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IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF-14427

ON A

GRANT

FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US\$4.2 MILLION

TO THE

REPUBLIC OF BURUNDI

FOR THE

SUSTAINABLE COFFEE LANDSCAPE PROJECT (P127258)

April 25, 2019

Environment & Natural Resources Global Practice
Africa Region

Exchange Rate

Currency Unit: United States Dollars

FISCAL YEAR
July 1 - June 30

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ABBREVIATIONS AND ACRONYMS

| | |
|----------|---|
| ARFIC | The Regulation Authority of the Coffee Value Chain |
| BD | Biodiversity |
| CAS | Country Assistance Strategy |
| CNAC | National Coffee Growers Associations |
| CWS | Coffee Washing Station |
| FFS | Farmers Field School |
| FM | Financial Management |
| GEO | Global Environment Objective |
| GEF | Global Environment Facility |
| GoB | Government of Burundi |
| ICR | Implementation Completion Report |
| IE | Impact Evaluation |
| ISABU | Agricultural Research Institute |
| IUCN | International Union for Conservation of Nature |
| LD | Land Degradation |
| M&E | Monitoring and Evaluation |
| MINAGRIE | Ministry of Agriculture and Livestock |
| MIS | Management Information System |
| NAIP | National Agricultural Investment Plan |
| OBPE | Burundian Office for Environmental Protection |
| PA | Protected Area |
| PACSC | Coffee Competitiveness Project |
| PAD | Project Appraisal Document |
| PADZOC | Sustainable Coffee Landscape Project |
| PAMETT | Protected Area Management Effectiveness Tracking Tool |
| PCU | Project Coordination Unit |
| PDO | Project Development Objective |
| PRODEMA | Agro-Pastoral Productivity and Markets Development Project |
| PRSP | Poverty Reduction Strategy Paper |
| REDD+ | Reduce Emissions from Deforestation and forest Degradation, and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks |
| RNFB | Burundi Natural Forest Reserve |
| R-SEA | Rapid Strategic Environmental Assessment |
| SCD | Systematic Country Diagnostic |
| SFM | Sustainable Forest Management |
| SLWM | Sustainable Land and Water Management |
| TLF | TerrAfrica Leveraging Fund |
| ToT | Training of Trainers |
| WB | World Bank |

TABLE OF CONTENTS

| | |
|--|-----------|
| DATA SHEET | 1 |
| I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES..... | 6 |
| A. CONTEXT AT APPRAISAL..... | 6 |
| B. SIGNIFICANT CHANGES DURING IMPLEMENTATION | 12 |
| II. OUTCOME | 14 |
| A. RELEVANCE OF PDOs | 14 |
| B. ACHIEVEMENT OF PDOs (EFFICACY)..... | 15 |
| C. JUSTIFICATION OF OVERALL EFFICACY RATING | 22 |
| Rating: Substantial | 22 |
| D. EFFICIENCY..... | 22 |
| E. JUSTIFICATION OF OVERALL OUTCOME RATING | 24 |
| Rating: Satisfactory | 24 |
| F. OTHER OUTCOMES AND IMPACTS | 24 |
| III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME | 26 |
| A. KEY FACTORS DURING PREPARATION..... | 26 |
| B. KEY FACTORS DURING IMPLEMENTATION | 26 |
| IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME .. | 27 |
| A. QUALITY OF MONITORING AND EVALUATION (M&E) | 27 |
| B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE | 28 |
| C. BANK PERFORMANCE..... | 29 |
| D. RISK TO DEVELOPMENT OUTCOME | 30 |
| V. LESSONS AND RECOMMENDATIONS | 31 |
| ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS..... | 33 |
| ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION | 44 |
| ANNEX 3. PROJECT COST BY COMPONENT..... | 47 |
| ANNEX 4. EFFICIENCY ANALYSIS | 48 |
| ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS ... | 55 |
| ANNEX 6. WATER QUALITY ANALYSIS 2017 AND 2018 OF THE EFFLUENTS FROM THE SIX REHABILITATED COFFEE WASHING STATIONS (CWS) (IN FRENCH) | 56 |
| ANNEX 7. SUPPORTING DOCUMENTS..... | 57 |



DATA SHEET

BASIC INFORMATION

Product Information

| | |
|--|--|
| Project ID P127258 | Project Name Sustainable Coffee Landscape Project |
| Country Burundi | Financing Instrument Investment Project Financing |
| Original EA Category Partial Assessment (B) | Revised EA Category Partial Assessment (B) |

Organizations

| | |
|-------------------------------------|--|
| Borrower The Ministry of Finance | Implementing Agency Ministry of Agriculture and Livestock |
|-------------------------------------|--|

Project Development Objective (PDO)

Original PDO

The project development objective is to pilot sustainable land and water management practices in the coffee landscape of Burundi.

PDO as stated in the legal agreement

The objective of the Project is to pilot sustainable land and water management practices in the Recipient's coffee landscapes.



FINANCING

| | Original Amount (US\$) | Revised Amount (US\$) | Actual Disbursed (US\$) |
|---------------------------------|------------------------|-----------------------|-------------------------|
| World Bank Financing | | | |
| TF-11799 | 33,000 | 33,000 | 33,000 |
| TF-14427 | 4,200,000 | 4,187,868 | 4,187,868 |
| Total | 4,233,000 | 4,220,868 | 4,220,868 |
| Non-World Bank Financing | | | |
| Borrower/Recipient | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |
| Total Project Cost | 4,233,000 | 4,220,868 | 4,220,868 |

KEY DATES

| Approval | Effectiveness | MTR Review | Original Closing | Actual Closing |
|-------------|---------------|-------------|------------------|----------------|
| 30-Apr-2013 | 08-Jun-2012 | 03-Oct-2016 | 30-Apr-2017 | 30-Oct-2018 |

RESTRUCTURING AND/OR ADDITIONAL FINANCING

| Date(s) | Amount Disbursed (US\$M) | Key Revisions |
|-------------|--------------------------|--|
| 21-Feb-2017 | 3.15 | Change in Results Framework Change in Components and Cost Change in Loan Closing Date(s) Reallocation between Disbursement Categories |

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 | 24-Nov-2013 | Satisfactory | Satisfactory | .33 |
| 02 | 06-Jul-2014 | Satisfactory | Satisfactory | .40 |
| 03 | 20-Mar-2015 | Moderately Satisfactory | Moderately Unsatisfactory | .65 |
| 04 | 24-Sep-2015 | Moderately Unsatisfactory | Moderately Unsatisfactory | .75 |
| 05 | 12-Feb-2016 | Moderately Satisfactory | Moderately Satisfactory | 1.13 |
| 06 | 01-Sep-2016 | Moderately Satisfactory | Moderately Satisfactory | 1.71 |
| 07 | 09-Dec-2016 | Moderately Satisfactory | Moderately Satisfactory | 2.46 |
| 08 | 30-May-2017 | Satisfactory | Satisfactory | 3.35 |
| 09 | 19-Apr-2018 | Satisfactory | Satisfactory | 4.23 |

SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Agriculture, Fishing and Forestry 73

Public Administration - Agriculture, Fishing & Forestry 12

Other Agriculture, Fishing and Forestry 61

Social Protection 6

Social Protection 6

Water, Sanitation and Waste Management 11

Sanitation 11

| | | |
|--|--------------------|-------------------------|
| Industry, Trade and Services | 10 | |
| Other Industry, Trade and Services | 10 | |
| Themes | | |
| Major Theme/ Theme (Level 2)/ Theme (Level 3) | (%) | |
| Economic Policy | 7 | |
| Trade | 7 | |
| Trade Facilitation | 7 | |
| Private Sector Development | 100 | |
| Jobs | 100 | |
| Urban and Rural Development | 23 | |
| Rural Development | 23 | |
| Land Administration and Management | 23 | |
| Environment and Natural Resource Management | 69 | |
| Environmental Health and Pollution Management | 12 | |
| Air quality management | 4 | |
| Water Pollution | 4 | |
| Soil Pollution | 4 | |
| Renewable Natural Resources Asset Management | 52 | |
| Biodiversity | 52 | |
| Environmental policies and institutions | 5 | |
| ADM STAFF | | |
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| | | |
|----------------------|------------------------------|---|
| Project Team Leader: | Paola Agostini, Stephen Ling | Philippe Eric Dardel, Paola Agostini, Amadou Alassane |
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Note:- It should be noted that the project total cost includes two trust funds: a GEF trust fund of US\$4.2 million, and a TerrAfrica Leveraging Trust Fund (TLF) of US\$33,000. The effectiveness date shown in the datasheet above under “Key Dates” reflects that of the TLF. The other dates reflect those of the GEF. The table below shows the key dates for each of the trust funds. The project appraisal document makes reference to the GEF trust fund only.

Table. PADZOC Trust Funds Key Dates

| Trust Fund | Key Dates | | | |
|----------------------|--------------|--------------|-------------------|------------------|
| | Approval | Signing | Effective | Closing |
| GEF (TF14427) | May 13, 2013 | May 23, 2013 | September 4, 2013 | October 30, 2018 |
| TLF (TF11799) | June 8, 2012 | June 8, 2012 | June 8, 2012 | April 30, 2013 |



I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. Burundi is a small, landlocked, and densely populated country that straddles Central and East Africa, with a total land area of 27,834 km² and approximately 10 million inhabitants¹. In 2013, when the Sustainable Coffee Landscape project (PADZOC) was approved, the population was approximately 8.2 million. Meanwhile, the country's population has been increasing at a rate of three percent annually and is mostly rural - only 10.6 percent live in urban areas.

2. The Project Appraisal Document (PAD) notes that Burundi's development trajectory has been marked by successions of periods of peace and conflict. After more than 10 years of armed conflict between 1993 and 2003 that claimed the lives of about 300,000 people while displacing 1.3 million people (about 16 percent of the population), the country witnessed a decade of political stability, security and economic recovery. Over these 10 years, the annual GDP growth rate in Burundi consistently remained around four percent. The consolidation of the peace process has helped start reconstruction and created positive prospects. With substantial improvement in security, the Government focused its resources to expand basic social services in the country and initiated the modernization of the economic infrastructure and institutions. The "Vision 2025" developed by the Government of Burundi (GoB) in 2011 placed great emphasis on economic recovery and identified infrastructure development, agriculture, and tourism as priority areas. These efforts, at the time, were recognized by the World Bank which ranked Burundi as a top economic reformer for streamlining business and improving its regulatory environment between 2012 and 2014.

3. These performances, however, have not prevented the country from falling back into violence in 2015. The economy contracted by seven percent in 2015 and prospects for recovery are still uncertain. These years of recurring conflict had a devastating effect on the economy leaving the country to address growing challenges in terms of infrastructure, road access, power generation, communications infrastructure, and access to water and sanitation. This discourages domestic and foreign investment, thereby limiting economic growth. According to the 2018 Systematic Country Diagnostic (SCD)², years of political and economic fragility, combined with growing population density are beginning to leave their mark on the environment, escalating to a third important aspect of fragility: environmental fragility.

Sectoral and Institutional Context

4. Coffee is the main export crop of the country, accounting for more than 60 percent of Burundi's total export earnings. Gains vary from year to year due to extreme cyclical changes in production (alternating high and low production) caused by soil degradation, ageing plantations, pests and diseases, exacerbated by climate change. The unsustainable and unregulated production of sun-grown coffee in Burundi has contributed to environmental problems related to land degradation and poor water management. The use of marginal lands on steep slopes by coffee growers and the removal of forest cover on hillsides have also contributed to land degradation, biodiversity

¹ World Bank. 2013. *Project Appraisal Document: Sustainable Coffee Landscape Project* (Report No. 75889-BI)

² Report No. 122549-BI



loss and agricultural encroachment into protected areas. In addition, solid and liquid organic waste from coffee washing stations (CWS) is a major source of water pollution.

5. **Rationale for Bank Involvement.** The rationale for World Bank assistance through PADZOC, was first identified in the Rapid Strategic Environmental Assessment (R-SEA)³ Action Plan 2010 that highlighted the need to introduce shade-grown coffee in Burundi to combat land degradation and increase soil fertility. This was followed by a successful exchange visit of Burundi representatives from coffee farmer cooperatives, Ministry of Agriculture and Livestock (MINAGRIE), and the agricultural research institute (ISABU), to witness successful shade-grown coffee practices in Ethiopia and Columbia⁴. The lessons learned from these pilot actions from PADZOC would contribute to ongoing and future projects in the country, which as of today includes the World Bank (WB)-financed Coffee Sector Competitiveness Project (PACSC) in the amount of US\$55 million, the Burundi Landscape Restoration and Resilience Project (BLRRP) in the amount of US\$30 million, and the Agro-Pastoral Productivity and Markets Development Project (PRODEMA) Additional Financing in the amount of US\$25 million.

Higher-level Objectives to which the Project contributed

6. **GEF-5 Strategy.** At the time of appraisal, PADZOC was aligned with the Global Environment Facility (GEF)-5 strategic objective for Land Degradation, Biodiversity and Sustainable Forest Management (SFM).

7. **Regional and National Priorities.** The Project was to contribute to GoB's "Vision 2025", the 2012-2017 National Agricultural Investment Plan, the National Strategy for the Environmental Action Plan, the 2012 National Strategy and Action Plan to Combat Soil Degradation, National Strategy and Action Plan for Biological Diversity, the National Strategy for the Sustainable Development of Tourism (2011-2020), the National Action Plan for Adapting to Climate Change, and the second Poverty Reduction Strategy Paper (PRSP II) for the period 2012-2015.

8. **World Bank Strategies.** The Project was to also contribute to: the FY13-FY16 Country Assistance Strategy (CAS)⁵ that aimed to support Burundi's development as an increasingly stable, competitive and diversified economy with enhanced opportunities for productive employment and improved standards of living; the World Bank Strategy for Africa's Pillar One, "Competitiveness and Employment" and Pillar Two "Vulnerability and Resilience"; the WB's "Enhancing Competitiveness and Resilience in Africa: Action Plan for Improved Natural Resource and Environment Management"; the World Bank Africa Forest Strategy ("Forests, trees and woodlands in Africa: An action plan for World Bank engagement"), the Bank's Africa Climate Change Strategy (*Making Development Climate Resilient: A World Bank Strategy for Sub-Saharan Africa*), and the TerrAfrica partnership⁶, as Burundi is one of the member countries.

³ Report No. 71823-BI

⁴ The exchange visit to Colombia was financed by the World Bank South-South Experience Exchange Facility ('South-South Facility') multi-donor trust fund. The Facility enables sharing of development experience and knowledge among World Bank client countries. This demand-driven funding mechanism is designed to respond quickly and efficiently to the needs of development officials and practitioners in client countries.

⁵ Report No. 72334-BI

⁶ TerrAfrica is a NEPAD-led partnership present in 30 countries on the African continent that supports innovative solutions to sustain landscapes, address land and water degradation and adapt to a changing climate. See more on <http://terrafrica.org>



Theory of Change (Results Chain)

9. PADZOC was undertaken in two phases over a period of almost six years: a first phase from 2013-2016 and a second phase, after the restructuring, from 2016-2018.

10. The Project went from the premise that Burundi's potential for exporting high quality Arabica coffee during peak production years could reach 60,000 tons annually (compared to 15,000 tons achieved in 2011). The R-SEA Action Plan mentioned above, was prepared with a set of recommendations and strategic directions which the Project followed through pilot actions.

11. At the production phase, the Project would set-up a training program on shade-grown coffee and sustainable land and water management in selected areas. The Project would address the risk of increased land degradation from the use of coffee farmers of marginal lands on steep slopes and the elimination of shade cover on many hillsides.

12. At the processing phase, the Project would promote environmentally sound standards for CWS, and the development of a study on how to better regulate water pollution from the CWS, as an increase in coffee production without any efficient technology or specific regulations may lead to an increase in the demand for water as well as increased water pollution from coffee dumped into the rivers.

13. In addition, at the marketing phase, the Project would support the certification of selected CWS and a marketing study for the potential of coffee to access niche markets and diversification strategies.

14. Finally, the Project would work in one Protected Area (PA) – the Bururi Natural Forest Reserve, to adequately manage the agricultural expansion within the PA. The implementation of the above Project activities, if successful would be scaled up throughout the country, thereby creating an enabling environment for a long-term sustainable coffee sector that will contribute to the development of the agriculture sector, the reduction of poverty levels, and the improvement of ecosystem management. Figure 1 below illustrates the Theory of Change of PADZOC.

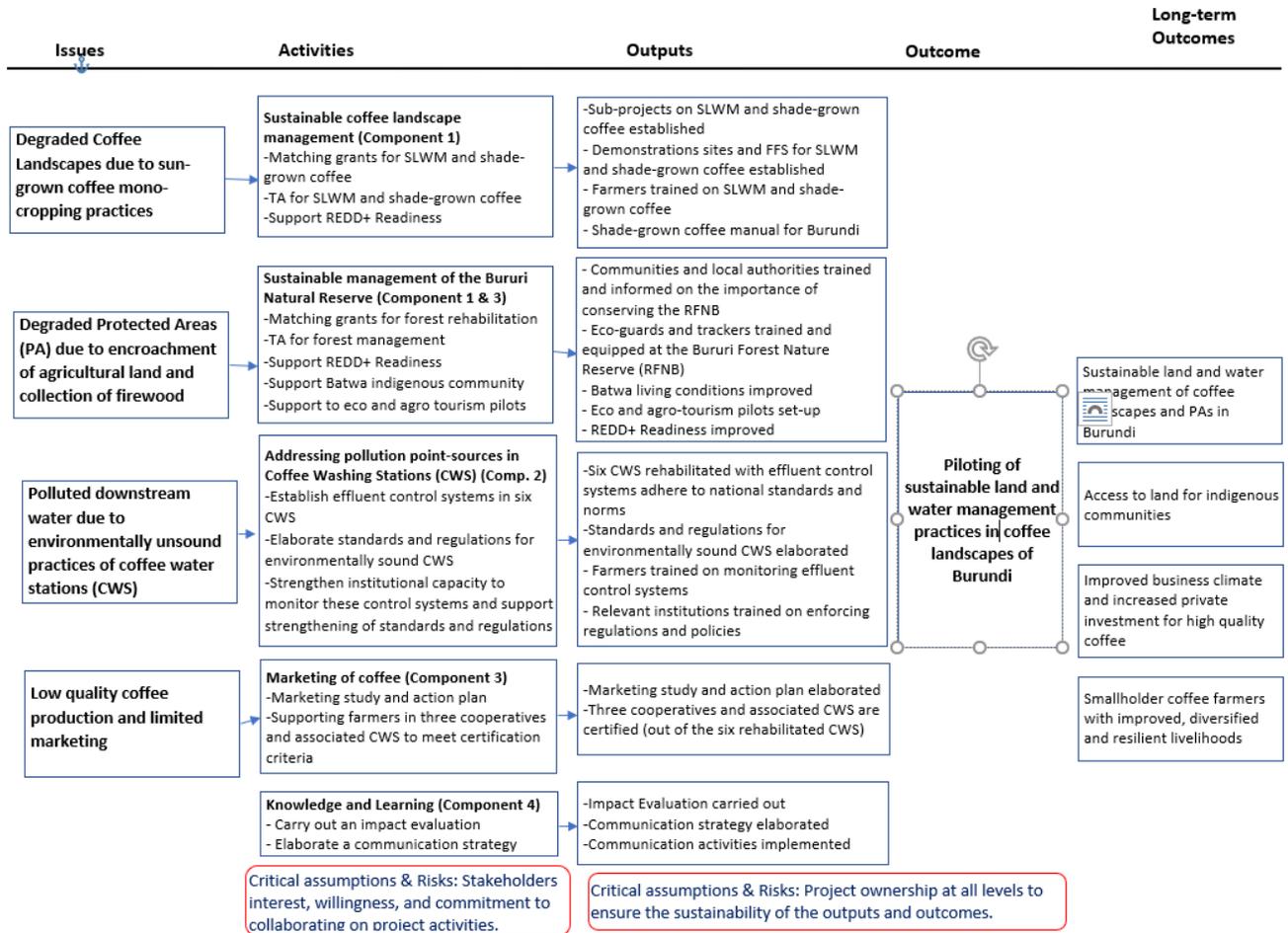
15. Sustainable Land and Water Management (SLWM) in this Project would involve the adoption of the landscape approach that, through appropriate management practices, enables land users to maximize the economic and social benefits from the land while maintaining or enhancing the ecological support functions of the land resources. It involves a holistic approach that integrates social, economic, physical and biological assets from agricultural land to forest land to protected areas.

16. The Project would assist Burundi to improve the sustainability of coffee landscapes through: (i) implementing sustainable land and water management practices in productive areas, in order to prevent further land degradation and rehabilitate degraded lands (factors that have negatively) impacted coffee production); (ii) establishing a shade-grown coffee pilot program that promotes, with environmentally friendly production technologies, a polyculture that includes coffee as well as various types of trees and other plants that provide additional products for income generation and consumption; (iii) promoting sustainable management in a key PA, under the premise that protected area demarcation has been agreed between key stakeholders and the neighboring local communities have alternative sources for improving livelihoods, so that the risk of agricultural expansion to the area will be reduced; (iv) addressing point source pollution through the establishment of efficient, environmentally-friendly coffee processing technologies and the strengthening of policies and regulations; (v) promoting marketing and commercialization strategies for high-quality coffee, planted with shade and processed with reduced environmental negative impacts; and (vi) piloting initiatives that generate alternative sources of income such as agri-tourism and



ecotourism. Accessing higher value markets with shade-grown coffee benefits the coffee sector as well as generates an incentive for the protection and conservation of the environment. These measures also strengthen the capacity of the public sector to manage and regulate ecosystems services, following a landscape approach that considers both geographical and socio-economic considerations to manage the productive and protected areas.

Figure 1. PADZOC Theory of Change





Project Development Objective (PDO)/Outcome

17. The Project Development/Global Environmental Objective (PDO/GEO) and outcome was to pilot sustainable land and water management practices in the Recipient's coffee landscape.

Key Expected Outcome and Outcome Indicators

18. The only key expected outcome from 'unpacking' the PDO is 'to pilot sustainable land and water management practices in the coffee landscape of Burundi' since sustainable land and water management practices are intertwined. The following three indicators were used to assess the project outcome:

- (i) Land area where sustainable land and water management practices (including shade grown coffee) have been adopted as a result of the project⁷;
- (ii) Environmentally friendly effluent control systems implemented in selected CWS because of the project; and
- (iii) Direct project beneficiaries.

Components

19. The project had four components, as summarized below. Annex 3 contains details on the estimated and actual costs by component.

Component 1: Sustainable Coffee Landscape Management (US\$2.82 million GEF at appraisal; US\$2.83 million actual)

20. This component aimed to promote sustainable land and water management (SLWM), agroforestry and shade grown coffee cultivation, as well as conservation activities in one protected area (Bururi Natural Forest Reserve). The component was to focus on addressing the landscape approach that integrates people's livelihood objectives in the management of the different ecosystems within the landscape (including productive and protected areas). The component was to support SLWM matching grants for associated subprojects to applicants (farmer groups, associations or cooperatives) in degraded areas of the landscape mosaic. The subprojects were to provide financial and technical assistance to implement SLWM technologies. The component was also to promote shade-grown coffee plantations through on-the-ground matching grants for associated subprojects. The component equally included supporting the process for the GoB to become ready for the REDD+ Strategy⁸. The sub-components included: (i) sustainable land and water management; (ii) Promotion of shade-grown-coffee; (iii) Research and development; (iv) Sustainable protected area management; and (v) Promotion of sustainable livelihoods for local communities (including the socially marginalized Batwa community).

Component 2: Addressing Pollution Point Sources in Coffee Washing Stations (US\$0.59 million GEF at appraisal; US\$0.24 million actual)

⁷ It should be noted that the indicator is worded the same way as the Board Approved Project Appraisal Document (PAD). The Operations Portal Results Framework in Annex 1, has a slightly different wording, but this has no effect on the parameters of measurement nor on the unit of measurement.

⁸ Reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks are a set of activities collectively referred to as "REDD+". Burundi has applied to become part of the FCPF that assists countries in their REDD+ efforts.



21. The component aimed to address the sources of pollution in the CWS that would have direct environmental benefits and support attempts to access higher value markets that demand improved production standards. The component was to promote environmentally sound processing of coffee cherries through: (i) matching grants for associated projects that were to upgrade and/or establish six effluent control systems including water efficient eco-pulpers at washing stations (two in each target province) managed by local farmer cooperatives or domestic privately-owned stations. The main purpose of these systems was to reduce the volume of water consumption and remove waste organic matter that can be used for composting, but this was later changed to improving the quality of the water (see changes below). The component was also to finance the establishment of standards and regulations to promote the environmentally sound operation of CWS. In addition, the component was to strengthen the institutional capacity to monitor the implementation of sustainable technologies and the enforcement of regulations and policies. The sub-components included: (i) Promotion of environmentally friendly processing systems; (ii) Standards and regulations for the treatment of effluents in CWS; and (iii) Training program for environmental and social standards.

Component 3: Diversification of Livelihoods (US\$0.41 million GEF at appraisal; US\$0.43 million actual)

22. The component aimed to support a marketing study and action plan to be conducted by InterCafé to identify target markets for the region's coffee, along with potentially suitable certification schemes. Following the marketing study, the project was to finance initial certification costs for three farmer cooperatives and washing stations supported under the previous components. The certification process was to promote or strengthen increases in the adoption of environmentally friendly management practices. The component also aimed to support an ecotourism pilot in the Bururi Forest Nature Reserve as well as pilot two community based agritourism initiatives in selected coffee farms.

Component 4: Knowledge and Learning (US\$0.38 million GEF at appraisal and US\$0.03 TLF; US\$0.72 million actual)

23. The component aimed to support project management, implementation of project monitoring and evaluation (M&E), particularly an Impact Evaluation (IE), as well as communication activities. Specifically, the component was to finance the employment of an additional accountant and expert in sustainable land management to integrate into Agro-Pastoral Productivity and Markets Development Project's (PRODEMA) PCU⁹, additional costs for PRODEMA's M&E, the implementation of an impact evaluation to assess the impact of shade coffee on specific variables, and a communication strategy for the project.

24. The TLF amount of US\$33,000 (which was not part of the PAD), aimed to provide a scholarship (through Illy Caffé¹⁰) to one student from Burundi to study a masters in coffee economics in Trieste, Italy. The student, after successfully obtaining his/her degree, would then return to Burundi to support PADZOC by building local capacity in coffee promotion and marketing.

25. The Project's area of intervention was located in three of the country's provinces, chosen according to the following criteria: (i) already included in PRODEMA; (ii) high potential for cultivating shade grown coffee; (iii) presence of coffee washing stations in operation; and (iv) proximity to a national protected area.

⁹ During project appraisal, it was agreed that the existing project coordination unit (PCU) of the World Bank-financed Agro-Pastoral Productivity and Markets Development Project (PRODEMA) would also serve as the PCU for the Sustainable Coffee Landscape Project.

¹⁰ Illy Caffé is an Italian coffee roasting company (private sector) that specializes in the production of espresso coffee.



26. The three provinces selected were:

- Bubanza, bordering Kibira National Park
- Bururi, where the Bururi Forest Nature Reserve is located
- Muyinga, bordering the Ruvubu National park. Muyinga has also been shown to have a population receptive to innovations and where many coffee plantations are young.

27. The Implementations arrangement were as follows:

- The Ministry of Water, Environment, Land and Urban Planning (MEEATU) oversaw the activities to promote regulatory aspects towards environmentally friendly coffee processing.
- InterCafé, an autonomous professional organization created for consultation and decision-making regarding the coffee sector, was directly involved in the implementation of the sustainable shade-grown coffee production program, the activities related to coffee certification and marketing, SLWM practices, the piloting of agri-tourism initiatives in coffee farms and the communication strategy.
- The Agricultural Research Institute (ISABU), supported research activities and the development of the Manual for Shade-Grown Coffee cultivation.
- The Burundian Office for Environmental Protection (OBPE), the agency responsible for the management of national parks and nature reserves, oversaw the activities involving the Bururi Forest Nature Reserve.
- The Regulation Authority of the Coffee Value Chain (ARFIC), the public enterprise that represents the GoB in the coffee sector, supported the training program regarding environmental and social standards at the CWS.

28. The project built on PRODEMA's decentralized structure. The activities at the local levels were implemented through the three decentralized Inter-Provincial Coordination Units (IPCUs) established for PRODEMA and located in each of the provinces. The IPCUs oversaw field coordination, guidance, and supervision of project activities.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

29. The Project was revised through a restructuring in February 2017. These resulted in changes to: (i) the geographical target area, (ii) the allocation of funds between the components and disbursement categories, (iii) Inclusion of an additional activity, (iv) two intermediate level indicators, and (v) the project closing date. These changes are detailed below.

30. The project restructuring made no changes to the PDO, PDO outcome indicators and targets.

Revised Components

31. *(i) Changes to the geographical target area.* As a recommendation from the 2016 mid-term review (MTR), PADZOC activities on SLWM and shade-grown coffee were scaled up to include the Kayanza province, as successful demonstration plots had been established at ISABU's research station in the Province and could be used as a platform for training.

32. *(ii) Changes to the allocation of funds between the components and disbursement categories.* Changes to the allocation of funds between the components and reallocation between disbursement categories were made to reflect the changes agreed during the MTR mission. See Table 1 below. Given the good research results from ISABU observed during the mid-term review, there was a need to further scale-up capacity-building of smallholder farmers on sustainable techniques by increasing the number of demonstration sites and establishing Farmers' Field Schools (FFS).

There was also a need to finance the PCU staff, as there was a financing gap between the end of PRODEMA project in December 2016 and the start of the PRODEMA Additional Financing in March 2017. Funds were therefore reallocated from Component 2 and 3 (where activities were at an advanced stage of implementation and almost completed) to Component 1 (capacity-building in SLWM and shade-grown coffee) and Component 4 (staffing). It should be noted that change in allocation only affected the GEF trust fund of US\$4.2 million only.

33. (iii) *Changes to project activities.* PADZOC established a Memorandum of Understanding with the National Coffee Growers Associations (CNAC) so that they could provide extension services to establish more demonstration sites, including the pilot establishment of FFS for SLWM and shade-grown coffee.

Table 1. Budget Reallocation as part of the 2017 Project Restructuring

| Current Component Name | Current Cost (US\$M) | Action | Proposed Component Name | Proposed Cost (US\$M) |
|--|----------------------|---------|--|-----------------------|
| Component 1: Sustainable Coffee Landscape Management | 2.80 | Revised | Component 1: Sustainable Coffee Landscape Management | 2.90 |
| Component 2: Addressing Pollution Point Sources in Coffee Washing Stations | 0.60 | Revised | Component 2: Addressing Pollution Point Sources in Coffee Washing Stations | 0.29 |
| Component 3: Diversification of Livelihoods | 0.40 | Revised | Component 3: Diversification of Livelihoods | 0.39 |
| Component 4: Knowledge and Learning | 0.40 | Revised | Component 4: Knowledge and Learning | 0.62 |
| TOTAL | 4.20 | | | 4.20 |

Other Changes

34. (iv) *Changes to two intermediate level indicators.* The revisions to the two intermediate level indicators were as follows:

- The intermediate level indicator 2.3, “Reduced amount of water utilized for the processing of coffee as a result of the project” was replaced with “Coffee Washing Stations (CWS) meet national effluent discharge standards as a result of the project”. The standards used were the ones established in the Joint Ministerial Directive No. 770/468 dated 25 March 2014 (Ordonnance Ministérielle Conjointe n° 770/468 du 25 mars 2014 portant fixation des normes de rejet des eaux usées domestiques et industrielles au Burundi). The change in the indicator was justified by the investments that the project was to finance for the environmental improvement of the CWS as agreed by the team, PCU and station owners. These CWS are not constrained by access to water and so there was less incentive to aim for improvements that reduce water consumption; the constraint was reducing the pollution that goes into the effluents. The indicator is also consistent with the study that was prepared within the project regarding the norms and regulations for the CWS’ environmental management.
- The intermediate level indicator 3.3, “Tourists visiting new agri-tourism and eco-tourism initiatives as a result of the project” was removed, as there was a potential attribution problem, as number of tourist visits is beyond the control of the project. For instance, it was not possible to attribute the 90 tourists tracked only to project activities. The PCU and the Bururi’s reserve manager continue however to keep track and report separately on the number of tourists that visit the protected area.

35. (v) *Changes to the project closing date.* An 18-month extension of the closing date was granted to make up for: the delayed baseline survey for the impact evaluation for part of component 1; the political crisis in 2015 that



slowed down implementation, and the pro-longed drought that affected two rainy seasons and in turn disrupted Project plantation activities. The closing date was extended to October 30, 2018, to allow the Project to complete its activities.

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

36. The changes explained above had no implication to the PADZOC theory of change.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

Rating: High

37. **PADZOC aligns with Burundi's 2018 SCD**, which highlights the dependence of the economy on agricultural land productivity and the implications of land degradation and climate change on domestic growth, livelihoods, and overall development. In particular, given the identification of the third aspect of fragility - environmental, long-term development goals include the mitigation of land degradation and environmental fragility. PADZOC also contributes to the short and medium-term development goal of increasing food security by ensuring nutritional needs are met, by encouraging polycultures through shade-grown coffee practices, where fruit trees like banana (which form an important part of nutritional diet) are grown together with the coffee plants.

38. **PADZOC was aligned with the CAS FY13-16**. As discussed in paragraph 8, PADZOC was well aligned with the FY13-FY16 CAS through two strategic objectives (i) "Improving Competitiveness and particularly the "improved business climate and increased private investment outcome, by strengthening the country's largest employment sector, expanding research and extension services, assisting farmers' organizations, establishing marketing strategies for high-quality coffee and promoting polycultures in pilot areas and; (ii) "Improving Resilience by Consolidating Social Stability, and particularly the "expanded safety nets to reduce volatility of livelihoods outcome that, among others, aims to reduce environmental degradation and improve livelihoods.

39. **The PDO is also in line with GEF-7 Strategy¹¹** which continues to prioritize:

- *Biodiversity*, which is built around achieving three objectives: (i) "mainstream biodiversity ...across production landscapes", (ii) "reduce direct drivers of biodiversity loss", and (iii) "strengthen biodiversity policy and institutional frameworks."
- *Land Degradation*, in line with the Land Degradation Neutrality (LDN) concept, with a view to maintain or improve ecosystem services, land productivity, food security, and to increase the resilience of the land and the populations dependent on it. The GEF-7 Land Degradation Focal Area seeks to achieve the following objectives: (i) enhance on-the-ground Implementation of LDN, and (ii) create an enabling environment to support LDN implementation globally.
- *Sustainable Forest Management*, which is built around promoting good forestry management practices and continues to address challenges associated with sustainably managing and protecting forests and drylands.

¹¹ GEF 2018. Summary of the Negotiations of the Seventh Replenishment of the GEF Trust Fund.
<https://www.thegef.org/council-meeting-documents/summary-negotiations-seventh-replenishment-gef-trust-fund>



40. It is also in line with one of the new impact programs under GEF-7, the Food, Land Use and Restoration (FOLUR) which seeks to transform food and land use systems and help countries reconcile competing social, economic, and environmental interests by moving away from unsustainable sectoral approaches.

41. The PDO of the project is still relevant in the following current strategies: PRSP II; National Coffee Strategy (2015-2021); Vision Burundi 2015; Burundi's commitments as the current chair of the Commission of Central African Forests, 2015 Africa Climate Business Plan; 2016 Climate Change Action Plan; the FY16–20 Forest Action Plan, and the 'Vulnerability and Resilience' pillar of the World Bank Strategy for Africa, and the UN Decade of Sustainable Landscape Restoration.

42. The PDO fits in well with the new WB Climate Change Adaptation on Resilience Action Plan for the 2025 climate targets¹² and the WB Africa Strategy 2023.

43. The PDO is also still relevant to the new Burundi National Development Plan 2018-2027 which among others, aims at protecting the environment and promoting the coffee sector.

44. Given that the project PDO is still very relevant in the current context, the relevance of PDO is rated High.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Outcome

45. This section is organized around each of the three PDO-level indicators that contribute to the Project outcome, which is to pilot sustainable land and water management practices in the coffee landscape of Burundi.

- **PDO-Level Indicator 1: Land area where sustainable land and water management practices (including shade grown coffee) have been adopted as a result of project (overachieved, 103.5%)**

46. The first PDO-level indicator was achieved through financing matching grants to beneficiary farmer groups (through sub-projects) that would promote investments in sustainable land and water management practices (SLWM) and training in the agricultural plots. The sub-projects provided financial and technical assistance to beneficiaries to undertake activities that would generate economic and social benefits, while reducing land degradation, rehabilitating degraded areas and ensuring optimal and sustainable use of land and water resources. A range of options in terms of SLWM technologies (see Table 2 below) were proposed to farmers, with the support of the SLWM project specialist, specific to the respective agro-ecological zones. Farmer beneficiaries received technical assistance in selecting the appropriate technologies to be included in each sub-project.

¹² World Bank 2019. The World Bank Group Action Plan on Climate Change Adaptation and Resilience. Washington, DC: World Bank. © World Bank.



Table 2. SLWM technologies

| <i>Technologies</i> | |
|---|--|
| <i>Agronomic and vegetative measures</i> | <i>Structural measures</i> |
| <ul style="list-style-type: none"> • Inter-cropping • Agro-forestry in crop or grazing systems • Mulching and crop residue • Crop rotation • Fallowing • No till • Composting/green manure • Integrated pest management | <ul style="list-style-type: none"> • Terraces and other physical measures (e.g. soil bunds, stone bunds, bench terraces, etc.) • Flood control and drainage measures (e.g. rock catchments, water harvesting, cut-off drains, vegetative waterways, stone-paved waterways, floodwater diversion, etc.) • Water harvesting, runoff management, and small-scale irrigation (shallow wells/boreholes, micro ponds, underground cisterns, percolation pits, ponds, spring development, roof water harvesting, |
| <ul style="list-style-type: none"> • Vegetative strip cover • Contour planting • Integrated crop-livestock systems • Woodlots • Alternatives to fuelwood | <ul style="list-style-type: none"> river bed dams, stream diversion weir, farm dam, tie ridges, inter-row water harvesting, half-moon structures, etc.) |

47. The SLWM sub-projects did not necessarily require financial contribution from beneficiaries (although it was strongly recommended). However, for these sub-projects to be considered, the following criteria had to be met: (i) to increase land productivity and / or water use efficiency; (ii) improve the living conditions of the beneficiaries and; (iii) improve ecosystems while respecting the environment.

48. As a result, 66 sub-projects on SLWM [including restoration activities in the Bururi Natural Forest Reserve (RNFB)] and 324 sub-projects on shade-grown coffee were financed and implemented. The Project provided grants totaling 2,535,442,899 Burundi Francs (about US\$ 1,386,285), where beneficiaries were able to match about 10%. These sub-projects benefitted some 13,309 households (of which 5,599 were Female headed) and a total of 4,658 hectares of land were brought under SLWM, Forest and shade-grown coffee (against the original target of 4,500 ha). See additional results from the PADZOC impact evaluation study 2018¹³ in the Efficiency section below and in Annex 4.

49. The sub-projects included the cultivation of eucalyptus, calliandra, grevillea, cedrella and leucaena plants, as well as banana plants to control erosion and provide an additional source of income. During the field mission, brief conversations with some of the beneficiaries of the project in Bubanza province seem to indicate that the implemented SLWM practices have somewhat contributed in reducing soil erosion and increasing mulching of hardwood species adopted in polyculture plantations.

50. However, as noted during the mid-term review of the Project in October 2016 and for which the Implementation Completion and Results (ICR) mission continued to observe in December 2018, the application of SLWM technologies in certain areas visited in Bubanza continues to be fragmented and fails to properly stabilize steep slopes. The recent establishment of 28 FFS (seven in each of the four provinces), should help to mitigate this issue through structured, time-bound and participatory approaches. The ICR mission confirmed that the FFS were successfully established and managed [by 33 coffee farmers and extension agents (including eight women)] and that farmers were being properly trained and assisted. The FFS trained farmers have started to interplant field crops, bananas and some fruit and shade trees in their coffee fields. It will take time before the trees are tall enough to produce the needed shade, but the bananas and field crops have already started to financially benefit the farmers and stabilize the soil. According to the farmers, FFS facilitators of CENAC and the field staff of ISABU, the FFS approach has proven to be more successful in

¹³ PADZOC Impact Evaluation Report, June 2012 and December 2018

convincing and supporting farmers in adapting shade grown coffee principles compared to the traditional demonstration plots. The new WB-financed PACSC project will continue to support the FFS established under PADZOC.

51. The project supported the creation of three research sites on shade-grown coffee at the ISABU centers in Kayanza and Gitega, where data were collected to evaluate coffee growing conditions under different shading systems and with different cash crops. Results showed that *Grevillea* (shade-tree) and Banana (cash crop) are the most popular species associated with coffee. These two species are found in large numbers and everywhere in the three research sites. Their popularity is explained by the fact that these species are the most profitable, multi-purpose and adapt well throughout the coffee landscape. In addition, according to information collected during the interview with coffee growers by ISABU, shade-grown coffee plants benefit from the microclimate created by shade trees as well as mulching and fertilization from falling leaves. Consequently, shade-grown coffee plants have an average but steady yearly yield. Furthermore, shade-grown coffee plants are strong, lush and produce good quality cherries (very ripe and heavy); pests such as the *Borer* in coffee tree trunks and termites cause less damage in shade-grown coffee plants. Products such as timber, firewood and stakes from these trees are important sources of income during the lean season. Table 3 below summarizes the main beneficiary gains from associating trees and cash crops with coffee plants.

Table 3. Main Beneficiary Gains Associated with Shade-Grown Coffee (shade trees and cash crops)

| Site | Gasanda (Bururi) | Mwakiro (Muyinga) | Musigati (Bubanza) |
|------------------------------|---|---|---|
| Type of association | | | |
| Association with shade trees | <ul style="list-style-type: none"> ▪ Firewood ▪ Timber ▪ Mulching ▪ Additional source of income | <ul style="list-style-type: none"> ▪ Timber and firewood ▪ Mulching ▪ Production of trellises ▪ Steady coffee yield every year ▪ Production of good quality cherries (very ripe and heavy) | <ul style="list-style-type: none"> ▪ Timber and firewood ▪ Mulching ▪ Soil moisture increase ▪ Production of trellises ▪ Additional source of income |
| Association with cash crops | <ul style="list-style-type: none"> ▪ Food security ▪ Additional source of income | <ul style="list-style-type: none"> ▪ Food security ▪ Additional source of income ▪ Protection and multiplication of in situ seeds against diseases | <ul style="list-style-type: none"> ▪ Food security ▪ Additional source of income ▪ Space saving |

52. Training modules and five guidelines on SLWM technologies and practices, as well as a manual on shade-grown coffee were produced, validated, and translated in Kirundi (the national language) to facilitate the transfer of knowledge to farmers. A total of 23,506 individuals (over a target of 30,000) were trained in SLWM, shade-grown coffee and biodiversity conservation practices. The preface of the shade-grown coffee manual is currently awaiting the signature of the Minister of Agriculture, showing good progress towards the institutionalization of shade-grown coffee.

53. With regards to support to the REDD+ readiness process, PADZOC funded the participation of the REDD+ Coordinator to a conference organized by the International Union for Conservation of Nature (IUCN). The Project supported strengthening the protection and management of the Bururi Forest Nature Reserve (RNFB), due to its globally recognized biodiversity and its proximity and importance to coffee growing areas in terms of hydrology and soil fertility. Established in 1951, the RNFB is classified as a protected area under active management, to ensure the maintenance of habitats and monitor the conditions of specific species (IUCN Category IV management). About 23,000

people, including an indigenous Batwa community, live near the Bururi Reserve; some rely on natural resources exploited in or near the reserve for their livelihoods. Given the local scarcity of land and the increased profitability of many crops (including coffee), the RNFB experiences agricultural encroachment.

54. PADZOC, through the Burundian Office for Environmental Protection (OBPE), took several actions to help protect the RNFB: (i) properly equip and train the eco-guards (in charge of patrolling the Reserve) to camp in the forest and work day and night to put an end to the illegal acts of degradation in the reserve and rehabilitate the dilapidated buildings of the OBPE in Bururi; (ii) train surrounding communities and local authorities on the importance and proper management of the Reserve; (iii) provide cash-for-work and other incentives to these communities in return for forest restoration and rehabilitation work; and (iv) support the establishment of the Reserve boundary;

55. As a result, the main infractions (i.e. sawmilling, recurrent bush fires, boundary encroachment) that threatened the Reserve completely stopped (eco-guards and community members jointly patrol the forest); 264 ha (out of the total 2,600 ha) of the Reserve that was previously being severely degraded by agricultural encroachment practices is now at an advanced stage of natural regeneration; the Protected Area Management Effectiveness Tracking Tool (PAMETT) score is 80¹⁴ (higher than the original target of 50¹⁵), indicating a noticeable improvement in biodiversity of the Reserve (see table 4 below on species frequency observation); establishment of the Reserve boundary (by setting 511 boundary markers); 15 environmental clubs in both primary and secondary schools and 19 local community associations around the RNFB have been established; and the development of a 10-year RNFB management Plan (2016 - 2026).

Table 4. Species Observation in RNFB from 2015-2018

| Species | Frequency of Observation 2015 | Frequency of Observation 2016 | Frequency of Observation 2017 | Frequency of Observation 2018 |
|----------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Diademe Monkey | 15 | 202 | 127 | 153 |
| Chimpanzee | 6 | 37 | 61 | 49 |
| Turaco | 2 | 21 | 24 | 16 |
| Hornbill | 2 | 15 | 21 | 8 |
| Green Monkey | 1 | 3 | 10 | 7 |
| Grimm's duiker | 1 | 5 | 3 | 0 |
| Squirrel | 1 | 3 | 3 | 1 |
| Hare | 0 | 0 | 1 | 0 |
| Jackal | 0 | 0 | 1 | 0 |
| Total | 28 | 286 | 251 | 234 |

(Source: Project Completion Report December 2018)

56. As mentioned above, in exchange for their restoration efforts in the Reserve, a few beneficiary associations received livestock from the Project (49 households received a bull each and 91 households received three goats each).

¹⁴ The PAMETT score underlying data can be found in the GEF tracking tools for Biodiversity filed under WBdocs at: <http://wbdocs.worldbank.org/wbdocs/drl/objectId/090224b086bf0c83>

¹⁵ There is a system generated error in the Results Framework in Annex 1 for this indicator, where the original target should read 50 and not 12.



In addition to having manure, bull calf fattened after four months brings an additional income of about 400,000 and 500,000 Burundi Francs (BIF) (equivalent to about US\$222-278).

57. One of the biggest successes of the Project, was the integration of the indigenous Batwa community into the planning and management of the RNFB in 2017. The 28 Batwa households, who were previously squatting in the center of the Bururi Commune and dependent of the natural resources of the Reserve, were organized into community groups and received financial support from the Project in the amount of 54,288,000 BIF (equivalent to US\$30,000) in exchange for helping to protect the Reserve. The OBPE encouraged the Batwa to place a third of the cash as savings. The Batwa then used these savings to purchase three ha of land on which to establish themselves. The additional financing for the WB-financed PRODEMA project has furthermore helped to build houses for the Batwa on their newly purchased land. The president of the Batwa community groups expressed his thanks to the Project saying that it was like receiving "the promised land". The integration of the Batwa in the management of the Reserve has been successful and the Reserve is now well protected. A tourist trail accessing a waterfall in the Reserve has been created by the Batwa and is now open to visitors. The Project made a documentary on the Batwa which can be viewed using the following link: <https://www.youtube.com/watch?v=UjFGebWEUmU>

58. The Project further supported the same Batwa community to sustainably develop and manage their new land. The sub-project involved 28 households (53 Batwa community members of working age) in the development of their property through the installation of anti-erosion devices and food production through sweet potato crops and Amaranth, primarily aimed at improving the livelihoods of the community. With the participation in the various works of sustainable management of the lands on their property, the Batwa should be able to benefit from the generated incomes for the daily food needs and with the daily savings, they will be able to constitute a fund which will allow them to buy small livestock goats.

59. In addition, several promising lines of eco and agro-tourism in and around the Bururi Reserve have been established under PADZOC: (i) chimpanzee tracking and habituation by trained trackers of the OBPE (chimpanzee observation rate is at 79%); (ii) rehabilitated thermal waters of Muyange (managed by a cooperative); (iii) tourist foot trail leading to the *Siguvyaye* waterfalls in the Reserve (managed by the Batwa); and (iv) house of coffee, for coffee tasting experience (managed by a CWS cooperative).

60. It should be highlighted that the eco-guards, trackers, and the cooperative managing the thermal waters, which were previously financed by the Project, are now financed by the Government, thereby ensuring the sustainability of these Project activities.

- **PDO-Level Indicator 2: Environmentally friendly effluent control systems implemented in selected CWS as a result of the project (achieved, 100%)**

61. The discussions under this indicator will include both the pollution and certification aspects of the CWS.

62. The Project supported the rehabilitation of selected CWS to help address point source pollution to help protect the health of waterways as well as better access to higher value markets that require improved standards of production. This was done through direct investments in technology improvements at selected CWS and support in strengthening policy and regulatory frameworks.

63. The Project supported agricultural cooperatives or private stations by funding relevant activities to improve their treatment and pulping systems for quality coffee. Six CWS were rehabilitated (two in Bubanza, two in Bururi, one in



Muyinga, and one in Ngozi). As a result, the coffee cherry pulp is now separated from the water, and not washed away with the water as was the case previously. This has significantly reduced organic pollution as well as stopped the odors that arose from rapid fermentation of the pulp in the water.

64. A water and effluent quality analysis work in the six CWS was carried out by a consultant in May 2017 which reported on eight measured parameters [pH, temperature, 5-day Biological Oxygen Demand (BOD5)¹⁶, Chemical Oxygen Demand (COD)¹⁷, total dissolved solids, oils and fats, total Nitrogen, total Phosphorus]. When compared to the national standards, four out of the eight water quality parameters were well within the national standards (temperature, total nitrogen, total phosphorus, oils and fats) whereas the remaining four had yet to reach the required standards. A second analysis made in April 2018 confirmed the initial results of 2017, though pH results showed clear improvements, the three remaining parameters did not change much overall (see detailed results in Annex 6). Upon further discussion with the infrastructure specialist of the project implementation unit, two possible reasons were given as to why the water quality had not yet reached the standard norms: (i) the rehabilitated CWS might be operating at over capacity (where too much coffee is being processed at one time); and (ii) the cooperatives are utilizing too much water in the washing that the water simply flows over the pre-treatment tanks, without having time to seep through the tanks and removing the contaminants. This will be further investigated under the PACSC project, that seeks to rehabilitate 80 CWS across the nation. The following video link shows the rehabilitation of the CWS: <https://www.youtube.com/watch?v=HJqer5fLgys>

65. The project supported the definition of standards and regulations to promote the management and treatment of environmentally friendly water at CWS that were discussed and agreed during a national workshop. This exercise was carried out by a team of two consultants (a lawyer who focused on reviewing the legislation on treatment standards and a technical expert who focused on treating CWS effluents) in 2016 and the final report was presented at a national validation workshop in September 2016. The report was validated and submitted to the national regulations authority of the coffee value chain (*Autorité de Régulation de la Filière Café - ARFIC*) for further processing and hopefully future adoption.

66. The Project strengthened the capacity of the Ministry of Environment, Agriculture, Livestock, ARFIC, Intercafé and NGOs working in the coffee sector to monitor the implementation of sustainable technologies and the enforcement of regulations and policies. The Project also facilitated the participation of these institutions in meetings with the East African Community on the harmonization of environmental standards and standards for CWS. The actual trainings were organized during the first quarter of 2018.

67. A workshop was organized in 2017 to inform and disseminate the standards and regulations in the management of effluents from the CWS. The beneficiaries of this workshop were the representatives of the CWS from the Provinces of Bubanza (10 representatives), Bururi (5 representatives), Kayanza (40 representatives) and Muyinga (15 representatives) representing a total of 70 CWS. As a result, there has been a 20% increase in the number of Fairtrade certification indicators met by farmers each year.

68. A marketing study and an action plan were done in 2016 with the support of Intercafé to identify the target markets for coffee in the region, as well as potentially appropriate certification systems (particularly organic, coffee

¹⁶ 5-day Biological oxygen demand (BOD5) measures the quantity of biodegradable organic matter contained in water. This parameter is expressed as the milligrams of oxygen needed to break down the organic matter contained in a liter of water over five days.

¹⁷ Chemical oxygen demand (COD) is a measure of the capacity of water to consume oxygen during the decomposition of organic matter and the oxidation of inorganic chemicals such as ammonia and nitrite.



grown under shade, fair trade, superior quality, etc.). As a result, the project promoted the development of relations and negotiations between cooperatives, Intercafé with international buyers to access high value markets for the exceptional specialty and quality of Burundian coffee.

69. As result of the marketing study, the Project funded the initial Fairtrade certification costs for two of the newly rehabilitated CWS (Bururi and Bubanza). The two cooperatives benefited from a grant of two subprojects to meet certification needs. The subsidy benefited 1,411 households, of whom 342 were women. Both cooperatives obtained their Fairtrade certificates in 2016. After the Project's mid-term review in 2016, two other cooperatives (in Musigati and Burunga) were added to the list and are currently in the process of obtaining their certificates. The certification process for the two cooperatives are being delayed because the auditors are not travelling to Burundi for security reasons, so this will be completed under the new World Bank-financed PACSC Project. The benefits of certification allow the subscriber to comply with a certain number of actions or code of conduct. For the Fairtrade certificate, these are: (i) transparency in management and good organization, respect for human rights (e.g. right of children), (ii) respect of environmental conditions (through proper treatment of wastewater before reaching the main waterways), (iii) the resulting benefits are shared equitably among members, which can encourage coffee growers to continue their work, (iv) Financial benefits: Although the market for certified coffees is not always guaranteed, it opens up more opportunities. It is an additional asset to access the markets.

70. In 2016, a conference and exhibition for the promotion and marketing of specialty coffee through Specialty Coffee Association of Japan (SCAJ) took place in Japan from September 28 to October 2, 2016 and saw the participation of two people from Intercafé. Another promotion and marketing mission of the Burundian coffee was carried out and nine Burundians including two people of Intercafé participated at the 27th conference exhibition of the Specialty Coffee Association of Atlanta, which took place in the USA from 13 to 17 April 2016, where they had a chance to meet with different partners, including the Coffee Quality Institute and the ACE Coffee Company. Building relations with international buyers is crucial, as having these buyers come into direct contact with the owners of the washing stations as well as the producers, these buyers get to learn how the coffee is produced. These interactions make it possible to know the difficulties incurred by one and the other but also to exchange on the quality that is required. This helps in establishing good business relations in the long term. The main stakeholders in the Burundi coffee sector (InterCafé, ARFIC, and the National confederation of coffee grower association (*Confédérations Nationales des Associations de Caféculteurs - CNAC*) have organized each year (with support from PADZOC) a program of selection of the best coffee of Burundi called Cup of Excellence to promote the Burundian coffee. The activity of the Cup of Excellence took place in August 2014, 2015 and 2016. This competition has allowed buyers to send their tasters to select the best coffees by being part of the jury. This is an opportunity for them to make direct contact with the coffee growers and establish commercial relations.

▪ **PDO-Level Indicator 3: Direct project beneficiaries (over achieved, 119.8%)**

71. The direct beneficiaries of the Project numbered 17,971 (over the target of 15,000) and benefitted from the total of 408 sub-projects implemented by PADZOC (SLWM, shade-grown coffee, restoration activities in the Bururi Reserve, rehabilitation of CWS, certification of CWS, livelihood alternatives for communities surrounding the Bururi Reserve, and agro-tourism).



C. JUSTIFICATION OF OVERALL EFFICACY RATING

Rating: Substantial

72. At Project closing, the PDO-level indicators, namely: (i) Land area where sustainable landscape management practices were adopted as a result of project, (ii) Number of environmentally friendly effluent control systems implemented in selected CWS as a result of the Project and (iii) Number of direct project beneficiaries; attained 103.5%, 100.0% and 119.8%, of their original target respectively, as shown in the Results Framework in Annex 1. However, even though the effluent control systems were installed in the six targeted CWS, their effectiveness still needs to be improved under PACSC in order to comply with the national standards. Though the project had to contend with slow implementation during the political unrest in 2015, severe droughts in 2016 (which disrupted plantation activities), and a reduction of the project implementation unit staff, which were previously financed under the PRODEMA, overall achievement of development outcome is *Substantial* based on the Project Completion Report and the field observations and interviews with the project stakeholders during the Implementation Completion Mission of December 2018.

73. The Project was transformational in introducing shaded-grown coffee to Burundi, where previously coffee monoculture was predominant and enforced since the Belgian colonial times. This adoption of a landscape approach through this and other appropriate sustainable land and water management practices, enabled land users to maximize the economic and social benefits from the land while maintaining or enhancing the ecological support functions of the land resources. The shaded-coffee manual was elaborated by ISABU and the Preface will be signed by the Minister of Agriculture himself. The Project beneficiary farmers have eagerly adopted the practice given that coffee grown under a poly-culture provides them with a more continuous and diversified source of revenue. Furthermore, according to the impact evaluation conducted in 2018, project activities had a spill-over effect in other non-targeted project areas, where non-beneficiary farmers were starting to adopt shade-grown coffee. The work done in Bururi has shown how involving marginalized communities like the Batwa in forest restoration and protection can be beneficial to both the communities and the forest. CWS certification and promotion abroad under PADZOC are important if farmers are to attract foreign businesses and higher prices for coffee.

D. EFFICIENCY

Assessment of Efficiency and Rating

Rating: Substantial

74. The assessment below is organized in two parts: i) economic and financial analysis, and ii) efficiency of design and implementation.

75. Efficiency is rated *Substantial* as it is what would be expected in the project's sector. The project delivery was efficient, with the sub-component of Component 1 alone having generated results and related benefits that are likely to last for years to come. An impact evaluation (IE) study supported in PADZOC provided a series of scientific evidence that the project contributed to the expansion of shade-grown coffee production in Burundi. Furthermore, this impact evaluation is first for Burundi in the environmental sector and will help pave the way for future IEs.

a. Economic and Financial Analysis

76. As detailed in Annex 4, among others, the study statistically confirmed that: (i) the project contributed to an increase in the shade-grown coffee adoption rate by 26% among the target beneficiaries, (ii) the target beneficiaries



on average increased shade-grown coffee trees by 37.7 number of trees per farm between 2014 and 2018, (iii) on average, a coffee tree with shade produced 101 grams more coffee than a tree without shade¹⁸, and (iv) the project generated spillover effects in terms of adoption of SLWM practices in hills surrounding the project area. All of this was achieved as a direct result of activities of sub-component A.2 related to promotion of shade-grown coffee production, under which US\$1.65 million was disbursed according to the PADZOC final report. The cost represented 40% of the total project cost of US\$4.2 million.

77. Together, the sub-component results translate into contribution to a net gain in coffee revenues in present value over a 20-year horizon of close to US\$2 million at the discount rate of 20% and US\$5 million at 5%. In addition to the net gain in coffee revenues, the project generated other economic, social, and environmental benefits, even though accurate estimation of their magnitude was not possible. For example, the IE study statistically confirmed that an indicator of food security improved among the direct project beneficiaries during the project, while no such improvement was found in the surrounding communities. Environmental benefits of the project include the value of ecosystem goods and services generated in association with increased shade-grown coffee production. Although directly relevant data were unavailable, the use of parameters from the economic analysis of the PAD for BLRRP, indicates that the results of Component A.2 may amount to another US\$1-2 million in net present value (depending on discount rates) due to increased vegetative cover, reduced soil erosion, and increased biodiversity (see Annex 4). Similar benefits likely were generated in activities associated with Bururi Forest Nature Reserve, but data were unavailable to include in the numerical analysis.

78. A GEF incremental cost analysis was conducted at appraisal and a post-incremental cost analysis was conducted at completion (see details in Annex 4).

79. The resulting global environmental benefits include sustainable management of natural resources (land, water, and vegetation) on priority landscapes; protection of biodiversity on a critical protected area; protection against erosion and desertification in priority areas; and carbon sequestration. These benefits also contribute to increased resilience in the country. Carbon benefits under shade-grown coffee are estimated at 4,344.1 t/CO₂/yr and as a result of protecting the Bururi Forest Natural Reserve, 7,927t/CO₂/yr are approximately being prevented from being emitted. See more details in Annex 4.

b. Efficiency of design and implementation

80. Given that the PCU was experienced in implementing World Bank projects, it gave implementation of PADZOC an edge especially during the political crisis in 2015 and the severe drought in 2016. The PCU staff had already been trained and well-acquainted with World Bank operational, fiduciary and safeguards procedures at the time of Project preparation, making it cost-effective. However, the implementation of sub-projects under components 1 and 2 were delayed and two staff of the PCU resigned, but this was mitigated through the project restructuring and recruitment of staff. See more details in Section III.B below.

¹⁸ This a good result, given that a great number of shade-grown coffee around the world are less productive than sun-grown coffee. However, it must be highlighted that sun-grown coffee in Burundi likely lacks significant inputs such as adequate pest control and fertilizer, given that most small coffee farmers in Burundi cannot afford inputs.



E. JUSTIFICATION OF OVERALL OUTCOME RATING

Rating: Satisfactory

81. The Satisfactory rating was reached given the high relevance of PDO, and the Substantial ratings of the both Efficacy and Efficiency.

82. The Project was transformational, in that it successfully managed to shift perceptions on shade-grown coffee, by changing deep-rooted behavioral traditions that date back to the colonial era of unsustainable sun-grown coffee mono-cropping practices. This has required significant awareness, training and capacity building of various stakeholders and decision-makers and can be seen as a disruptive technology in the Burundian context. Being able to pilot shade-grown polyculture coffee plantations and include it in the national agenda has been a grand success, as these practices were previously forbidden by the government. With other results, guidelines and systematization of lessons, the project has had a positive impact on the expansion of shade-grown coffee, as shown in the impact evaluation study where a significant spill-over effect was detected in the control areas. During the implementation completion review mission, the Ministry of Agriculture reiterated the relevance of project objectives. Shade-grown coffee will significantly contribute in helping to adapt to climate change by increasing carbon sequestration. In addition, the development of a set of standards and regulations to improve coffee processing, manual and technical guides on shade-grown coffee, as well as the certification of certain CWS, have all been achieved, which will lead to easier adoption of SLWM practices, reduced levels of downstream pollution, and improved livelihoods of coffee farmers through high quality coffee production. Furthermore, the restoration of the Bururi Natural Forest Reserve and the support given to the indigenous Batwa community have been exemplary, both in terms of better protecting the surrounding coffee landscape by improving the hydrology and soil fertility, whilst improving the livelihoods of vulnerable indigenous communities. The project demonstrated a holistic approach that integrates social, economic, physical and biological assets from agricultural land to forest land to protected areas.

1.

F. OTHER OUTCOMES AND IMPACTS

Gender

83. The Project has benefitted some 17,971 people, of which 40% women. Though the Project has exceeded its target in terms of number of beneficiaries, it has not reached the target of 50% of women beneficiaries. Therefore, projects like the new World Bank-financed Coffee Competitiveness Project and the new Landscape Restoration and Resilience Project will have to double their efforts in terms of providing more gender-sensitive awareness trainings and capacity-building. The Implementation Completion Mission conducted in December 2018 had the chance to interview female members of the benefitting communities as well as female members of the benefiting cooperatives. All of the interviewed cooperatives included female executive members, and in the case of Bururi, one of the community groups protecting the Reserve was led by a female. When asked about the impact that the Project had on their livelihoods they all responded saying that the activities has empowered them in such a way that they now had more say in terms decision-making in the household due to their improved financial status. A female executive member from the cooperative operating the CWS in the Musungi Commune in Bubanza Province named Mrs. Seraphine Sabushimike, Executive Member, reported that she was now more economically independent with 210 coffee plants of her own.

Institutional Strengthening

84. The Project through its numerous capacity-building and training sessions with the Ministry of Agriculture, CNAC, InterCafé, ARFIC, ISABU and OBPE have significantly been able to raise awareness on the importance of sustainable



coffee practices among these institutions. Encouraging results in the demonstration plots have also helped to change mindsets on the benefits of shade-grown coffee versus sun-grown coffee. Furthermore, the fact that the preface of manual on shade-grown coffee will soon be signed by the Minister of Agriculture, means the manual will be institutionalized. In Bururi, as a result of the Project rehabilitating the offices of the OBPE and properly training and equipping the staff, especially the eco-guards and the surrounding community associations have led to significant reduction in major infractions in the Forest Reserve, where both community members and eco-guards work together to regularly patrol the reserve. The OBPE Director, Mr. Leonidas Nzigiimpal, in fact received a National Geographic Award in 2018, for his efforts in leading Project activities (see documentary on <https://www.nationalgeographic.org/awards/buffett/>). As a result, the trained trackers, eco-guards and the cooperative managing the thermal waters, which were previously paid under the Project are now being paid by the Government, thereby guaranteeing the sustainability of these activities.

Poverty Reduction and Shared Prosperity

85. Though it is too early to report significant poverty reductions and shared prosperity, results from the demonstration sites and the rehabilitated CWS are encouraging. According to the impact study conducted in 2018, which compared treated and non-treated areas before (2014) and after (2018) the Project showed that more than half of coffee farmers had adopted sustainable practices in the treated areas and as a result, coffee productivity had increased by 23% in these areas. In terms of food security, the impact study reports a significant increase in food security from an index value of 16.1 in 2014 in treated areas to a decrease to 11.8 in 2018. Results also show that treated areas had increased their expenditure on non-food items (such clothes, transport, house, electricity) compared to the controlled areas.

Other Unintended Outcomes and Impacts

86. The small GEF project which had originally set out to merely introduce sustainable coffee practices in Burundi had a true transformational effect in terms of changing mindsets of the Government and local authorities to the advantages of a sustainable poly-culture shade-grown coffee system as opposed to an unsustainable mono-cultured sun-grown coffee one. This is well documented in the video produced by the Project team: <https://www.youtube.com/watch?v=cbCg6hN55CA>

87. In Bururi, thanks to Project support, the Batwa community were able to acquire three ha of land where they were further supported by the World Bank-financed PRODEMA additional financing in constructing 23 new houses. This indigenous community as well as other restoration activities carried out to protect the Bururi Natural Reserve will be further supported and scaled-up to other reserves in country under the new World Bank-financed Landscape and Restoration and Resilience Project.

88. Rehabilitation and certification of CWS as well as continued promotion and marketing of high value coffee will be upscaled in the new World-Bank financed Coffee Competitiveness Project. This new project will however not intervene in Bubanza and Kayanza provinces.



III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

89. *Realistic objectives.* The PDO was clear and realistic, emphasizing the piloting nature of the activities, aiming to introduce sustainable land and management practices in coffee landscapes. The PDO was congruent with the financing scale of the Project, which was a small grant.

90. *Simple design.* The activities were structured in such a way as to tackle all aspects of sustainable coffee production in a well-rounded way, i.e. the sustainable production practices, the high value promotion and certification of coffee to recognize these sustainable practices in order to improve the livelihoods of coffee farmers, and awareness raising and participation of communities, as well as local authorities and relevant institutions on the importance of protecting the natural-resource base not only to continue sustaining coffee production but to develop alternative sources of livelihoods like eco and agro-tourism.

91. *Well-designed Results Framework.* The indicators were in general well aligned with operational objectives, though the intermediate indicator on “Number of tourists visiting new agri-tourism and eco-tourism initiatives as a result of the project” was not directly relevant to the PDO objective or the output of the activities under component 3. The latter indicator was later removed during the restructuring of the project.

92. *Appropriate selection of stakeholders to engage or beneficiary groups to target.* The Project appropriately selected all the relevant stakeholders engaged in the coffee sector as well as in the neighboring parks and reserves to work with (i.e. CNAC, ARFIC, Ministry of Agriculture, ISABU, coffee farmers, communities surrounding the targeted landscapes, including the Batwa indigenous community).

93. *Adequacy of risk and mitigation measures identification.* Risks and mitigation measures were adequately identified, especially as regards to the fiduciary and institutional weaknesses. These risks were mitigated by using an existing well-performing PCU to manage the project.

94. *Readiness for implementation.* As mentioned above, given that the PCU was already in place and implementing the PRODEMA project at the time, the staff had already been trained and well-acquainted with operational, fiduciary and safeguards World Bank procedures at the time of Project preparation. An experienced PCU would be ready to hit the ground running as soon the Project was declared effective as well as be more cost-effective. However, it would have been more efficient to conduct the baseline for the impact evaluation prior to effectiveness, given the delays experienced afterwards. The PCU was independent from the Ministry of Agriculture, which helped keep activities going during the 2015 crisis. The time between approval (April 30, 2013), signing (May 23, 2013), and effectiveness (September 4, 2013) of the grant was equally on-track.

B. KEY FACTORS DURING IMPLEMENTATION

95. *Factors subject the government and/or implementing entities control.* As mentioned above, the fact that the PCU was already in place and already implementing a WB-financed project, made Project implementation go much smoother overall with clear client commitment and leadership. The coordination and clear roles and responsibilities of different stakeholders avoided many administrative barriers or structures that slow implementation. However, the implementation of sub-projects under components 1 and 2 were significantly



delayed at start-up given the time taken to establish the baseline for the impact evaluation and the fact that the SLWM specialist had not yet been recruited by the project (a part-time SLWM consultant was recruited in 2016). Other implementation issues included the resigning of the financial management (FM) specialist in 2015 and the monitoring and evaluation (M&E) specialist in 2016. The new FM specialist was recruited in 2016 (leaving a gap of about eight months) and the new M&E specialist was recruited in 2017 (leaving a gap of about one year). Though the PCU was able to pull through the FM gap by assigning temporal additional responsibilities to the project accountants, the gap in M&E was felt by the project, where during this time, data were not collected and aggregated on time, however, once the new M&E expert was hired, M&E was back on-track.

96. *Factors subject to World Bank control.* The PCU staff were mostly being paid under the PRODEMA project, when the latter ended in 2015, there was a one-year gap between PRODEMA and the start of the Additional Financing under PRODEMA in 2016. During this time, the WB agreed to have the Project pay for the salaries of key staff in the PCU so as not to disrupt project activities. This shows the good collaboration between the environment and agriculture global practices. Also, during the same time, a political crisis erupted in the country followed by a long drought period which caused some delays in disbursement and project implementation. To try and mitigate this situation, the WB agreed during that time to increase monthly advances from US\$240,000 to US\$700,000 to facilitate implementation and take full advantage of the rainy seasons to make up for some of the delays. Given all the delays incurred by the Project, the WB task team, informed by the recommendations from the mid-term review, recommended to restructure and extend the Project by 18 months to allow the Project to complete its activities, and exceed its targets for some of the indicators. There was also good collaboration with the social and urban global practice, where the Task Team brought in a social development expert who recommended the revision of the indigenous plan in order to take into account the indigenous Batwa community. The Task Team also liaised with the PACSC project and the Terrafrica Leveraging Fund, where both co-financed some of the PADZOC activities.

97. *Factors outside the control of government and or implementing entities.* As mentioned above, the factors outside of the control of the Project, was the political crisis that happened in 2015 which somewhat hindered project activities and the prolonged drought in 2016 which disrupted plantation activities.

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

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

M&E Design

98. The Project's theory of change was clear and adequate indicators were identified to monitor the progress towards the PDO. The monitoring plan was practical as it utilized the same as that of the World-Bank financed PRODEMA project that the Project Coordination Unit (PCU) was already implementing. Therefore, the management information system (MIS) was based on an already functional and working system. The MIS incorporated new information and data related to biodiversity, sustainable land and water management, and other topics relevant for to the Project, and supplemental training was extended to all relevant staff to cover these new topics. As mentioned above, a need to further refine some intermediate indicators was identified during the MTR and changes to these indicators were made in the 2017 restructuring. As part of the restructuring, an activity on establishing FFS was included. The FFS are now accounted under the intermediate indicator on "Research demonstration sites for shade-grown coffee", however there is a difference between demonstration sites and FFS, where FFS follows a more participatory approach, and should therefore have been included as a separate indicator in the restructuring.



M&E Implementation

99. The data collection system that was applied for the Project was the same as that of the PRODEMA project and is based on the recording of technical and financial data (results) related to the implementation of the sub-projects by community organizations in the form of a registry. These results were then collected by the Proximity Operators at the communal level and sent to the province M&E specialists. The compilation, verification and consistency testing of these data were done by the province and national M&E specialist.

100. The M&E activities included: (i) the establishment of a data and information collection and processing system to inform and monitor the performance indicators, (ii) regular field visits by the province and national M&E specialists in following-up on the sub-projects to ensure data accuracy and conformity; and (iv) preparation of periodic reports (quarterly, semi-annually and annually) on the progress of the Project activities. The various reports were prepared on time and included status of the project activities by component and sub-component, the main problems encountered and proposals for solutions.

101. As mentioned above, there was a gap in monitoring of activities between 2016 and 2017, when the national M&E specialist resigned and a new one recruited. During this gap year, data were not collected and aggregated on time until the new M&E expert was hired, and M&E was then back on-track.

102. The Project conducted an Impact Assessment (IA) measuring the cause and effect of the main project results by comparing the results between treated and controlled areas using the WB Development Impact Evaluation (DIME) methodology before the intervention of the project (2014) and at the end of the Project (2018) on the same sample of 2,230 households. The IA was conducted by an international consultant and a local consultancy firm called CERDA, was responsible in carrying out the surveys. The IA focused on the following elements: (i) the degree of adoption of shade-grown coffee; (ii) the number of coffee trees under shade; (iii) the effects of the Project on coffee production; (iv) the effects of the Project on food security; and (v) the effects of the Project on household non-food expenditures.

103. The Project M&E system and the IA were used to build a learning platform to guide and influence the adaptive management of the project, providing opportunities for replication within outside of the Project.

M&E Utilization

104. The project M&E system was used to track progress towards project objectives, assess performance, and inform project management. M&E also informed the restructuring of the project in 2017, where it helped to highlight the need to reallocate funds in order to increase the number of demonstration sites and establishment of FFS. It also helped to track the number of infractions in the Bururi Forest Reserve as well as help with the habituation of chimpanzees. It also provided reliable information to the Burundi Eco Journal, which published an article about the Project achievements in its newsletter dated October 5, 2018. The IA was used to conduct the efficiency analysis of this ICR.

Justification of Overall Rating of Quality of M&E

105. The overall rating for the quality of M&E system is *Substantial* as it was generally sufficient to assess the achievement of the objectives and test the links in the results chain. Despite the gap year in monitoring, M&E picked up again when the new specialist was hired.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

106. **Safeguard compliance** was Satisfactory. The project was classified as environmental category B partial assessment and triggered the following safeguards policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Pest Management (OP 4.09), Indigenous People (OP/BP



4.10), and Involuntary Resettlement (OP/BP 4.12). An overall Environmental and Social Framework (ESMF) was prepared, as well as a Resettlement Plan and an Integrated Pest Management Plan, which served to guide the environmental and social management during project design and implementation. Environmental screening was carried out for each sub-project and a plan to support the indigenous Batwa community was elaborated. Safeguard missions were conducted by a WB environmental consultant to support implementation during the lifetime of the Project and mission findings were recorded in the Aide Memoires. The Project also benefitted from visits from the World Bank Social development specialist, who was instrumental in recommending a review of the indigenous people plan to take into account the Batwa community near the Bururi Reserve.

107. **Financial Management (FM)** was Satisfactory. A FM Specialist based in the Bank office in Bujumbura carried out regular implementation support missions. The quarterly Interim Unaudited Financial Reports were submitted to the Bank for review on time and there were no inconsistencies for follow-up. The latest project audit for the year ending in December 31, 2018 resulted in an unmodified (clean) opinion on the project financial statements. The PCU is to be commended for maintaining satisfactory FM arrangements even during political and social crisis in 2015.

108. **Procurement** was Satisfactory. Procurement processes were implemented based on the applicable guidelines at the time of project appraisal¹⁹ and in accordance with the procurement plan, which was duly updated, reviewed by the Bank and disclosed regularly. The last post review was conducted in May 2017 and found that procurement capacity was adequate and in line with the work load. Procurement processes and asset verification under the small grants program were verified by external auditors acceptable to the Bank, and no issues were raised. Maintaining a satisfactory rating throughout project implementation should be noted as a significant achievement.

C. BANK PERFORMANCE

Quality at Entry

109. This Project built on the PRODEMA project in Burundi in an area that remains relevant and strategic for the country's efforts to improve agricultural productivity. The bottom-up sub-project approach provided direct investment to farmers and, coupled with facilitation and training, built capacity and ownership for SLWM. The balance of component emphasis was placed on knowledge management and communication. The PCU had for a long time elaborated a communication plan. The design of the results framework was adequate and further refined during restructuring and M&E arrangements were put in place to monitor this. Implementation arrangements were well thought through and risks identified and adequately mitigated.

Quality of Supervision

110. The WB supervised project implementation through implementation support missions (twice per year) to monitor progress and identify key issues including those that needed management attention. During the 2015 political crisis in Burundi, a six-month moratorium on all Bank missions was issued, and the Bank resorted to video conferencing in conducting the implementation support mission during that time. Fiduciary aspects were regularly supervised. Performance reports were candid and of high quality – aide memoires were detailed and recorded critical milestones, key decisions and next steps as well as information on sub-project visits; ISRs were also candid and filed on time. During the crisis, the Bank was successful in helping the PCU raise the initial advance thresholds to facilitate disbursement and recommended the Project extension for 18-months so that the Project could complete activities and make up for the delays in implementation. The Task

¹⁹ "Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" and "Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January 2011, Revised July 2014), as well as the "Guidance Note for Design and Management of Procurement Responsibilities in Community-Driven Development Projects" (March 15, 2012).



also helped promote the RNFB forest warden, a champion in working with communities on the protection and consei of the RNFB, by nominating him for the National Geographic Buffet award, which he won in 2018. The Task Tea encouraged the PCU to elaborate and implement a communication strategy, which helped the project gain natio international recognition. The Bank also made adequate transition arrangements after project closure for PACSC and to take over.

Justification of Overall Rating of Bank Performance

111. Based on the Quality at Entry and Supervision, the overall Bank performance is rated *Satisfactory* reflecting minor shortcomings in quality of supervision as described above.

D. RISK TO DEVELOPMENT OUTCOME

112. The Government remains committed to the sustainability of Project interventions as evidenced by the scaling up of Project activities through the WB projects on Restoration and Resilience of Landscapes and Coffee Competitiveness. While Government strategies are in place to support SLWM efforts, there is a need to further leverage additional resources. Beneficiary contribution-built ownership, which is viewed as a sign of sustainability of adopted interventions. The learning events and material developed under the Project should continue to be an active source of information on SLWM and shade-grown coffee. Many of the beneficiaries interviewed during the ICR mission communicated the added benefit of Project interventions and are convinced in the importance of continuing activities even after Project closure.

113. Despite improved beneficiary ownership and sustainability of Project activities, there remains a few risks to development outcomes:

- *Insecure land tenure.* Without secure rights to land, beneficiaries may not be fully invested in ensuring the sustainability of rehabilitated lands. The new BLLRP project will help address this aspect through land certification activities.
- *Climate change and extreme weather events have the potential to undermine development outcomes.* As mentioned earlier, building climate resilience is a long-term process that requires a sustained, multi-faceted approach taking into account the complexity of resilience. Uncertainty about actual climate change patterns (including the frequency and intensity of extreme events, as well as their socio-economic impact) poses significant risks to development outcomes even in the face of improved resilience as a result of project interventions. The sub-projects under PADZOC were specifically designed to take into account and respond to climate change risks and vulnerabilities.
- *Political and social unrest* also undermines development outcomes especially in this case, on obtaining certification for the CWS and for foreign companies to invest in high quality coffee in the country. It also undermines agro and eco-tourism. Having an experienced PCU in the case of PADZOC, has helped maintain project activities through the crisis of 2015.



V. LESSONS AND RECOMMENDATIONS

Lessons Learned

114. **Introducing shade-grown coffee in Burundi was significant and transformational.** The practice, since the Belgian colonial times had been to force smallholder farmers to grow coffee under a mono-culture as sun-grown coffee. Over time, this led to lower coffee productivity and a decline in soil fertility, which pushed Burundi to try and find alternative solutions that would help protect soil fertility and at the same time, increase coffee productivity and improve livelihoods of smallholder farmers. An exchange visit to see successful shade-grown coffee practices in Colombia, instigated the Ministry of Agriculture to request for the Project. Demonstration sites and FFS set-up by ISABU, under the Project, were well accepted and replicated beyond the targeted areas, as smallholders saw the value in applying sustainable land management practices which provides additional income options for the farms. As these changes go against the mainstream of deeply rooted views and practices, they will require sustained promotion efforts at national scale.

115. **Integration of the indigenous landless Batwa community in the protection of the Bururi Natural Reserve is a model to be followed.** Through two sub-projects, the Project engaged the Batwa in forest rehabilitation *cash-for-work* activities, where they were encouraged to place part of that cash in a savings account, hence enabling them to acquire their own land on which to settle and invest. This successful integration of communities in the management and protection of the Forest Reserve has yielded sustainable results and will be replicated in other protected areas under the new Landscape Restoration and Resilience Project.

116. **The use of a WB experienced PCU helped the Project reduce related risks, generate synergies and, most importantly, pull through the 2015 political crisis.** The existing implementation structures set up by the PRODEMA Project for the selection, approval and monitoring of sub-projects under the Project helped to speed up disbursements and activities on the ground to make up for the delay incurred in carrying out the baseline study as well as the delays caused by the political unrest and pro-longed drought.

Recommendations

117. **Institutionalizing and disseminating shade-grown coffee manual.** Now that a manual on shade-grown coffee has been elaborated and validated, it will need to be disseminated across the country. Once the Minister of Agriculture signs the preface of the manual, it will be institutionalized and used by extensionists across the country. Furthermore, the WB-financed PACSC project has included the manual on shade-grown coffee as part of its overall more comprehensive manual and will be utilizing it when implementing activities across the country.

118. **Conducting further agronomic and socio-economic research on shade-grown coffee.** There is a need to continue collecting data and information on shade-grown coffee in Burundi. ISABU will continue working on its demonstration plots at its research station in Kayanza. Recently, Food for the Hungry (an international non-governmental organization) has established a few more demonstrations plots in Kayanza on shade-grown coffee, following PADZOC. PACSC will be establishing more plots and also help to maintain the current FFS established under PADZOC, which should yield more data over time for ISABU to continue analyzing and researching upon. It would be especially important to collect more data on the productivity of shade-grown coffee versus sun-grown coffee over time and the economic and food security impact this has on smallholder farmers.



119. **Improving the water quality of the effluent discharge from coffee washing stations.** The effluents from the newly rehabilitated CWS under PADZOC, were unfortunately not able to reach the national water quality standards. It is therefore crucial that this be further investigated and followed up on under the PACSC project, as the new project plans to rehabilitate 80 CWS across the country.

120. **Conducting gender gap analysis and elaborating a gender action plan to design more gender targeted activities as well as to better capture information.** The gender dimension under the Project was gender informed but could have further benefitted from a gender gap analysis and plan. Field visits and anecdotal stories have indicated that PADZOC has had a role in helping to empower women both economically and socially. This will need to be taken into account in the new scale up projects (PACSC and BLLRP). Both projects are already tracking gender as part of their monitoring and evaluation.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: To pilot sustainable land and water management practices in the coffee landscape of Burundi

| 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 | 4500.00 | | 4656.08 |
| | | 21-Aug-2013 | 21-Aug-2013 | | 30-Oct-2018 |

Comments (achievements against targets):

- 103.5% of target achieved. Land area under sustainable land management practices: 2501.13 ha
- Land area shade-grown coffee cultivation: 1878.95 ha. Land area under shade-grown coffee at the ISABU research station and nearby farms in Kayanza: 12 ha. Land area restored and protected in the Bururi Natural Reserve: 264 ha . (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| Environmentally friendly effluent control systems implemented in selected | Number | 0.00 | 6.00 | | 6.00 |
| | | 21-Aug-2013 | 21-Aug-2013 | | 30-Oct-2018 |



CWS as a result of the project

Comments (achievements against targets):

- 100% of target achieved. The point-source pollution was addressed through the upgrading of the CWS's processing systems aiming to reduce the volume of water consumption and remove waste organic matter for composting purposes. The water analysis report of May 2017 and that of 2018 showed that the CWS had not achieved the national standards of water and effluent quality. Follow up corrective measures have contributed to the improvement of the effluent control systems but the fulfillment of the norms and standards remained to be improved. (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|------------------------------|-----------------|-------------|-----------------|-------------------------|-------------------------------|
| Direct project beneficiaries | Number | 0.00 | 15000.00 | | 17971.00 |
| | | 21-Aug-2013 | 21-Aug-2013 | | 30-Oct-2018 |
| Female beneficiaries | Percentage | 0.00 | 50.00 | | 39.70 |
| | | | 21-Aug-2013 | | |

Comments (achievements against targets):

- **119.8% of target achieved.** These beneficiaries are those of the 408 sub-projects implemented by the Project, where: 66 sub-projects on SLM; 324 sub-projects on shade-grown coffee and restoration activities on the Bururi Natural Reserve; 6 sub-projects on the rehabilitation of 6 CWS; 2 sub-projects on the certification of 2 CWS; 9 sub-projects on livelihood alternatives for communities surrounding the Bururi Natural Reserve; and 1 sub-project on agro-tourism in Bururi. (Source: Project Completion Report, December 2018)



A.2 Intermediate Results Indicators

Component: Component 1: Sustainable Coffee Landscape Management

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|---------------------|-------------------------|-------------------------|-------------------------------|
| Target population trained in SLWM, shade- grown coffee, and biodiversity conservation practices as a result of the project | Number | 0.00 21-Aug-2013 | 30000.00 21-Aug-2013 | | 23506.00 30-Oct-2018 |

Comments (achievements against targets):

- 78.4% of target achieved. These include beneficiaries trained under the various sub-projects as well as benefitting from the demonstration sites set-up by ISABU. (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|---------------------|----------------------|-------------------------|-------------------------------|
| Research demonstration sites for shade-grown coffee | Number | 0.00 21-Aug-2013 | 12.00 21-Aug-2013 | | 61.00 30-Oct-2018 |

Comments (achievements against targets):



- 508% of target achieved. These are the demonstration sites set-up by ISABU and include the 28 Farmers Field School (FFS) that were set-up after Project restructuring. The reason for higher number of demonstration sites was that many farmers volunteered to have their farms set-up as demonstration sites. (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|---------------------|----------------------|-------------------------|-------------------------------|
| Improved biodiversity conservation in the protected area as measured by the PAMETT | Number | 0.00 21-Aug-2013 | 12.00 21-Aug-2013 | | 80.00 30-Oct-2018 |

Comments (achievements against targets):

- 666% of target achieved. The overachievement was mainly due to the significant capacity-building and equipping of trackers and eco-guards whom as a result were better able to better track forest infractions and number of species. The Protected Area Management Effectiveness Tracking Tool (PAMETT) was developed as part of the World Wildlife Fund (WWF)-World Bank Forest Alliance program and the first version was field tested in 2001. Since then it has been adopted and adapted by the Global Environment Facility (GEF) and many other countries, organizations and projects. The PAMETT consists of two main sections: datasheets of key information on the protected area and an **assessment form** containing a questionnaire with four alternative responses to 30 questions, each with an associated score, a data field for notes and a justification for the answers, and a place to list steps to improve management if necessary. The PAMETT measures the effectiveness of management by tracking the progress of one site over time. In this case, PAMETT score has beyond the Project target, which signifies improved biodiversity as a result of improved management of the site. See more details under the Efficacy section. (Source: Project Completion Report, December 2018)



| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|---------------------|---------------------|-------------------------|-------------------------------|
| GEF tracking tools updated (SFM, Land Degrad., Biodiversity 1 and2) | Number | 0.00 21-Aug-2013 | 4.00 21-Aug-2013 | | 4.00 30-Oct-2018 |

Comments (achievements against targets):

- 100% of target achieved. The GEF tracking tools were updated four times during the Project lifetime.(Source: Project Completion Report, December 2018)

Component: Component 2: Addressing Pollution Point Sources in Coffee Washing Stations

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|------------------|------------------|-------------------------|-------------------------------|
| Submission for adoption of new environmental regulations for CWS | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | Y 30-Oct-2018 |

Comments (achievements against targets):

- 100% of target achieved. A report on the proposed environmental regulations was reviewed and validated in workshop in September 2016 and were submitted to the regulation authority of coffee value chain (ARFIC) for further processing and eventual adoption. (Source: Project Completion Report, December 2018)



| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|------------------|------------------|-------------------------|-------------------------------|
| Capacity building program to enhance enforcement and monitoring of environmental and social standards | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | Y 30-Oct-2018 |

Comments (achievements against targets):

- 100% of target achieved. The Project supported a workshop to inform, raise awareness and disseminate the standards and management regulations to representatives of the CWS in the provinces of Bubanza, Bururi, Kayanza and Muyinga for a total of 70 CWS represented. (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|------------------|------------------|-------------------------|-------------------------------|
| CWS meet national effluent discharge standards as a result of the project | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | N 30-Oct-2018 |

Comments (achievements against targets):

- **0% of target achieved.**
- Water analysis conducted in 2017 and again in 2018 showed that four out of eight water quality parameters had reached the standard national norms in the six CWS. This will be further investigated and subsequent improvements made under the Coffee Sector Competitiveness Project - (P151869). See more details in Efficacy section. (Source: Project Completion Report, December 2018)



Component: Component 3: Diversification of Livelihoods

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|------------------|------------------|-------------------------|-------------------------------|
| Contracts signed by the CWS with a certification agency | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | N 30-Oct-2018 |

Comments (achievements against targets):

- 0% of target achieved. Two out of the targeted four CWS had obtained Fairtrade certifications, with the two others having completed the certification process but awaiting the auditors to come. Auditors have not travelled to the country since the political unrest of 2015. The certification process will therefore be completed under the Coffee Competitiveness Project. (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|------------------|------------------|-------------------------|-------------------------------|
| 20% increase in the number of certification indicators met by farmers each year (specific indicators will depend on the certification scheme selected). | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | Y 30-Oct-2018 |

Comments (achievements against targets):



- 100% of target achieved. The selected 4 CWS satisfy all the Fairtrade Certification indicators at 100%, though only two have been certified. (Source: Project Completion Report, December 2018)

Component: Component 4: Knowledge and Learning

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|--|-----------------|------------------|------------------|-------------------------|-------------------------------|
| M&E system functioning and providing accurate and on-time data (including impact evaluation) | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | Y 30-Oct-2018 |

Comments (achievements against targets):

- **100% of target achieved.** M&E system is functional and the impact evaluation was completed in 2018. (Source: Project Completion Report, December 2018)

| Indicator Name | Unit of Measure | Baseline | Original Target | Formally Revised Target | Actual Achieved at Completion |
|---|-----------------|------------------|------------------|-------------------------|-------------------------------|
| Communication plan designed and implemented | Yes/No | N 21-Aug-2013 | Y 21-Aug-2013 | | Y 30-Oct-2018 |

Comments (achievements against targets):



- 100% of target achieved. A communication plan was made and its implementation started in 2017. Activities conducted include: Published articles about the results of the Project in the *Journal Burundi Eco*, *IWACU*, *Renouveau et Ubumwe*, and *INGOMAG*; Four documentaries on SLM, Point-source CWS pollution, Shade-grown Coffee, and Support to the Batwa Community; and Results of the Project disseminated through seven local radio stations. (Source: Project Completion Report, December 2018)

Note:- For the intermediate indicator on “Improved biodiversity conservation in the protected area as measured by the PAMETT”, there is a system generated error, where the original target should read 50 and not 12.



B. KEY OUTPUTS BY COMPONENT

| | |
|--|---|
| Objective/Outcome: To pilot sustainable land and water management practices in the coffee landscape of Burundi. | |
| Outcome Indicators | <ol style="list-style-type: none"> 1. Land area where sustainable land management practices were adopted as a result of project 2. Environmentally friendly effluent control systems implemented in selected CWS as a result of the project 3. Direct project beneficiaries (with % Females) |
| Intermediate Results Indicators | <ol style="list-style-type: none"> 1. Target population trained in SLWM, shade- grown coffee, and biodiversity conservation practices as a result of the project 2. Research demonstration sites for shade-grown coffee 3. Improved biodiversity conservation in the protected area as measured by the PAMETT 4. GEF tracking tools updated (SFM, Land Degrad., Biodiversity 1 and 2) 5. Submission for adoption of new environmental regulations for CWS 6. Capacity building program to enhance enforcement and monitoring of environmental and social standards 7. CWS meet national effluent discharge standards as a result of the project 8. Contracts signed by the CWS with a certification agency 9. 20% increase in the number of certification indicators met by farmers each year (specific indicators will depend on the certification scheme selected). 10. M&E system functioning and providing accurate and on-time data (including impact evaluation) 11. Communication plan designed and implemented |



Key Outputs by Component
(linked to the achievement of the Objective/Outcome 1)

1. Component 1 key outputs: Established sub-projects on SLWM and shade-grown coffee; Established demonstration sites and FFS for SLWM and shade-grown coffee; Trained farmers on SLWM and shade-grown coffee; Shade-grown coffee manual for Burundi; Trained and informed communities and local authorities on the importance of conserving the RNFB; Improved REDD+ Readiness.
2. Component 2 key outputs: Six rehabilitated CWS with effluent control systems adhere to national standards and norms; Standards and regulations for environmentally sound CWS elaborated; Trained farmers on monitoring effluent control systems; Trained relevant institutions on enforcing regulations and policies.
3. Component 3 key outputs: Trained and equipped eco-guards and trackers at the RNFB; Improved living conditions for Batwa; Set-up of eco and agro-tourism pilots; Marketing study and action plan on shade-grown coffee elaborated; Three cooperatives and associated CWS are certified.
4. Component 4 key outputs: Impact evaluation carried out; Communication strategy elaborated; Communication activities implemented.

**ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION****A. TASK TEAM MEMBERS**

| Name | Role |
|---|---------------------------------|
| Preparation | |
| Paola Agostini, Stephen Ling, Chakib Jenane | Task Team Leader(s) |
| Maria Isabel Junqueira Braga | Team member |
| Ana Maria Gonzalez Velosa | Team Member |
| Melance Ndikummasabo, P. Nindorera, L. Ravaoarimino | Pocurement Specialists |
| Bella Diallo | Financial Management Specialist |
| George Ledec, | Lead Ecologist |
| Gayatri Kanungo | Sr Environmental Specialist |
| Antoine V. Lema | Social Development Specialist |
| Asferachew Abate Abebe | Sr Environmental Specialist |
| Edward Ndwumfour | Sr Environmental Specialist |
| Dora Nsuwa Cudjoe | Sr Environmental Specialist |
| Guigonan Serge Adjognon | Economist |
| Hocine Halal | Lead Environmental Specialist |
| Julian Lee | Sr Environmental Specialist |
| Paul – Jean Feno | Sr Environmental Specialist |
| Maria Ruth Jones | Survey Specialist |
| Leoncie Niyonahabonye | Team Member |
| Madjiguene Seck | Team Member |
| Aurore Simbananiye | Team Member |
| Esther Bea | Team Member |
| Beula Selvaduria | Team Member |
| Alice Museri | Team Member |
| Jumaine Hussein | Team Member |



Supervision/ICR

| | |
|--|---------------------------------|
| Paola Agostini, Amadou Alassane, Philippe Eric Dardel | Task Team Leader(s) |
| Prosper Nindorera, Rahmoune Essalhi, Clement Tukeba Lessa Kimpuni | Procurement Specialist(s) |
| Christian Simbananiye | Financial Management Specialist |
| Tracy Hart | Environmental Specialist |
| Hussein Jumaine | Team Member |
| Aurore Simbananiye | Team Member |
| Shri Vasantt Kumar Jogoo | Team Member |
| Peter F. B. A. Lafere | Social Specialist |
| Ana Maria Gonzalez Velosa | Team Member |
| Clarette Rwagatore | Team Member |
| Mimako Kobayashi | Team Member |
| Esther Bea | Team Member |
| Chakib Jenane | Team Member |
| Nadia Nkwaya Beza | Team Member |
| Tchilalou Awesso | Team Member |
| Yasmina Oodally | Team Member |
| Arcade Bigirindavye | Senior Procurement Specialist |
| Yeo Yenemanyan | Financial Management Specialist |
| Alexis Manirambona | Environmental Specialist |
| Alice Museri | Program Assistant |
| Nadine Manirambona | Team Assistant |



B. STAFF TIME AND COST

| Stage of Project Cycle | Staff Time and Cost | |
|------------------------|---------------------|--|
| | No. of staff weeks | US\$ (including travel and consultant costs) |
| Preparation | | |
| FY12 | 5.948 | 53,999.20 |
| FY13 | 18.522 | 180,861.46 |
| FY14 | 2.818 | 13,742.23 |
| Total | 27.29 | 248,602.89 |
| Supervision/ICR | | |
| FY14 | 5.349 | 108,583.55 |
| FY15 | 15.683 | 159,661.02 |
| FY16 | 10.281 | 32,763.49 |
| FY17 | 6.933 | 96,943.04 |
| FY18 | 3.982 | 61,823.87 |
| FY19 | 6.351 | 65,220.62 |
| Total | 48.58 | 524,995.59 |

ANNEX 3. PROJECT COST BY COMPONENT

PADZOC Cost by Component (US\$ Million)

| Components | Amount at Approval (US\$M) | Amount at Restructuring (US\$M) | Actual at Project Closing (US\$M) | Percentage of Approval (US\$M) |
|--|----------------------------|---------------------------------|-----------------------------------|--------------------------------|
| Component 1: Sustainable Coffee Landscape Management | 2.82 | 2.90 | 2.83 | 100.35 |
| Component 2: Addressing Pollution Point Sources in Coffee Washing Stations | 0.59 | 0.29 | 0.24 | 40.68 |
| Component 3: Diversification of Livelihoods | 0.41 | 0.39 | 0.43 | 104.88 |
| Component 4: Knowledge and Learning | 0.41 | 0.63 | 0.72 | 176 |
| Total | 4.23* | 4.23 | 4.22 | 99.76 |

*The amount approved comes from two trust funds: US\$4.2 million from GEF and US\$33,000 from the TerrAfrica Leveraging Fund (TLF).

The actual amounts are fairly on track with the amounts restructured. The remaining US\$0.01 million will be reimbursed to the Bank.

PADZOC Level of Co-financing (US\$ Million)

| Sources of Co-financing | Name of Co-financer | Type of Co-financing | Amount Confirmed at CEO endorsement/ approval (US\$) | Actual Amount Materialized at Midterm (US\$) | Actual Amount Materialized at Closing (US\$) |
|-------------------------|--|----------------------|--|--|--|
| Government | Government of Burundi | In-kind | 500,000 | 232,000 | 500,000 |
| Private Sector | InterCafé | In-kind | 500,000 | 204,500 | 500,000 |
| NGO | Local communities | In-kind | 300,000 | 195,300 | 300,000 |
| Multilateral | TerrAfrica fund | Grant | 200,000 | 224,500 | 224,500 |
| Multilateral | World Bank PRODEMA | Grant | 13,500,000 | 13,230,000 | 13,500,000 |
| Multilateral | World Bank Lake Victoria Environmental Project II (LVEMP-II) | Grant | 5,800,000 | 3,329,200 | 5,800,000 |
| | | TOTAL | 20,800,000 | 17,415,500 | 20,824,500 |



ANNEX 4. EFFICIENCY ANALYSIS

1. This annex provides detailed economic analysis of the first component, which represented more than two thirds of the project cost. In particular, the focus of the analysis will be on the activity related to promotion of shade-grown coffee production because it has led to more tangible outcomes than other activities of the project. The analysis draws from the results of the impact evaluation (IE) conducted under the project (see entire IE report – available upon request) as well as additional numerical analysis prepared for the ICR.

Results from PADZOC IE report

2. In PADZOC, an impact evaluation activity was conducted, where a total of 2,223 households were surveyed in 2014 and 2018 to measure the changes in the following areas, among others:

- Adoption of shade-grown coffee production
- Number of shade-grown coffee trees
- Coffee production per tree (productivity)
- Household food security.

3. In order to isolate the impacts of the project from other forces affecting the changes, households in the project area (treatment group) and non-project area (control group) were surveyed. The treatment group included households in collines in three communes in three provinces (Bubanza, Bururi, and Myuinga), while the control group included households in collines contiguous to treatment collines.²⁰ The baseline survey successfully confirmed that the households in the two groups were sufficiently similar at the beginning of the project.

4. **Adoption.** According to the survey data from the two years, the proportion of producers that adopted shade-grown coffee increased from 11.9% in 2014 to 56.2% in 2018 in the project area (treatment group), while an increase was also observed in the non-project area (control group) from 8.3% to 31.5% during the same period. The 2018 adoption rate in the treatment group was greatest among farmers in Myuinga (78%), followed by those in Bubanza (58%) and Bururi (31%). It was statistically confirmed that the project contributed to an increase in the shade-grown coffee adoption rate by 26%. In addition, the project generated spillover effects in terms of adoption in collines surrounding the project area.

5. **Number of coffee trees.** In terms of the number of shade-grown coffee trees, with the support provided by the project, farmers in the treatment group could expand substantially more than those in the control group. On average, the control group increased shade-grown coffee trees by 2.6 trees per farm between 2014 and 2018, while the increase was 37.7 trees per farm for the treatment group. As a result, an average farm in the treatment group had 93.7 shade-grown coffee trees in 2018, in contrast to 54.3 trees in the control group.

6. **Productivity.** Using the plot-level data from 2018, a gain in productivity (coffee production per tree) of shade-grown coffee was confirmed trees, relative to coffee trees with no shade. On average, a coffee tree with shade produced 101 grams more coffee than a tree without shade. The difference was 125 grams per tree in Bubanza and 207 grams in Bururi. No statistically significant difference in productivity was observed in Myuinga.

²⁰ A geographic discontinuity design (GD design) was employed.



7. **Food security.** The IE study also confirmed an improvement in food security among households in the project area. In the study, food security was measured by an index that ranges between 0 and 49, where the score indicates the number of measures to mitigate food insecurity needed to be taken²¹ and their frequency during the seven days immediately prior to the survey interview. A statistically significant decline in the score was found in the treatment group from 16.1 in 2014 to 12.2 in 2018, albeit the average baseline (2014) score was higher in the treatment group than in the control group (13.5). No significant change in the score was confirmed for the control group.

Additional analysis (NPV of sub-component A.2, as found in PADZOC final report)

8. Based on the data collected for the IE study and on other available information, an additional numerical analysis was conducted. In particular, the analysis attempted to estimate the net present value of the sub-component A.2 related to promotion of shade-grown coffee production, under which US\$1.65 was disbursed according to the PADZOC final report.

9. Conceptually, gains (*G*) in coffee production per year due to adoption of shade-grown coffee that was attributable to the project interventions can be represented as:

(1) $G = Q^{proj} + Q^{spillover}$, where

Q^{proj} represents the gains realized in the project area (treatment area) and $Q^{spillover}$ in the surrounding area (control area), with

(2) $Q^{proj} = q \cdot HH^T \cdot (adopt^T_{2018} \cdot \#tree^T_{2018} - adopt^T_{2014} \cdot \#tree^T_{2014})$ and

(3) $Q^{spillover} = q \cdot HH^C \cdot (adopt^C_{2018} \cdot \#tree^C_{2018} - adopt^C_{2014} \cdot \#tree^C_{2014})$, where

- *q* is the average shade-grown coffee production per tree per year;
- *HH* is the number of households with coffee trees in each area, with superscript *T* indicating treatment area and *C* control area;
- *adopt* is the proportion of households with coffee trees that adopted shade-grown coffee in each area (*T* or *C*, indicated by superscript) and in each period with subscript indicating the year (2014 or 2018); and
- *#tree* is the average number of shade-grown coffee trees per farm in each area (*T* or *C*, superscript) and in each period (2014 or 2018, subscript).

10. This representation of gains relies on the following strong assumptions (that were necessary due to data limitation and for tractability):

- *q* is the same for the two areas and remained constant between 2014 and 2018;
- *HH* remained constant between 2014 and 2018 in each area (*T* or *C*);
- *adopt* and *#tree* would have remained constant between 2014 and 2018 in each area (*T* or *C*) if there had not been the project; and
- the project did not affect the production or productivity of non-shade grown coffee.

11. Using the data on *HH* from 2014, estimated *q* from 2018 data, and estimated *#tree* from 2014 and 2018

²¹ Respondents were provided with seven options: (1) to consume less-preferred products; (2) to reduce the variety of consumed products; (3) to reduce the quantity consumed; (4) to reduce the number of meals per day; (5) to transfer part of the food from adults to children; (6) ask neighbors and family for food; and (7) fast for 24 hours.



data, the gains (G) is estimated as in table 1. The unit coffee price (p) at 500 Fbu/kg as quoted in the PADZOC final report and the exchange rate of US\$0.00055/Fbu were used in value conversion of the gains.

Table 1. Estimated gains in coffee production per year due to project interventions

| | | Unit | Bubanza | Bururi | Muyinga | Total |
|----------------|-------------|------|------------|------------|------------|-------------|
| Gains (volume) | G | kg | 175,111 | 25,836 | 52,205 | 253,152 |
| Gains (value) | $p \cdot G$ | Fbu | 87,555,667 | 12,917,784 | 26,102,646 | 126,576,097 |
| Gains (value) | $p \cdot G$ | US\$ | 48,156 | 7,105 | 14,356 | 69,617 |

12. Note that the gains in value are considerably lower than the project cost for sub-component A.2 of US\$1.65 million. A major reason is that G is measured as gains per year here, while the gains in reality will be experienced over a longer period. It is known that coffee plants can last up to 100 years, while their productivity is highest between the ages of 7 and 20.

13. Another reason for the small value of the gains estimate is the depressed coffee unit price farmers in Burundi received. The farm-gate price of 500 Fbu/kg translates to US\$0.12 per pound, when the coffee price moved between US\$0.95 and US\$1.22 per pound in the international market in 2018. When a unit price of US\$1.09 per pound is used, the total gains in value would be over US\$600,000 per year. Promotion of improved coffee marketing as supported by PADZOC would help improve the unit price farmers receive.

14. Finally, the gains estimation thus far is based only on gains through coffee production and no other benefits are considered. In the current context, three major benefits should be considered in addition to the gains in coffee productivity, as discussed in the economic analysis of the project appraisal document (PAD) for Burundi Landscape Restoration and Resilience Project (BLRRP, P160613). First, trees that provide shade for coffee trees can also provide direct output such as fruits (e.g. bananas, citrus) and fuelwood. BLRRP PAD used US\$244 per ha per year as the benefit of new forest cover providing fuelwood. Second, shade-grown coffee is considered to contribute to stronger soil integrity, reducing soil erosions that affect the farm sites and in the downstream. BLRRP PAD used \$25.2 per ha per year as the benefit of improved soil integrity in the form of avoided cost of sediment removal downstream. Third, trees planted for shade-grown coffee provide other ecosystem services. BLRRP PAD quoted US\$44.9 per ha per year as the value of forest ecosystem services in Burundi.

15. Given the observations, the quantitative analysis here attempts to estimate the net present value (NPV) of the sub-component A.2 over a 20-year horizon, which corresponds to the maximum duration in which coffee plants are most productive. For simplicity, the estimated average coffee tree productivity (q) is applied for the entire 20 years, rather than making additional assumptions on the age composition of coffee plants and their productivity dynamics over time. The total increase in the acreage of shade-grown coffee of 470.23 ha in project areas is used in the calculation as quoted in the PADZOC final report. Since no specific data were collected for output of shade-providing trees, their contribution to soil integrity or to other ecosystem services, the parameters used in the BLRRP PAD were used in this analysis. The NPV calculations were done using three levels of discount rate at 5%, 10%, and 20%.

**Table 2.** Present value of various benefits and project cost over 20 years

| | Discount rate | | |
|---------------------------------------|---------------|-----------|-----------|
| | 5% | 10% | 20% |
| Gains (at farm-gate coffee price) | 937,197 | 662,304 | 408,622 |
| Gains (at international coffee price) | 8,151,951 | 5,760,874 | 3,554,284 |
| Value of fuelwood | 1,544,595 | 1,091,545 | 673,450 |
| Avoided cost of sediment removal | 159,524 | 112,733 | 69,553 |
| Value of ecosystem services | 284,231 | 200,862 | 123,926 |
| Project cost for sub-component A.2 | 1,652,250 | 1,652,250 | 1,652,250 |

Table 3. Net present value of sub-component A.2 under different assumptions

| | Discount rate | | |
|----------------------------------|---------------|-----------|-------------|
| | 5% | 10% | 20% |
| (1) NPV with coffee value only | | | |
| at farm-gate coffee price | (715,054) | (989,946) | (1,243,629) |
| at international coffee price | 6,499,700 | 4,108,624 | 1,902,034 |
| (2) NPV including other benefits | | | |
| at farm-gate coffee price | 1,273,296 | 415,194 | (376,700) |
| at international coffee price | 8,488,050 | 5,513,764 | 2,768,963 |

16. As can be seen in table 2, the present value of the gains from increased shade-grown coffee production due to the project differ substantially depending on the unit price of coffee used. Although the gains accrued to the intended beneficiaries (Burundi farmers) represent only a fraction, it would be safe to say that the project interventions have and will continue to generate greater gains in the international coffee market.

17. As seen in table 3, when incremental coffee production due to the project is valued at the farm-gate coffee price, it alone does not result in a positive NPV. On the other hand, when the international coffee price is used, the NPV is positive and substantial at all discount rates. While the incremental benefit of the project is evident, concerns remain on the distributional impact of the project, in particular regarding the extent to which the project benefits have reached the intended beneficiaries.

18. Finally, the estimation of other benefits than incremental coffee production is only approximation, using the parameters from the BLRRP PAD, rather than data obtained through the project M&E activities. Nonetheless, the directional impact of these additional benefits only confirms the substantial net benefits generated by this sub-component of PADZOC.



Ex-Post GEF Incremental Cost Analysis & Achievements

19. At appraisal, PADZOC was to benefit from co-financing from Government, Intercafé, Local communities, TerrAfrica, PRODEMA, and the Lake Victoria Environmental Project II (LVEMP-II). At completion, PADZOC benefitted from all these co-financings. The appraisal co-financings are represented as the baseline in Table 4 below. The GEF incremental is the cost of PADZOC. The Actual Leverage is the actual co-financings at completion.

Table 4. PADZOC GEF Incremental Cost Analysis & Achievements

| INCREMENTAL ACTIVITIES | BASELINE | GEF INCREMENT | GLOBAL BENEFITS | INCREMENTAL ACHIEVEMENTS |
|--|---|---|--|---|
| Component 1: Sustainable Coffee Landscape Management | | | | Baseline: US\$14,400,000 GEF Incremental: US\$2,830,00 Actual leverage: US\$14,424,000 Actual leverage (%): 84% |
| Support sustainable land and water management practices in degraded areas of the landscape mosaic. | Lack of sustainable land and water management practices in coffee landscapes. | -Implementing sustainable land and water management practices in productive areas in to prevent further land degradation and rehabilitate degraded areas (factors that have negatively impacted coffee production). - Establishing a shade-grown coffee pilot program that promotes, with environmentally-friendly production technologies, a polyculture that includes coffee as well as various types of trees and other plants that provide additional products for income generation and consumption. - Promoting sustainable management in a key PA, under the premise that protected areas demarcation has been agreed between key stakeholders and the neighboring local communities have alternative sources for improving livelihoods, so that the risk of agricultural expansion to the area will be reduced. | Sustainable management of natural resources (land, water, and vegetation) on priority landscapes; protection of biodiversity on a critical protected area; protection against erosion and desertification in priority areas; and the potential for carbon sequestration. These benefits will also contribute to increased resilience in the country. | -Sub-projects on SLWM and shade-grown coffee established - Demonstrations sites and FFS for SLWM and shade-grown coffee established - Farmers trained on SLWM and shade-grown coffee - Shade-grown coffee manual for Burundi - Communities and local authorities trained and informed on the importance of conserving the RFNB - Eco-guards and trackers trained and equipped at the Bururi Forest Nature Reserve (RFNB) |
| Component 2: Addressing Pollution Point Sources in Coffee Washing Stations | | | | Baseline: US\$2,000,000 GEF Incremental: US\$240,000 Actual leverage: US\$2,000,000 Actual leverage (%): 89% |
| Pilot cost-effective, | Polluted | Addressing point-source | Clean downstream | -Six CWS rehabilitated |



| | | | | |
|---|--|--|--|---|
| integrated, environmentally-friendly systems for the processing phase of the coffee value chain. | downstream water due to environmentally unsound practices of coffee water stations (CWS). | pollution through the establishment of efficient, environmentally-friendly coffee processing technologies and the strengthening of policies and regulations. | water from CWS. | with effluent control systems -Standards and regulations for environmentally sound CWS elaborated - Farmers trained on monitoring effluent control systems - Relevant institutions trained on enforcing regulations and policies |
| Component 3: Diversification of Livelihoods | | | | Baseline: US\$3,500,000 GEF Incremental: US\$430,000 Actual leverage: US\$3,500,000 Actual leverage (%): 89% |
| Support a marketing study and action plan to identify target markets for the region's coffee, along with potentially suitable certification schemes, and support an ecotourism pilot in the Bururi Forest Nature Reserve and will pilot two community based agritourism initiatives in selected coffee farms. | - Low quality coffee production and limited marketing. -Need for alternative income generating activities. | Promoting marketing and commercialization strategies for high quality coffee, planted with shade and processed with reduced environmental negative impacts, and piloting initiatives that generate alternative sources of income such as agri-tourism and eco-tourism. | Accessing higher value markets with shade-grown coffee will benefit the coffee sector as well as generate an incentive for the conservation and improved management of the environment. These measures will also increase communities' resilience to adverse shocks. | -Marketing study and action plan elaborated -Two cooperatives and associated CWS are certified (out of the six rehabilitated CWS) - Batwa living conditions improved - Eco and agro-tourism pilots set-up |
| Component 4: Knowledge and Learning | | | | Baseline: US\$5,100,000 GEF Incremental: US\$690,000 Actual leverage: US\$5,100,000 Actual leverage (%): 88% |
| Improve knowledge management and dissemination. | Lack of impact evaluation for environment sector and lack of communication plans in past WB projects in the country. | Conducting and impact evaluation and communication strategy for the project. | Improved knowledge on shade-grown coffee in Burundi. | - Impact evaluation carried out. -Communication strategy elaborated -Communication activities implemented |



TOTAL

Baseline: US\$20,800,000

GEF Incremental: US\$4,190,000

Actual leverage (approximately):

US\$20,824,000

Actual leverage (%): 83%

20. The GEF increment centers on securing ecosystems services in productive landscape, forested areas and protected areas by promoting the uptake of SLWM practices and approaches (with an emphasis in shade grown coffee) that have global environmental benefits (described in Table 4). These include soil and water conserving practices such as shelterbelts, multipurpose trees on productive lands, small-scale irrigation, and water harvesting, water management in CWS. The project was designed with multiple interlinked GEF Focal Areas. The resulting global environmental benefits include sustainable management of natural resources (land, water, and vegetation) on priority landscapes; protection of biodiversity on a critical protected area; protection against erosion and desertification in priority areas; and carbon sequestration. These benefits contribute to increased resilience in the country.

21. *Carbon benefits in shade grown coffee:* The project promoted the incorporation of shade in 1,878.95 ha of areas planted with coffee. The shade consisted of Grevillea, Cedrella, Calliandra, Cordia Africana, Albizia, Ficus, and Maesop shade trees as well as some intercropping with banana trees. Approximately 479 shade trees were planted per ha. Assuming that the aboveground biomass of the shade trees is 195 kg per tree and considering that the baseline is no shade trees and the increment represents 200 stems per ha, then the biomass is approximately 93,405 kg/ha or 93.4t biomass/ha. Given that biomass is around 50% carbon, then the shade trees have generated around 46.7t CO₂/ha (19t carbon/ha times 44/12 which is the stoichiometric ratio of CO₂ to C). Assuming there is a 20-year rotation, the figure comes to approximately 2.3t CO₂/ha/yr. Considering that the shade covers 1,878.95 ha, the total amount of carbon sequestered is about 4,321.59 t CO₂/yr or 86,431.8 t CO₂ assuming 20 years of expected lifetime of the project impacts.

22. *Carbon benefits as forest degradation is prevented:* Seven percent of the country's area is forest; i.e. 194,838 ha or 1,948 km². According to the World Bank Africa Forest Strategy ("Forests, trees and woodlands in Africa: An action plan for World Bank engagement"), the annual deforestation rate from 2000 to 2010 was 1.31%. Taking this rate, every year 2,552 ha of forest are degraded. The project protects 2,000 ha of natural vegetation that are present in the Bururi Forest Nature Reserve (total area: 2,600ha). Considering the overall country's deforestation rate, the project could be preventing the degradation of 26.2 ha per year. In this scenario, the project saves 240 tons of CO₂ per year (considering the 26.2 ha/yr destroyed in the baseline and the CO₂ amount of 9.17 t CO₂/ ha/yr). Over a 20-year period, 4,805 t of CO₂ could be preserved or rather not emitted into the atmosphere.



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

(Extract from the December 2018 PADZOC Project Completion Report – Translated from French)

1. The year 2018 is the last year of implementation of the project activities in the field. The actual start of project activities was delayed by the requirements of the impact assessment method which did not allow direct support to beneficiaries before the project baseline was established. Baseline surveys were conducted in October-November 2014. The interim report was produced in February 2015.
2. The level of achievement has improved significantly as activities started in February 2015 as they are specifically related to the rain cycle.
3. As of 31 October 2018, four hundred and eight (408) subprojects were financed and implemented and the total grant amounted of 3,843,532,942 BFI including 3,794,688,009 BFI were paid, or 98.7%. The funded subprojects benefited 17,971 direct beneficiaries, of which 6,935 were women (40%).
4. It is also noted that compared to the total amount disbursed of US\$4,200,000, the amount used on 30/09/2018 is US\$4,187,368.53. The remaining amount of US\$12,631.47 will be reimbursed to the Bank.
5. With regard to the activities carried out in partnership with the actors of the coffee sector in this case, OBPE, ISABU, Inter-Café and ARFIC, they were initiated by the drawing up of the collaboration agreements with the project and activities were developed and implemented in the first quarter of 2014.
6. As at 31 October 2018, the final year of the Project, indicators of the overall environmental objective, namely: (i) area where sustainable land and water management practices (including shade coffee) were adopted as the results of the Project, (ii) Environmentally-sound selected Wash Station effluent control system implemented as Project results and (iii) Number of direct beneficiaries; have a satisfactory completion rate and reached respectively 103.5 percent, 100.0 percent and 119.8 percent of forecasts. However, even though effluent control systems have been installed in the six LDCs, their effectiveness remains to be improved. Improvement should focus on the sizing of the pre-treatment tanks, the renewal of the equipment and the sensitization of the CWS beneficiaries in the maintenance of the infrastructures and the renewal of the effluent pre-treatment materials.
7. The impact study conducted in 2014 and 2018 revealed that the number of farmers who adopted shade coffee increased by 21% by comparing the intervention zone and the control zone. There was also an increase in farmers adopting shade coffee in the control area (Project training effects), which also showed a 23% impact on coffee productivity, food security and non-food expenditures of Project beneficiaries.



ANNEX 6. WATER QUALITY ANALYSIS 2017 AND 2018 OF THE EFFLUENTS FROM THE SIX REHABILITATED COFFEE WASHING STATIONS (CWS) (IN FRENCH)

| Paramètres | Valeurs des Paramètres des effluents dans les 6 SDL à la sortie dans l'environnement | | | | | | | Norme burundaise de rejet |
|--------------------|--|------------|------------|------------------|-------------------|-------------|--------------|---------------------------|
| | Unité n°analyse | SDL Bururi | | SDL Musigati | | Muyinga | Busiga | |
| | | kawa yacu | Korerikawa | Kundudutezimbere | Twesetwoterimbere | OCB Kagombe | Tuvugirikawa | |
| Température | °C-1 ère An. | 22,0 | 23,4 | 24,9 | 23 | 20,3 | 21 | 35 |
| | °C-2 an. | 21,4 | 23,3 | 23,2 | 21,8 | 22,8 | 20,3 | |
| pH in situ | 1ère an. | 4,11 | 4,82 | 3,96 | 4,15 | 5,4 | 4,83 | 6 à 9 |
| | 2 ème an. | 5,44 | 5,01 | 4,45 | 5,25 | 4,58 | 5,45 | |
| Azote totale | mg/l N- 1 An | 12 | 8,7 | 25,4 | 26 | 3,5 | 20,5 | 12 |
| | mg/l N- 2 An | 2,6 | 8,01 | 4,13 | 6,82 | 0,98 | 3,7 | |
| Phosphore total | mg/l P-1 An. | 0,48 | 0,44 | 0,21 | 0,78 | 0,11 | 1,09 | 5 |
| | mg/l P- 2An. | 1,51 | 0,38 | 1,82 | 2,45 | 0,23 | 1,97 | |
| MES | mg/l-1An. | 99 | 69 | 740 | 415 | 54 | 395 | 50 |
| | mg/l- 2An. | 170 | 66 | 746 | 195 | 285 | 263 | |
| DBO5 | mg/l O ₂ .1An. | 904 | 249 | 1024 | 746 | 30 | 893,76 | 30 |
| | mg/l O ₂ .2An. | 698 | 240 | 678 | 1125 | 1981 | 424 | |
| DCO | mg/l O ₂ .1An. | 1921 | 513 | 2172 | 1444 | 150 | 1446 | 150 |
| | mg/l O ₂ .2An. | 2030 | 501 | 2187 | 1562 | 2050 | 1272 | |
| Huiles et graisses | mg/l N- 1 An | 0,6 | 0,4 | 1,4 | 1,6 | 0 | 0,4 | 10 |
| | mg/l N- 2 An | 1,04 | 0,3 | 1,24 | 2,8 | 0,6 | 1,6 | |

Les valeurs du PH, MES, DBO5 et DCO sont en dehors des normes burundaises de rejet des effluents dans l'environnement

| | | | | | | | | |
|----------------|----------------------------------|--|--|--|--|--|--|--|
| 1ère analyse: | 6-9/5/2017 | | | | | | | |
| 2 ème analyse: | 3-6/4/2018 et du 22 au 23/4/2018 | | | | | | | |

(Source: Project Completion Report December 2018)



ANNEX 7. SUPPORTING DOCUMENTS

1. *Project documents*

- GEF Project Identification Form (PIF), September 21, 2011
- Minutes of the PCN Review Meeting, February 16, 2012
- Project Appraisal Document, Sustainable Coffee Landscape Project; Report No: 75889-BI, April 2013
- Global Environment Facility Grant Agreement between Republic of Burundi and International Development Association acting as Implementing Agency of the Global Environment Facility; GEF Grant Number TF 014427, May 21, 2013
- Global Environment Facility, Project Agreement between International Development Association acting as Implementing Agency of the Global Environment Facility, GEF Grant Number TF 014427, May 21, 2013
- Restructuring Paper on proposed project restructuring of Sustainable Coffee Landscape Project (P127258); Report No: RES25611, April 30, 2013
- Project Implementation Manual : *Manuel d'exécution du projet*, April 2013
- Resettlement Policy Framework (RPF), RP894 "*Cadre de Politique de Réinstallation Involontaires des Populations*", March, 2009) prepared for the Agricultural Market Productivity and Development Project (PPDMA)
- Environmental and Social Impact Assessment (ESIA), E4117 "*Evaluation d'Impact Environnemental et Social*", March 2009
- Indigenous Plan (IP); (SFG2922), January 2013

2. *WB documents*

Mission reports

- Aide-Mémoire de Missions de préparation et supervision du PADZOC (Septembre 2012- Novembre, 2018)
- Aide-Mémoire de revue à mi-parcours du PADZOC, Octobre, 2016
- Implementation Status Reports (number 1 to 09)

Fiduciary reports

- Audit reports covering 2014 – 2019
- IFRs: Rapport de suivi financier du PADZOC

3. *Project outputs*

- Shade grown Coffee manual
- Impact Evaluation Report, June 2012 and December 2018
- PADZOC METT 2012 and 2016

4. *Other relevant documents*

PADZOC Documentaries

- South – South Exchange (Colombia, Ethiopia and Rwanda)
https://www.youtube.com/channel/UCa2KxjWz4QFUv3zS_NBMmSg?spfreload=1
- National Geographic Award 2018: <https://www.nationalgeographic.org/awards/buffett/>
- Journal Burundi Eco, October 5, 2018
- WB Feature Story, Colombia, Rwanda, Burundi and Ethiopia: United by a Cup of Coffee, 2014
- World Bank 2010 Rapid Strategic Environmental Analysis of the Coffee Sector in Burundi



Pictures taken from the field 2018



Figure 1. World Bank mission with members of the Musigati Coffee Washing Station Cooperative. (Source: Y.Oodally, 2018)



Figure 2. Coffee drying racks at the rehabilitated Musigati CWS and in the background hills under SLWM practices. funded by PADZOC (Source: Y.Oodally, 2018)



Figure 3. Rehabilitated & certified Musigati CWS under PADZOC. (Source: Y.Oodally, 2018)



Figure 4. Bullet hole through one of the glass doors of the PADZOC PCU office in Bujumbura during the 2015 crisis. (Source: Y.Oodally, 2018)



Figure 5. Shade-grown coffee training material in Kirundi (local language) funded under PADZOC. (Source: Y.Oodally, 2018)



Figure 6. Replication of shade-grown coffee demonstration site by Feed the Hungry at the ISABU Kayanza Research Station. (Source: Y.Oodally, 2018)



Figures 7 & 8. PADZOC shade-grown coffee demonstration sites at the ISABU Kayanza Research Station, showing coffee inter-cropping with agro-forestry trees and banana trees. (Source: Y.Oodally, 2018)



Figure 9. World Bank mission member standing in one of the established FFS under PADZOC. (Source: Y.Oodally, 2018)



Figure 10. Newly constructed surveillance post at Bururi Natural Reserve funded by PADZOC. (Source: Y.Oodally, 2018)



Figure 11. Eco-guards patrolling the Bururi Natural Reserve. (Source: Project Completion Report December 2018))



Figure 12. Female community group leaders in charge of protecting the Bururi Natural Reserve. (Source: Y.Oodally, 2018)



Figures 13, 14 & 15. Batwa indigenous community acquired land and newly constructed houses. The Batwa were supported by PADZOC and the new houses were funded by the PRODEMA Additional Financing. (Source: Y.Oodally, 2018)



Figures 16 & 17. House of Coffee in Bururi funded under PADZOC. (Source: Y.Oodally, 2018)



Figures 18, 19, 20 & 21. Eco and agro-tourism pilot initiatives supported by PADZOC in the Bururi Natural Reserve (*Left to right: Tracking of chimpanzees; Thermal waters rehabilitation; Path constructed by Batwas leading to waterfalls; Batwas posing with waterfalls in background.* (Source: *Project Completion Report December 2018*)