marie Ange Mpambara, Winston Dawes	Task Team Leader(s)
Mulugeta Dinka	Procurement Specialist(s)
Enagnon Ernest Eric Adda	Financial Management Specialist
Belinda Mutesi	Team Member
Hayalsew Yilma	Team Member
Bodomalala Sehenarisoa Rabarijohn	Team Member
George Bob Nkulanga	Social Specialist
Emmanuel Muligirwa	Environmental Specialist

Irina Schuman	Lead Author, ICR
Renjit Cheroor Sukurman	Agri-business Specialist
Erkan Ozcelik	Economist (FAO)
Ismail Oudra	Irrigation Engineer (FAO)

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY11	1.937	7,908.26
FY12	34.985	198,675.67
FY13	0	0.00
Total	36.92	206,583.93
Supervision/ICR		
FY12	0	0.00
FY13	26.275	131,785.85
FY14	21.550	87,223.77
FY15	15.900	99,303.04
FY16	18.972	105,791.24
FY17	23.552	92,938.18
FY18	21.224	87,766.85
FY19	29.965	132,173.24
Total	157.44	736,982.17



ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (US\$M)
Infrastructure for Marshland, Hillside and Commodity Chain Development	65.4	74.5	123%
Capacity for Marshland, Hillside and Commodity Chain Development	7.5	5.4	72%
Project Coordination and Support	5.5	10.5	190%
Contingencies	6.6		
Total	85.0	90.4	113%

Note: Inclusive of Government contribution



ANNEX 4. EFFICIENCY ANALYSIS

1. This annex assesses the efficiency of the RSSP 3 Project by providing an *ex-post* economic and financial analysis (EFA) of related investments for 15,560 hectares. By using the data on project outputs and outcomes, the EFA determines whether the costs involved in achieving the project were reasonable in comparison with the benefits and offered ‘value for money’. The analysis also looks at whether there is significant deviation from the original analysis, whether benefits are equitable, for on-farm and off-farm investments of the project, while considering changes to the project during implementation. The analysis does this by using the minimum adoption rate needed to reach the projected internal rate of return (IRR) at the time of appraisal. The analysis benefited from the M&E reports, FAO stats, field visits and SPIU data.

2. **Pre-investment.** The *ex-ante* EFA at appraisal determined an economic internal rate of return (EIRR) of 55 percent for marshlands and 112 percent for the entire project when using a stochastic model. When using a deterministic model, the figures differed slightly, at 58 percent and 93 percent, respectively, with the latter including infrastructure for both scenarios. A discount period of 21 years and a discount rate of 12 percent was used to assess the project cash flow. The financial net present value (FNPV) and economic net present value (ENPV) stood at an estimated USD 218 million and USD 228 million, respectively. An estimated 15,878 ha (5,769 ha of marshland and 10,109 ha of hillside) were foreseen to benefit from the program.

3. **Financial Analysis.** The analysis uses data provided from the SPIU, the M&E system, official statistics and interviews with farmers to arrive at estimated returns. In the context of the program, flooded rice crop was an important part of interventions in the lowlands, with degraded or idle land utilized to the benefit of farmers. The analysis developed four crop models to capture the benefits of the project, using staple and cash crops: maize, bush bean, potato and rice. These models fed into three representative farm models: maize and bush beans, potato and bush beans and marshland rice, estimated for an area of 15,560 ha. The first two models represent the hillside and the latter model represents the marshland.

4. While the SPIU provided some of the data for the crop models, the figures required further elaboration in line with the M&E data and the FAO stats for Rwanda. Some of the crop yields are for this reason moderated in line with the figures from the M&E system and FAO statistics. The financial cost of capital used in the *ex-post* analysis was 17 percent, over a 20-year discount period. All crop models generated a positive return, with a benefit-cost ratio above one.

Table: Summary of crop budget per hectare (in USD, financial prices)

	Yields (kg/ha)			Gross revenue (USD/ha)			Income without labor (USD/ha)		
	WOP	WP	Increm.	WOP	WP	Increm.	WOP	WP	Increm.
Maize	1,500	3,495	133%	385	1,043	171%	326	932	186%
B.bean	300	1,299	333%	92	562	512%	42	444	949%
Potato	12,000	15,600	30%	2,428	3,275	35%	1,772	2,406	36%
Rice	3,500	4,550	30%	2,245	3,139	40%	2,108	2,787	32%



	Return on family labor(USD/pers-day)			FIRR @ 0.171	NPV @ 0.171	Benefits/ Costs
	WOP	WP	Incr.	WP	WP	WP
Maize	1.36	4.52	233%	N/A	1,847	3.98
B.bean	-0.30	1.60	-640%	N/A	957	1.53
Potato	16.95	20.33	20%	N/A	3,485	3.58
Rice	12.58	13.27	6%	N/A	1,246	4.92

5. **Farm models:** The farm models capture the soft skills development of extension and the hardware benefits of new farming practices - both introduced by the project, including seedbed preparation, optimum seeding time, weed control, appropriate seeding rates and cropping intensification. All farm models assume an area under cultivation of 0.3 hectares in the without and with project scenarios, but cropping intensity is increased from 150-160 percent to 200 percent for two of the farm models. While the cropping pattern element factors in an immediate change to crop harvested, the 'learning curve' at the crop budget level moderates the rate of change.

6. Below is a summary table of the farm models using (financial data).

Table: Farm Models Summary

	Net production value			Total outflows			Cash-flow before labor			Return per hectare		
	WOP	WP	Incr.	WOP	WP	Incr.	WOP	WP	Incr.	WOP	WP	Incr.
Model 1: Maize and bush beans	115	481	320%	72	128	79%	88	413	367%	294	1377	367%
Model 2: Potato and bush beans	742	1,151	55%	256	345	35%	530	855	61%	1,767	2,850	61%
Model 3: Rice (marshland)	630	1,840	192%	95	347	265%	590	1,629	176%	1,965	5,431	176%

	Return on labour-day			Cash-flow before financing			Benefits/costs ratio		NPV @ 17%	
	WOP	WP	Incr.	WOP	WP	Incr.	WOP	WP	Before financing	With financing
Model 1: Maize and bush beans	0	2	620%	43	353	728%	1.6	3.7	911	938
Model 2: Potato and bush beans	5	7	25%	486	806	-66%	2.9	3.3	1,412	1,616
Model 3: Rice (marshland)	4	4	-6%	535	1,493	179%	6.6	5.3	4,013	4,061

Source: SPIU, field visits and SAIP project document. Prices are constant 2018 market prices.

Note: Model 1: Maize and bush beans, Model 2: Potato and bush beans, Model 3: Rice (marshland)

7. **Efficiency.** The project returns a positive financial and economic rate of return with an adoption rate of 40 percent, providing a robust return, with an FIRR of 96 percent and an EIRR of 88 percent, an FNPV of USD 1.3 billion and an ENPV of USD 1.5 billion, while benefit to cost ratios (BCRs) are 14.9 and 14.1, respectively. The number of planned and actual hectares realized are closely aligned at 15,878 ha planned compared to 15,560 ha actual. However, the appraisal and the ex-post analyses used rather different crop models, as it was difficult to anticipate the changes in cropping patterns at Project inception. Due to the difficulties in determining the cropping pattern, the analysis uses low adoption figures that are highly surpassable, given the broad nature of the program within the Rwandan context. The change in cropping patterns (away from the low yielding cassava, sweet potatoes and bananas modeled at appraisal) is the main factor that explains the jump in NPV.

8. **Distribution analysis.** The Project generated large positive environmental benefits, as measured by the CO₂ emissions reductions using the FAO EX-ACT tool. Total emissions reductions equaled 443,149 tons over a twenty-year period. Environmental co-benefits as a percentage of total benefits equaled 4.5 percent, 21 percent and 35 percent for market, low and high shadow prices, respectively. These figures



are in line with portfolio averages and regional targets of the World Bank. The EIRR returns a value of 142 percent when using the market price of carbon. Due to the high value of return, an EIRR does not register for the low and high shadow prices. The NPV increases from USD 1.5 billion without environmental co-benefits, to USD 1.8 billion, USD 2.2 million and USD 2.6 billion when using the market, low and high shadow prices of carbon.

Environmental co-Benefits using EX-ACT tool

	<u>Market</u>	<u>Low</u>	<u>High</u>
NPV w ENV Benefits (USD)	1,800	2,171	2,622
EIRR w ENV Benefits (%)	141.7%	N/A	N/A
NPVb	1,911	2,283	2,734
NPVc	116	116	116
BCR ratio	16.55	19.77	23.67
Switching values - benefit	-94%	-95%	-96%
Switching values - cost	1555%	1877%	2267%
ENV Benefits as a percentage of total	4.5%	20.8%	34.5%

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

9. **Sensitivity analysis.** The sensitivity analysis assessed the impact of the main risks for the project results and the adverse situations that may arise in terms of benefits and costs, without environmental benefits. The analysis reveals that even in the most severe scenario, where costs increase by 20 percent, benefits and prices both decrease by 20 percent, the EIRR maintains a positive return, above the 17 percent social cost of capital, at 64 percent, and BCR at 8.2.

Table: EIRR @ 40 percent adoption rate and social discount rate (SDR) of 17 percent p.a.

<u>Scenario: 40% adoption rate</u>	<u>NPV</u>		
	<u>EIRR (%)</u>	<u>(USD MN)</u>	<u>BCR</u>
1. Base case	88	1,519	14.2
2. Costs overrun by 10%	85	1,508	16.2
3. Cost overrun by 20%	82	1,496	14.9
4. Scenario 3, plus decrease in benefits by 10%	79	1,333	13.4
5. Scenario 3, plus decrease in benefits by 20%	75	1,169	11.9
6. Scenario 3, 5, plus output prices decline by 20%	66	818	8.7
7. Scenario 3, 5, 6 and input prices increase by 20%	65	806	8.6



ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

Comments received from Mr. Patrick Karangwa, Director General of the Rwanda Agriculture Board

“Thank you and the World Bank team for an excellent Implementation Completion Report (ICR) for the Third Rural Sector Support Project. It presents a correct view of the project implementation, results and outcomes.

We are grateful to the Bank’s task team for the excellent technical support throughout the RSSP3 implementation, which has greatly contributed to the very good project results.

RSSP3 was the third and the last phase of the RSSP program, which has been the MINAGRI and RAB’s flagship for development of marshland irrigation for the last 17 years. The program has developed close to 40% of the current irrigated marshlands in Rwanda, over a half of which was developed by RSSP3. This has contributed a great deal to rice production in Rwanda, as well as development of rice commodity chain. RSSP has also supported the formation and capacity building of Water Users Associations in the developed marshlands, which have proved to be indispensable for the sustainable operation, maintenance and management of the developed marshlands. Sustainability of the established infrastructures is also ensured by the development of surrounding hillsides which has not only contributed to erosion control, but also to agriculture production increase and marketing through end users (farmers) organization and capacity building.

Looking forward to a continuous good collaboration.”



ANNEX 6. PROJECT SITES AND SOME RESULTS ACROSS THE THREE PHASES OF THE PROGRAM

Table 2: The Project Sites Across the Three Phases of the RSSP Program

Marshlands	RSSP1	RSSP2	RSSP3
Site 1: Gatara- Rwabikwano (1dam) in BUGESERA	X		
Site 2: Kiruhura (1dam) in BUGESERA	X		
Site 3: Kanyonyomba (2 dams) in GATSIBO	X		
Site 4: Bugarama in RUSIZI	X		
Site 5: Cyarubare (1dam) in HUYE	X		
Site 6: Rusuli Rwamuginga (1dam) in HUYE	X		
Site 7: Rwasave in HUYE	X		
Site 8: Kibaya-Cyunuzi in KIREHE and NGOMA	X		
Site 9: Nyarububa in RULINDO	X		
Site 10: Agasasa (1 dam) in NYANZA	X		
Site 11: Kinnyogo I in KIREHE	X		
Site 12: Rwagitima-Ntende (2dams) in GATSIBO		X	
Site 13: Mukunguri upper in KAMONYI and RUHANGO		X	
Site 14: Kibaya-Upper in NGOMA		X	
Site 15: Kinyogo II in KIREHE		X	
Site 16: Gisaya in NGOMA		X	
Site 17: Muvumba-5 (1dam) in NYAGATARE		X	
Site 18: Muvumba-8 (big weir) in NYAGATARE		X	
Site 19: Kinyegenyeye in NYANZA		X	
Site 20: Nyarubogo (1dam) in NYANZA		X	
Site 21: Rugeramigozi (1dam) in MUHANGA		X	
Site 22: Nyirabirande-Ndongozi in BURERA			X
Site 23: Rugende (1dam) in GASABO and RWAMAGANA			X
Site 24: Rwagitima downstream in GATSIBO			X
Site 25: Mirayi in GISAGARA			X
Site 26: Mushaduka (1dam) in GISAGARA			X
Site 27: Cyili (1dam) in GISAGARA, HUYE and NYANZA			X
Site 28: Gacaca (1 dam) in KAYONZA			X
Site 29: Rwinkwavu (1dam) in KAYONZA			X
Site 30: Kabuye in GASABO			X
Site 31: Karangazi and Rwangingo (1dam) in NYAGATARE and GATSIBO			X
Site 32: Kamiranzovu in NYAMASHEKE			X
Site 33: Kirimbi in NYAMASHEKE			X
Site 34: Migina in GISAGARA and HUYE			X
Site 35: Mukunguli extension in KAMONYI			X
Site 36: Rwamagana schemes in KAYONZA, NGOMA and RWAMAGANA			X
Site 37: Kigali marshlands in GASABO, KICUKIRO and NYARUGENGE			X



Hillsides	RSSP1	RSSP2	RSSP3
Site 1: Kirimbi in NYAMASHEKE			x
Site 2: Kamiranzovu in NYAMASHEKE			x
Site 3: Rwagitima-Ntende extension in GATSIBO			x
Site 4: Cyili in HUYE			x
Site 5: CYUNGO-BASE in RULINDO			x
Site 6: BUSENGO in GAKENKE			x
Site 7: Gacaca in KAYONZA			x
Site 8: Rwinkwavu in KAYONZA			x
Site 9: Karangazi-Rwangingo in GATSIBO and NYAGATARE			x
Site 10: Mirayi in GISAGARA			x
Site 11: Mushaduka in GISAGARA			x
Site 12: Nyirabirande-Ndongezi in BURERA			x
Site 13: Rugende in GASABO and RWAMAGANA			x
Site 14: Mukunguli in HUYE			x
Site 15: MULINGA in NYABIHU			x
Site 16: SOVU in NGORORERO			x
Site 17: Migina in GISAGARA			x
Site 18: Kigali marshlands in NYARUGENGE			x
Site 19: Nyagatare in NYAGATARE			x

Table 3: Selected Outputs and Results Across the Three Phases of the RSSP Program

	RSSP1	RSSP2	RSSP3 - total	RSSP3 - new
Water users provided with irrigation and water services (number)	25,825	14,443	70,932	30,664
Cooperatives set up (number)	47	37	51	33
Cooperatives with access to finance	12	11	40	17
WUAs set up	-	25	42	17
Gross area (ha) developed for irrigation	3,110	3,324	7,297	7,297
Hillsides sustainably developed (ha)	-	-	18,029	18,029



ANNEX 7. SPATIAL BREAKDOWN OF SELECTED PROJECT OUTPUTS AND RESULTS

Table 4: Spatial Breakdown (1): Total Direct Beneficiaries, Water Users, WUAs and Gross Irrigated Area

Province and Total	District	Direct Beneficiaries	Water users Provided with Irrigation and Water Services	WUAs:		Gross Irrigated Area	
				set up under RSSP3	supported under RSSP3	rehabilitated	newly developed
Total		101,774	70,932	17	42	3,194	4,103
Eastern province	Bugesera	4,220	4,220		5		
	Nyagatare	7,593	9,236		5		562
	Ngoma	3,169	931		1	176	
	Gatsibo	8,795	5,245	1	3		700
	Rwamagana	2,711	2,305		1	117	205
	Kirehe	5,738	5,738				
Southern province	Kayonza	11,534	6,819	2	2	293	1,633
	Muhanga	2,345	1,020		1		
	Kamonyi	4,112	3,050		1	200	
	Nyanza	4,838	2,323		3		
	Gisagara	10,506	7,983	2	3	1,378	
	Huye	6,014	3,916		3	131	
Northern province	Nyaruguru					87	
	Ruhango	2,678	937		1	200	
	Burera	3,713	2,083	1	1		535
	Gakenke						
Western province	Rulindo	1,310					
	Rusizi	6,847	6,847		1		
	Nyabihu	2,408					



	Ngororero						
	Nyamasheke	8,282	3,412	2	2	310	
Kigali city	Gasabo	3,366	3,338	6	6	304	358
	Kicukiro	516	450	1	1		32
	Nyarugenge	1,079	1,079	2	2		79

Source: SPIU monitoring data

Table 5: Spatial Breakdown (2): Hillsides Sustainably Developed by the Project and Beneficiaries Trained in SLM Practices

Province and Total	District	Hillsides sustainably developed by the Project					Beneficiaries trained in SLM practices
		terraces	ditches	forests	improved pastures	protected banana fields	
Total		9,312	4,545	2,677	1,190	305	29,780
Eastern province	Bugesera						
	Nyagatare	56			1,122		2,982
	Ngoma						
	Gatsibo	466	327	1,402	68	296	2,993
	Rwamagana	20	190				578
	Kirehe						
	Kayonza	4,201	282	879			3,704
Southern province	Muhanga						
	Kamonyi		258				714
	Nyanza						
	Gisagara	946	1,925	131			2,525
	Huye	1,372					3,012
	Nyaruguru						
	Ruhango		498				1,068
Northern province	Burera	180	995	183			1,051
	Gakenke	13					1,050
	Rulindo	185					1,458



Western province	Rusizi					
	Nyabihu	100				2,446
	Ngororero	100				1,578
	Nyamasheke	1,673	11		10	3,252
Kigali city	Gasabo		58			945
	Kicukiro					
	Nyarugenge			82		424

Source: SPIU monitoring data

Table 6: Spatial Breakdown (3): Post Harvest Facilities, Cooperatives Certified in Seed Production, and Cooperatives with Access to Finance

Province and Total	District	Storage Facilities	Rice Drying Grounds	Maize Dryers and Collection Centers	Cooperatives Certified in Seed Production, of which	<i>marshlands</i>	<i>hillsides</i>	Cooperatives with Access to Finance
Total		21	62	9	28	21	7	40
Eastern province	Bugesera				1	1		2
	Nyagatare	3	21		3	3		4
	Ngoma				1		1	2
	Gatsibo	3	6	1	5	3	2	4
	Rwamagana		2	2				
	Kirehe							
	Kayonza	5	18	1	2	1	1	3
Southern province	Muhanga				1	1		1
	Kamonyi				1	1		1
	Nyanza				3	2	1	5
	Gisagara	6	9		2	2		4
	Huye	1	1	1	5	3	2	4
	Nyaruguru		1					
	Ruhango							1
Northern province	Burera	1		4				1



	Gakenke							
	Rulindo							
Western province	Rusizi				2	2		4
	Nyabihu							
	Ngororero							
	Nyamasheke	2	4					4
Kigali city	Gasabo				1	1		
	Kicukiro				1	1		
	Nyarugenge							

Source: SPIU monitoring data



ANNEX 8. BORROWER'S IMPLEMENTATION COMPLETION REPORT

The Borrower ICR was finalized in October 2018. For length considerations, it cannot be reproduced entirely in this Annex. What follows is an example of Project achievement presented in the Borrower ICR, edited for brevity and clarity.

Box 4: Rice farmers from the Cooperative of Muvumba undertake mechanization

Thanks to increased rice produce and income from sales, the Muvumba Perimeter Eight (P8) rice growers' cooperative bought farm tractors and trucks following RSP3 intervention support.

The cooperative, which operates in the Muvumba marshland in the Tabagwe and Rwempasha sectors, Nyagatare District, Eastern Province attributes its success to the RSP3 improved agricultural practices that turned the marshland into productive land.

Before Project intervention, the area was a pasture land for cattle, with some land used for crop production where farmers practiced traditional subsistence farming, mixing all kinds of crops (maize, beans, sorghum and vegetables).

The Project applied improved agricultural techniques, and proper water management through the construction of irrigation systems in the marshland, which made rice farming productive. The development works in the area, included land ploughing, leveling, irrigation infrastructure, and drainage network in an environmentally sustainable manner, on 1,750-hectares of land.

The rice growers' association of Muvumba represents 1,085 members and supports growers on issues affecting the viability of their business and communities. The cooperative members grow rice on 1,050 ha and they have opened savings accounts in financial institutions.

We thank RSP3 for developing our marshland and make it productive. We first resisted the intervention of RSP3, thinking that the project was going to take our marshland away from us. The first rice yield was amazing and now we are enjoying the fruits of Muvumba marshland development, said Mr. John Mujyarugamba, the president of the Muvumba P8 rice growers' cooperative. He added: We are thankful to RSP3 for the good work they have done. The project also built an irrigation system in the marshland, and we have been trained in the different aspects of business and marketing including governance, business planning, record keeping and post-harvest handling.

Mr. Mujyarugamba explained that, due to higher rice yields and available markets for the cooperative's produce, farmers managed to buy six farm tractors and two trucks for RWF 173, 825,000.

Tractors are used to farm the land owned by the cooperative as a team, as well as each member's own land. The cooperative also rents it out to other farmers outside the cooperative. The impact of the RSP3 has been profound and we are proud of it, he said.

According to him, the cooperative also uses two trucks to deliver produce to markets as well as for acquiring seeds, chemicals and manure, which has reduced transportation costs.



ANNEX 9. THE PROJECT IN PICTURES¹³

1: Typical marshland in Rwanda, before (left), during (upper right) and after (lower right) rehabilitation: Muvumba perimeter 8, Nyagatare district



2: Typical water management infrastructures developed through the Project: dams, flow division structures, intake weirs



¹³ Courtesy of SPIU



3: Post-harvest infrastructure and practices: collection, drying, storage, and transportation



4: Terracing of hillsides adjacent to Project marshlands





5: Investments made by Project-supported cooperatives: tractors, transport trucks and accommodations





ANNEX 10. SUPPORTING DOCUMENTS

1. Country Assistance Strategy for the Republic of Rwanda for FY09-12, IDA, IFC, MIGA, August 7, 2008.
2. Country Partnership Strategy for the Republic of Rwanda for the Period FY14-18, IDA, IFC, MIGA, May 1, 2014.
3. RSSP3- Implementation Completion Report, Final Report, Rwanda Agriculture and Animal Resources Development Board, October 2018.
4. National Agriculture Policy, Ministry of Agriculture and Animal Resources, July 2018.
5. Rwanda Vision 2020 (Revised 2012), Republic of Rwanda, 2012.
6. Rwanda Vision 2020, Ministry of Finance and Economic Planning, 2008.
7. Strategic Plan for Agriculture Transformation 4 (PSTA-4) 2018-2024, Presentation by Ministry of Agriculture and Animal Resources, 2017.
8. Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II, Final Report, Ministry of Agriculture and Animal Resources, February 2009.
9. The Rwanda We Want: Towards Vision 2050, presentation by Claver Gatete, Minister of Finance and Economic Planning, Rwanda National Dialogue Presentation, December 16, 2016