Document of
The World Bank

Report No: ICR2172

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-H1170 IDA-H4060 TF-53661)

ON A

GRANT
IN THE AMOUNT OF SDR 24 MILLION
(US$35.0 MILLION EQUIVALENT)

AND A

GLOBAL ENVIRONMENTAL FACILITY GRANT
IN THE AMOUNT OF US$5.0 MILLION

AND A GRANT
IN THE AMOUNT OF SDR 9.3 MILLION
(US$15.0 MILLION EQUIVALENT)

TO THE

REPUBLIC OF BURUNDI

FOR AN

AGRICULTURE REHABILITATION & SUSTAINABLE LAND MANAGEMENT

JANUARY 31, 2012

Agriculture and Rural Development
Sustainable Development Department
Burundi Country Department - AFMBI
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective November 30, 2010)

Currency Unit = Burundi Franc (FBU)
US$ 1.00 = FBU 1219.00

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BIF	Burundi Franc
CAADP	Comprehensive Africa Agriculture Programme
CAS	Country Assistance Strategy
CBOs	Community Based Organizations
CCAP	Community-level Subproject Approval Committee
CDD	Community Driven Development
CEs	Cereal equivalents
CPAP	Provincial-level Subproject Approval Committee
CPI	Consumer Price Index
DGA	Development Grant Agreement
DPs	Development Partners
EFA	Economic and Financial Analysis
ERR	Economic Rate of Return
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FM	Financial Management
FRR	Financial Rate of Return
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEO	Global Environment Objectives
GHG	Green House Gas
GNP	Gross National Product
Ha	Hectare
ICR	Implementation Completion and Results Report
IDA	International Development Association
IDPs	Internally Displaced Persons
IO	Intermediate Outcome
IP	Indigenous People
IPCMU	Inter-provincial Project Coordination and Management Units
IPP	Indigenous People Plan
IPRSP	Interim Poverty Reduction Strategy Paper
ISABU	Burundian Institute of Agriculture Science
ISRs	Implementation Status and Results
LCs	Local communities
LIAs	Local Implementing Agencies
LWH	Land Husbandry, Water Harvesting and Hillside Irrigation
M&E	Monitoring and Evaluation
MAE	Ministry of Agriculture and Livestock
MATET	Ministry of Land Management, Environment and Tourism
MTR	Mid-term Review
NAS	National Agricultural Strategy
NPCMU	National Project Coordination and Management Unit

NPV	Net Present Value
O&M	Operation and Maintenance
ODPs	Organisations de Proximité
OI	Outcome Indicators
PAD	Project Appraisal Document
PDO	Project Development Objective
POs	Producer organizations
PRASAB	Agriculture Rehabilitation and Sustainable Land Management Project
PRASAB	Programme de Réhabilitation et d'appui au Secteur Agricole du Burundi
PRODEMA	Agro-pastoral and Markets Development Project
PRSP	Poverty Reduction Strategy Paper
QAE	Quality at Entry
RC	Results Chain
RF	Result Framework
RPF	Resettlement Policy Framework
SLM	Sustainable Land Management
SP	Sub-project
TSS	Transitional Support Strategy
VAT	Value Added Tax
VP	Vice President
WFP	World Food Programme

Vice President:	Obiageli Katryn Ezekwesili
Acting Country Director:	Mercy Tembon
Sector Manager:	Karen McConnell Brooks
Project Team Leader:	Nicaise Ehoue
ICR Team Leader:	Loraine Ronchi

REPUBLIC OF BURUNDI

AGRICULTURAL REHABILITATION AND SUSTAINABLE LAND MANAGEMENT PROJECT

TABLE OF CONTENTS

A. Basic Information			
Country:	Burundi	Project Name:	BI-Agriculture Rehabilitation & Sustainable Land Management
Project ID:	P064558,P085981	L/C/TF Number(s):	IDA-H1170,IDA-H4060,TF-53661
ICR Date:	01/09/2012	ICR Type:	Core ICR
Lending Instrument:	SIL,SIL	Borrower:	GOVERNMENT
Original Total Commitment:	XDR 24.00M,USD 5.00M	Disbursed Amount:	XDR 33.05M,USD 4.92M
Environmental Category: B,B		**Focal Area**: L	
Implementing Agencies: Ministry of Agriculture			
Cofinanciers and Other External Partners:			

B. Key Dates

BI-Agriculture Rehabilitation & Sustainable Land Management - P064558

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	04/14/2003	Effectiveness:	09/23/2004	09/23/2004
Appraisal:	01/28/2004	Restructuring(s):		07/16/2008 10/18/2010
Approval:	07/27/2004	Mid-term Review:	12/05/2007	12/18/2007
		Closing:	10/31/2010	06/30/2011

Agricultural Rehabilitation and Support Project (PRASAB) - P085981

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:		Effectiveness:	11/01/2004	09/23/2004
Appraisal:	01/29/2004	Restructuring(s):		
Approval:	07/27/2004	Mid-term Review:	12/05/2007	12/18/2007
		Closing:	10/31/2010	10/31/2010

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes	Moderately Satisfactory
GEO Outcomes	Satisfactory

Risk to Development Outcome	Moderate
Risk to GEO Outcome	Moderate
Bank Performance	Satisfactory
Borrower Performance	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry	Moderately Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Highly Satisfactory
Overall Bank Performance	Satisfactory	Overall Borrower Performance	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
BI-Agriculture Rehabilitation & Sustainable Land Management - P064558			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating:**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA)	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA)	None
DO rating before Closing/Inactive status	Satisfactory		

Agricultural Rehabilitation and Support Project (PRASAB) - P085981			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating:**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA)	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA)	None
GEO rating before Closing/Inactive Status	Satisfactory		

D. Sector and Theme Codes

BI-Agriculture Rehabilitation & Sustainable Land Management - P064558		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Agricultural extension and research	18	18
Agro-industry, marketing, and trade	11	12
Animal production	24	31
Central government administration	22	17
Crops	25	22

Theme Code (as % of total Bank financing)		
Land administration and management	23	27
Rural markets	22	34
Rural non-farm income generation	11	3
Rural policies and institutions	22	9
Rural services and infrastructure	22	27

Agricultural Rehabilitation and Support Project (PRASAB) - P085981		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Agricultural extension and research	27	30
Central government administration	27	4
General agriculture, fishing and forestry sector	19	44
Irrigation and drainage	27	22
Theme Code (as % of total Bank financing)		
Biodiversity	25	30
Environmental policies and institutions	13	6
Land administration and management	25	43
Other rural development	24	16
Water resource management	13	5

E. Bank Staff

BI-Agriculture Rehabilitation & Sustainable Land Management - P064558

Positions	At ICR	At Approval
Vice President:	Obiageli Katryn Ezekwesili	Callisto E. Madavo
Country Director:	Mercy Miyang Tembon	Emmanuel Mbi
Sector Manager:	Karen Mcconnell Brooks	Joseph Baah-Dwomoh
Project Team Leader:	Bleoue Nicaise Ehoue	Ousmane Seck
ICR Team Leader:	Loraine Ronchi	
ICR Primary Author:	Loraine Ronchi	

Agricultural Rehabilitation and Support Project (PRASAB) - P085981		
Positions	**At ICR**	**At Approval**
Vice President:	Obiageli Katryn Ezekwesili	Callisto E. Madavo
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ICR Team Leader:	Loraine Ronchi	
ICR Primary Author:	Loraine Ronchi	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The objective of the Project is to restore the productive capacity of rural areas through investments in production and sustainable land management and through capacity building for producer organizations and local communities. Beneficiaries would also include war-distressed returnees and internally displaced persons.

Revised Project Development Objectives (as approved by original approving authority)

Global Environment Objectives (from Project Appraisal Document)

The GEF operational program will address the causes of land degradation by accelerating locally driven sustainable land management practices, contributing to maintenance of critical ecosystem functions and structures (including maintaining agro-ecosystems, stabilizing sediment storage and release in water bodies, and improving carbon sequestration through increase in vegetation cover)

Revised Global Environment Objectives (as approved by original approving authority)

(a) PDO Indicator(s) as Formally Revised in 2008 (see Annex 10 for original)

Indicator	Baseline Value (March 2008)	Original Target Values	Formally Revised Target Values	Actual Value Achieved at Completion
PDO Indicator 1:	Productivity increase of main agricultural and livestock products in project area.			
Value	First Grade Coffee : 65% Beans : 0.7t/ha Irrigated rice: 4.0t/ha Onions: 6.0 t/ha Tomatoes: 6.0t/ha Cabbage : 12t/ha Cassava: 10t/ha Palm oil: 2.2t/ha Milk: 5ℓ/cow/day	N/A	First Grade Coffee : 80% Beans: 0.9t/ha Irrigated rice: 5.0t/ha Onions: 15.0t/ha Tomatoes: 15.0t/ha Cabbage 25t/ha Cassava: 12t/ha Palm oil: 3.0t/ha Milk: 7ℓ/cow/day	First Grade Coffee :NA Beans: 0.7t/ha Irrigated rice: 4.2t/ha Onions: 6.3t/ha Tomatoes: 7.0t/ha Cabbage : N/A Cassava: 10t/ha Palm oil: 3.0t/ha Milk: 5.5ℓ/cow/day
Date achieved	2008		2008	2010
Comments	▪ Coffee and cabbage indicators were dropped due to low CDD selection of these by beneficiaries; ▪ Cassava target was mis-specified (see Box 2 in ICR); ▪ For the five commodities showing improvements, productivity gains range from modest (40 to 50%			

	attainment of target yield) for those commodities most affected by rain variations (tomatoes, onions and especially, beans—See Section 2.2) to good (78%-100%) for the other four. ▪ **Overall achievement ratio of the PDO commodity yield indicators ranges from zero for cassava and beans to 42-100% for the remaining measured commodities.**			
PDO Indicator 2:	Increase in beneficiaries' net profit.			
Value	25%	N/A	30%	26%
Date achieved	2008	2004	2008	2010
Comments	▪ Baseline was mis-specified (see Section 2.3 in ICR)—it should read zero to inform on the PDO; ▪ Net profits are measured as the ratio between production value and investments for 62% of the subprojects; ▪ The target set for net profit of 30% is unrealistically high for these types of operations, particularly in a post conflict situation. In addition, the results are very prone to weather variability. This points to a bad design specification rather than issue of achieving the intended PDO. ▪ **Overall achievement ratio of PDO Indicator 2 is 87% with baseline zero; and 20% with the mis-specified baseline. FRRs of 78% for these subprojects, considerably higher than a standard cost of funds of 12%, makes these were very good investments at the sub-project level. This further supports the argument that the baseline and targets were mis-specified in the design. If correctly specified, this indicator would have provided strong support to the argument that the PDO was achieved.**			
PDO Indicator 3:	Number of returnees and displaced persons reintegrated in their communities.			
Value	28,000	20,000	47,000	43,301
Date achieved	2008	2004	2008	2010
Comments	▪ The project targets, baselines and actuals are households, not individuals; ▪ Households are the target unit in the Project's activities; ▪ The overall number of returnees and IDP households assisted by the Project is 215,516, as per the independent evaluations and Bank's last ISR. The 2010 evaluation estimates that the Project has supported 20% of Burundi's war distressed returnees and IDPs; ▪ 215.516 is used to report on PDO Indicator 3 in ISRs, but the Government's ICR applied a stricter interpretation of the PDO indicator by defining the 'reintegrated' portion of the indicator: Reintegrated include those HH among the 215,516 that were sowing for 2 successive seasons, were able to procure their own seeds and able to replace their own tools (43,301 HHs); ▪ **Overall achievement ratio of PDO Indicator 3 is 92%** (most strictly defined) of revised target (150% of the original).			

(b) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values	Formally Revised Target Values	Actual Value Achieved at Completion
GEO Indicator 1:	Area of selected watershed under SLM practices			
Value	3,000	20,000	9000	11,279
Date achieved	2004	2008	2008	2010
Comments	▪ As discussed in the ICR Section 1.3, GEO key indicators for the Project are only ever mentioned in an appendix to the Project's PAD M&E annex and are not part of the Project's Results Framework (RF) or legal agreements as such. GEO Indicator 1 in this table is cited in both the RF and legal agreements for the Project in general and is cited as a potential 'SLM indicator' in the PAD's GEO discussion in the aforementioned annex (please see Section 1.3). The ICR therefore uses it to inform on the GEO; ▪ **Overall achievement ratio of GEO Indicator 1 is 125%.**			
GEO Indicator 2:	Increase in vegetative cover			
Value	NA	NA	NA	104,805 ha
Date achieved	2004	2008	2008	2010
Comments	▪ See discussion above about absence of explicit GEO indicators;			

	▪ An increase in vegetative cover is cited as a potential 'SLM indicator' in the PAD's GEO discussion in the aforementioned annex (please see Section 1.3) and figures in the original (not revised) legal agreement as part of a combined indicator on vegetation cover and water harvesting for 10% of 'Depression Areas (East Zone). This was never measured and dropped in 2008 restructuring. However, the ICR uses vegetative cover more generally, to help inform on the GEO; ▪ **Overall achievement ratio of GEO Indicator 2 cannot be calculate relative to a baseline, but the Project's improvement in vegetative cover accounts for 11% of arable land in Burundi. This is a very positive achievement.**

(c) Intermediate Outcome Indicator(s)

Indicator	Baseline Value (2008)	Original Target Values	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
IO Indicator 1:	Number of productive investment sub-projects approved and being implemented			
Value	2,300	4,000	3,300	3,744
Date achieved	2008	2004	2008	2010
Comments	▪ Original RF in 2004 had 'number of sub-projects supported' with a baseline of zero; ▪ Numerous Government and Bank documents evaluate this IO against the original target of 4,000; ▪ **Overall achievement ratio of IO Indicator 1 is 113%** of the revised target approved in 2008.			
IO Indicator 2a:	Area under irrigation.			
Value	299 Ha	NA	1,224ha	1,573ha
Date achieved	2008	2004	2008	2010
Comments	▪ **Overall achievement ratio of IO Indicator 2a is 129%.**			
IO Indicator 2b:	Number of beneficiaries (including women and coffee growers).			
Value	67,000 (30,000 women and 8,700 coffee growers)	NA	102,000 (46,000 women and 14,300 coffee growers)	245,258 (89,448 women and 13,207 coffee growers)
Date achieved	2008	2004	2008	2010
Comments	• The approved project paper cites individuals (note gender dimension) and the legal agreements cite households. The data collected refers to heads of household (individuals) and is therefore broken down for gender and coffee; • **The achievement ratio for IO Indicator 2b is 240% for total number of beneficiaries; 194% achievement ratio for women; and 94% achievement ratio for coffee growers.**			
IO Indicator 3a:	Area of selected watershed under SLM practices.			
Value	3,000 Ha	NA	9,000ha	11,279ha
Date achieved	2008	2004	2008	2010
Comments	**The achievement ratio for IO Indicator 3a is 125% (see GEO Indicator 1).**			
IO Indicator 3b:	Number of trees, including local varieties.			
Value	44,000,000	NA	52,000,000	71,904,786
Date achieved	2008	2004	2008	2010
Comments	• **The achievement ratio for IO Indicator 3b is 138%.**			
IO Indicator 4:	Number of household returnees benefiting from matching grants.			
Value	NA	NA	3,000	1,978
Date achieved	2008	2004	2008	2010
Comments	• Some matching grant sub-projects are for beneficiary groups that include returnees. These are not counted in the 1,978 result above; • **The achievement ratio for IO Indicator 4 is 66% percent (most strictly defined).**			
IO Indicator 5:	Number of indigenous people benefiting from matching grants.			

Value	NA	NA	3,000	3771
Date achieved	2004	2008	2008	2010
Comments	• Some matching grant sub-projects are for beneficiary groups that include indigenous peoples. These are not counted in the 3771 result above; • **The achievement ratio for IO Indicator 5 is 126% percent (most strictly defined).**			
IO Indicator 6:	Number of persons day trainings.			
Value	58,000	NA	108,000	275,388
Date achieved	2008	2004	2008	2010
Comments	• **The achievement ratio for IO Indicator 6 is 254%.**			
IO Indicator 7:	Status of the agricultural census.			
Value (qualitative)	NA	NA	Agricultural census is adopted	Questionnaires and methodology developed and pre-tested for the agricultural census
Date achieved	2008	2008	2008	2010
Comments	• It is unclear from the wording of the indicator what is meant by adopted—the census instruments and methodology have been developed and tested. The census is pending a full roll out. The ICR notes progress on the development of the census as the notion of 'adopted' is ill defined.			
IO Indicator 8:	Implementation status of the Agricultural Policy Note			
Value (qualitative)	NA	Agricultural Policy Note is being completed and adopted	(i) Sectoral allocation of expenditures increased; (ii) sector programs/projects are designed and implemented in compliance with the Policy Note	(i) Achieved (ii) Achieved
Date achieved	2004	2008	2008	2010
Comments	• The increase in budgetary expenditure allocations to agriculture was achieved as it grew from 4.1% in 2008 (at restructuring) to 8.3% in 2009 (the last year with confirmed World Bank/GoB data). Projections for 2011 are 10% according to the World Bank PREM team in Burundi. Note that it is reported here to complete the RF but attribution is clearly not unique to the Project and the data to analyze attribution more deeply is not available; • With respect to (ii) **achieved**, in ICR interviews, development partners (unsolicited) noted the marked increase in coordination and alignment of sector programs and projects since the Agricultural Strategy and Investment Plan based on the Project-financed Agricultural Policy Note. This is the basis of '**achieved**' assessment.			
IO Indicator 9:	Implementation status of agricultural sector M&E system.			
Value (qualitative)	M&E framework is being designed and implemented in close collaboration with development partners.	NA	yes	yes
Date achieved	2008	2004	2008	2010
Comments	• This activity was **achieved** with technical assistance from the FAO.			
IO Indicator 10:	Number of provincial land use plans prepared.			
Value	NA	2	8	8
Date achieved				
Comments	• **The achievement ratio for IO Indicator 10 is 100%;**			

	• While the Project's IO on provincial land use plans prepared was met, there is a frank admission that more work is required to increase the ownership of these at the provincial level, which has seen a great deal of political turnover.			
IO Indicator 11:	Status of the legal framework for environment.			
Value (qualitative)	i) A draft decree for the implementation of the Law on Project environmental impact assessment has been elaborated; (ii) Various codes on environment (land, water use, forestry, and mining) have been reviewed.	NA	yes	yes
Date achieved	2008	2004	2008	2010
Comments	• **This activity was achieved with technical assistance from the FAO.**			
IO Indicator 12:	Number of agricultural research subprojects approved and being implemented.			
Value	NA	15	25	16
Date achieved	2004	2008	2008	2010
Comments	• **The achievement ratio for IO Indicator 12 is 64%.**			

G. Ratings of Project Performance in ISRs

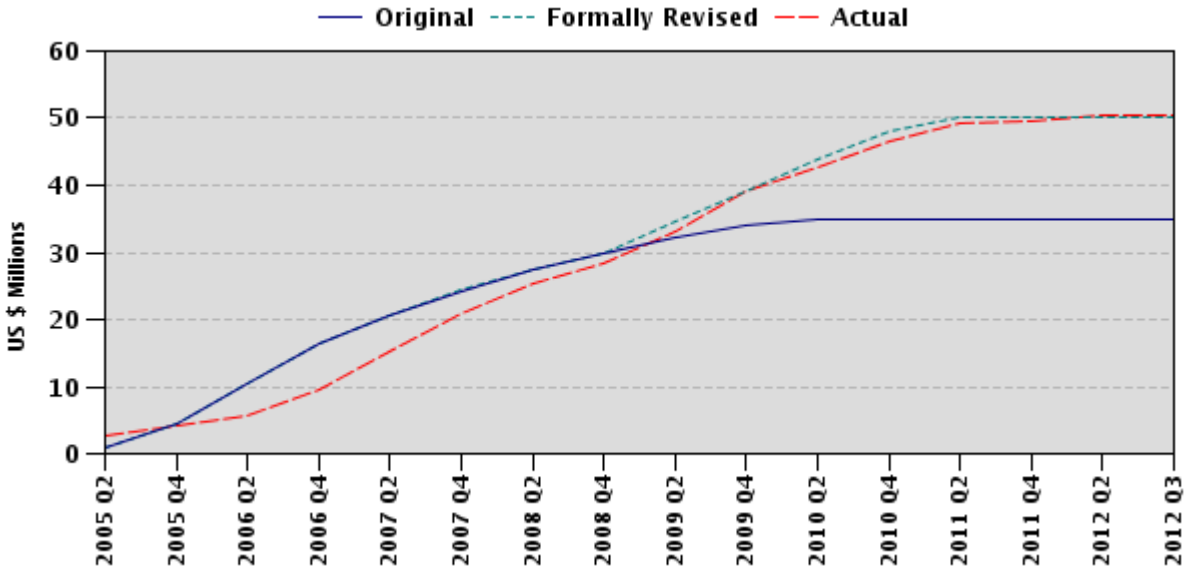
-						
No.	Date ISR Archived	DO	GEO	IP	Actual Disbursements (USD millions)	
					Project 1	Project 2
1	12/14/2004	S	S	S	2.78	0.30
2	05/05/2005	S	S	S	3.18	0.30
3	06/16/2005	S	S	S	4.25	0.37
4	12/21/2005	S	S	S	5.70	0.73
5	06/09/2006	S	S	S	9.59	1.42
6	01/11/2007	S	S	S	15.13	2.24
7	06/29/2007	S		S	20.98	0.00
8	12/13/2007	S	S	S	24.22	3.62
9	06/01/2008	S		S	28.29	0.00
10	12/19/2008	S	S	S	32.03	4.73
11	05/29/2009	S		S	38.12	0.00
12	12/03/2009	S		S	42.53	0.00
13	05/21/2010	S		S	46.43	0.00
14	06/16/2011	S	S	S	49.57	4.93

H. Restructuring (if any)

Restructuring Date(s)	Board Approved		ISR Ratings at Restructuring			Amount Disbursed at Restructuring in USD millions		Reason for Restructuring & Key Changes Made
	PDO Change	GEO Change	DO	GEO	IP	Project1	Project 2	
07/16/2008	N		S		S	28.29		The 2008 restructuring was for additional financing in the amount of SDR 9.3 million. Additional financing was justified by a rapid and effective execution of Project activities, particularly in disbursement for sub-projects. The Bank team had already identified at the midterm review (MTR) that the Project could absorb additional financing and should do so in order to ensure proper training, capacity building and follow up of SP investments, as well as meeting demand for SP among beneficiaries. Key changes also include a formally revised results framework, including new PDO indicators. The PDO and GEO remained unchanged.
10/18/2010	N		S		S	48.21		In 2010 the project had a Level 2 restructuring for the reallocation of proceeds and extension of the closing date to June 30, 2011. Project resources (and therefore, the scale of its activities) were augmented by almost 40% in 2008. In the end, an additional seven months was requested by the Government of Burundi to complete the execution of the Project's augmented activities. At the same time, the reallocation of proceeds was made from the Project's training budget (by over a US$1 million) to the financing of further SPs under subcomponent 1 (a).

I. Disbursement Profile

P064558



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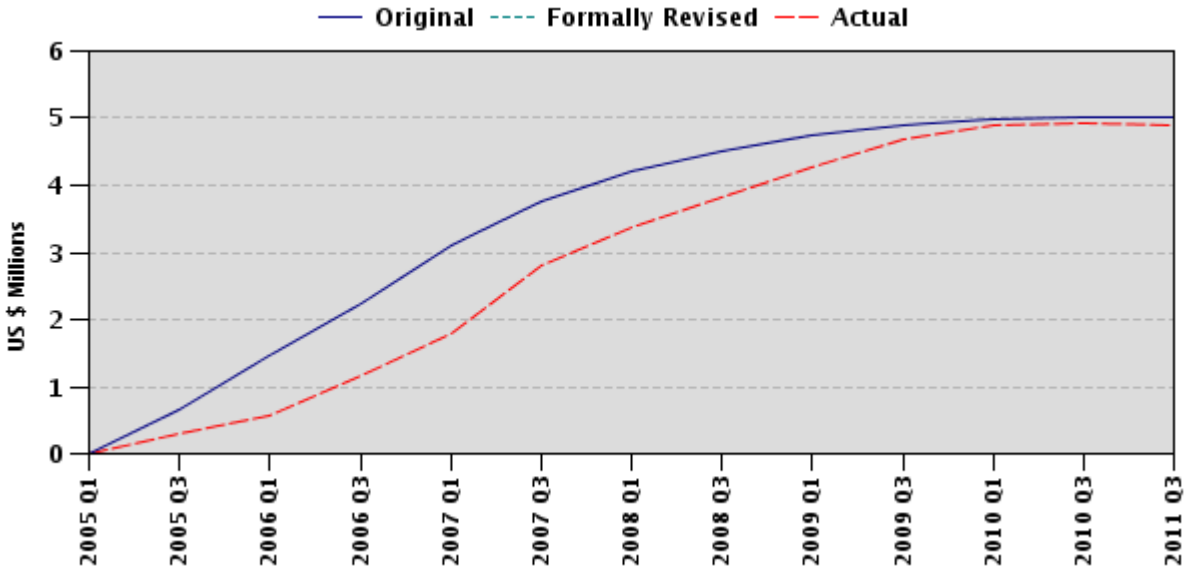

1. Project Context, Development and Global Environment Objectives Design

1.1 Context at Appraisal

1. Burundi is a poor country, beset by acute civil and ethnic conflict in the 1990s that was still in full swing when preparation of the Agricultural Rehabilitation and Sustainable Land Management Project (PRASAB) began in 2002. Per capita GNP in 2001 was only US$100, the second lowest in the world.[1] Ninety-one percent of the population lived in rural areas and the rural post-conflict poverty rate in 2003 was 58 percent, up from 35 percent some ten years earlier. The widespread rise in poverty was directly related to the conflict-induced economic collapse and the complete discontinuation of most public services. In the rural space, the looting and destruction of basic farm capital goods and livestock left those 90 percent of Burundians who relied on agriculture for their livelihood, bereft. The situation among Burundi's refugees and internally displaced persons (IDPs) was particularly acute.[2]

2. The Project Appraisal Document (PAD) notes Burundi's substantial agricultural potential, the bottlenecks to achieving this potential, and the sector's critical importance to the country's macro situation. Agriculture accounted for 50 percent of GDP and more than 80 percent of export earnings from a non-diversified base (coffee and tea). Depletion of productive capital stock in the wake of conflict, as well as structural challenges, was noted. These included weak agricultural research and (especially) extension, soil degradation, low fertilizer use, and considerable land fragmentation into small plots (0.7 ha average). In the absence of agricultural services and with severe disruptions to production during times of civil conflict, food security concerns in this population-dense country (270 people/km^2) led inevitably to deforestation and watershed degradation as natural resources were mined, vegetative cover reduced, and soil erosion increased. The PAD also notes that much of the country's 300,000-plus hectares of arable marshland were underutilized. These factors accounted for a very low agricultural productivity at appraisal, remedial measures for which were further constrained by poor access to finance (less that 5 percent access) and the absence of rural banks.

3. At appraisal, various Bank documents[3] note the lack of capacity in the key line ministries—the Ministry of Agriculture and Livestock (MAE) and the Ministry of Land Management, Environment and Tourism (MATET) for: ensuring environmentally sustainable management of marshlands and hillsides; formulating policies on land-use issues; formulating rural development policies and strategies; and for monitoring and implementing the same. This was confirmed by retrospective Implementation Completion and Results Report (ICR) interviews with Development Partners (DPs) who were active in Burundi at the time of appraisal. The performance of agriculture was, and still is, widely linked with overall economic performance.[4] This capacity issue at key ministries therefore posed a critical bottleneck to post-conflict economic recovery.

4. The rationale for World Bank assistance through PRASAB, as presented in the PAD, focused directly on the issues identified above. The Project's activities (see components below) aimed to assist

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[1] World Bank. 2003. *World Development Indicators*.
[2] World Bank. 2004. *Project Appraisal Document: Agricultural Rehabilitation and Sustainable Land Management Project* (PRASAB PAD). At appraisal, there were an estimated 839,000 refugee returnees and 388,000 IPDs. This estimate was revised upwards over time.
[3] World Bank. 2002. *Transitional Support Strategy for Burundi*. (IDA: Washington DC); and PRASAB PAD
[4] Ibid.

the Client in rebuilding the productive capacity of Burundi's rural inhabitants, returnees and IDPs, service providers and local and central Government authorities. In so doing, the Project aligned itself with the higher-order objectives of the Bank's Transitional Support Strategy (TSS, precursor to the CAS) that was in effect at appraisal. Specifically, the TSS aimed to "build a foundation for national reconciliation, poverty reduction and durable peace" in explicit support of the four key development challenges it cites: (i) achieving peace and security; (ii) reintegrating conflict affected groups; (iii) improving welfare of the poor; and (iv) implementing socio-economic reforms for economic recovery for sustained growth and poverty reduction.[5] The decision to blend GEF funds with the Project was particularly relevant in light of the physical degradation documented in the PAD, the Government's own goals for natural resource management[6] and the lack of capacity for land use planning and natural resource management noted at all levels. At appraisal, the Project would contribute directly to the Client's objectives for post conflict reconstruction as per its Interim Poverty Reduction Strategy Paper (IPRSP), [7] and its Agricultural Rehabilitation Program for War-Distressed Persons.

1.2 Original Project Development Objectives (PDO) and Key Indicators (as approved)

5. The PDO as documented in the PAD is "to restore the productive capacity of rural areas through investments in production and sustainable land management and through capacity building for producer organizations and local communities. Beneficiaries would also include war-distressed returnees and internally displaced persons". This differs slightly from the wording in the Development Grant Agreement (DGA). Restoring productive capacity in rural areas is the core objective in both formulations (see Annex 10 and Section 6 for more on this discrepancy). It is not straightforward to identify the precise set of original 'Key Indicators' for PRASAB, as these differ in three different parts of the official Project documentation, namely, the PAD text, the results framework (RF) of the PAD (Annex 3), and the DGA. See ICR Annex 10 for full account of original indicator articulation, where there is considerable overlap between the different formulations. As the DGA only lists outputs, the ICR lists here the original 'PDO indicators' of the PAD RF:

i. At least 75 percent of the benefitting producer organizations (POs) and local communities (LCs) continue to function for the benefit of their members and follow the norms of good environmental and sustainable land management; and
ii. More than 80 percent of returning refugees and displaced families having received Project-financed kits have returned to normal agricultural life.

1.3 Original Global Environment Objectives (GEO) and Key Indicators (as approved)

6. Appendix 1[8] of Annex 3 of the PAD states that: "The GEF operational program will address the causes of land degradation by accelerating locally driven sustainable land management practices, contributing to maintenance of critical ecosystem functions and structures (including maintaining agro-ecosystems, stabilizing sediment storage and release in water bodies), and improving carbon

[5] Ibid, p.15

[6] Republic of Burundi. 2003. *Cadre stratégique intérimaire de relance de la croissance économique et de lutte contre la pauvreté (CSLP-Interimaire*). [Interim Poverty Reduction Strategy (IPRSP)].

[7] Ibid. Economic growth and the reintegration of war-displaced persons form two out six of the Government's strategic axes of their IPRSP. The IPRSP has as one of its key objectives to "develop an agricultural sector centered on productivity growth and reduced pressure on land," with "a diversified and modernized agricultural sector" as one of its higher level goals. Social cohesion and rehabilitation also figure prominently throughout the strategy.

[8] The Appendix to Annex 1 of the PAD is the Project Design Summary table required in Bank PADs prior to 2004. The Project went to Board at the transition point between the old Project Design Summary and the new Results Framework.

sequestration through increase in vegetation cover." It is also only from this Appendix to the RF in PAD Annex 3 that "Key Indicators" can be found for the GEO. There are no baselines or targets set for these, however, and, in general they are not worded for measurability. They do not figure in either the Project's RF, or in the DGA, where there is no reference to GEO indicators at all, but to 'land degradation' in the Project more broadly (see Annex 10 for summary of GEO-related indicators). The GEO "key performance indicators" listed in the PAD Appendix 1 to Annex 3 are listed here because although they do not figure in the Project's RF or M&E targets, indicator (i) does provide the ICR with guidance on the GEO (see Section 3) and several of the Project's output indicators do support this GEO. They are(see Datasheet Section F):

i. Preservation or restoration of the structure and functional integrity of ecosystems as measured by a set of applicable sustainable land management (SLM) indicators (including soil erosion, siltation, change in vegetative cover, monitoring of encroachment/production in fragile lands, and key biodiversity in representative sites);
ii. Institutional and human resource capacity is strengthened to improve sustainable land management planning and implementation;
iii. Policy and regulatory framework is strengthened to facilitate wider adoption of sustainable land management practices; and
iv. Greater awareness of SLM activities and issues among producers.

1.4 Revised PDO and Key Indicators, and Reasons for Revision

7. Section B of the ICR Datasheet depicts the PRASAB Project timeline, including formal restructuring in 2008 and 2010. The PDO was unchanged in either restructuring. Additional financing in 2008 was precipitated by a rapid and effective execution of Project activities, particularly in disbursement for sub-projects. The Bank preparation team at appraisal had been cautious about the speed of a quality implementation for PRASAB's CDD sub-project activities given the post-conflict context. When the Project proved to be disbursing well, and with consistently satisfactory overall implementation ratings, the case for additional financing was made at midterm (2007) and additional financing was prepared in the amount of US$15 million (see Table 1).[9] Revision of the RF was undertaken at the same time, although these approved revised indicators largely reflect the *de facto* set of indicators tracked by the Project team since early implementation, when weaknesses in the original RF became apparent (see Annex 10 for a complete tracking of ISR indicators and Section 2.3 for discussion). The Project RF revision in 2008 formally changed PDO indicators[10] to:

i. Productivity increase of main agricultural and livestock products in project area;
ii. Increase in beneficiaries net profit; and
iii. Number of returnees and displaced persons reintegrated in their communities.

Datasheet Section F lists all formally revised indicators (PDO and intermediate).

The restructuring of 2010 extended the closing date of the Project by seven months to allow for execution of Project activities (resources for which had been augmented by almost 40 percent in 2008).

[9] The case, and its approval by the Board, is documented in the 2008 restructuring package.
[10] These are the PDO indicators approved in the restructuring package and tracked by Project. Again, they differ slightly from the articulation used in the legal agreements. Please see Annex 10 for details.

1.5 Revised GEO (as approved by original approving authority) and Key Indicators

8. The GEO was not formally revised during Project implementation. As noted above, the GEO Key Indicators were never explicitly a part of the Project's RF even at PAD stage, but continued to be informed to some extent by the Project revised indicators (e.g., area under SLM).

1.6 Main Beneficiaries

9. The primary target groups for the Project are found in the PAD, component by component. The main beneficiaries of productive investments under Component 1(a) CDD sub-project (SP) activity(see component descriptions below) are the women and men of local community based organizations (CBOs) and POs receiving SP support. The main beneficiaries under Component 1(b) are returnees and IDPs. At the time of the 2008 Additional Financing, the indigenous peoples group of the Batwa was added as target beneficiaries of PRASAB's Component 1 and OP 4.10 was triggered (see ICR section 2.4 below for further discussion). The main target group of the capacity building activities of Component 2 include: CBOs, POs, local implementing agencies, and technical staff of the MAE, MATET and of the Burundian Institute of Agricultural Science (ISABU). The causal links between the Project's investments and the intended beneficiaries named in this section are explored in Section 3 and graphically depicted in the Results Chain for the Project (Figure 1).

1.7 Original Components (as approved)

10. The Project has three components:

Table 1 PRASAB Components

Component	USD Millions (IDA & GEF)		
	Original Allocation (2004)	**Additional Financing (2008)**	**Total**
Component 1: Support for production and sustainable land management investments;	27.42 (of which 2.8 GEF)	10.75	38.17
Component 2: Support for capacity building and institutional strengthening	7.17 (of which 2.2 GEF)	3.75	10.92
Component 3: Support for Project coordination and management	5.41	0.5	5.91
Totals	**40** (of which 5 GEF)	**15**	**55**

11. As can be seen from Table 1, Component 1 is the largest. The lion's share of this Component, in turn, goes to sub-component 1(a) *Production and Sustainable Land Management Investments*, largely for the financing of CDD matching grants for locally identified SPs.[11] Sub-component 1(a) also finances: the contracting of local implementing agencies (LIAs) to provide support services to POs and CBOs for their successful SP design and implementation; the development of ten SLM demonstration watershed sites across representative agroecological zones; and rehabilitation and development of marshland irrigation schemes. See footnote 13 for description of incremental SLM activities for SPs. US$10.3 million finances Sub-component 1(b) *Emergency Support for Returnees and Internally Displaced People* for agricultural startup kits for these vulnerable groups. The activities of 1(a) in

[11] At Project end, of 3101 'productive' SPs, 1107 were for livestock, 171 for food crop production; 78 for cash crop production; and 76 small-scale irrigation; 294 integrated livestock and 269 off-farm activities (including value adding equipment, carpentry, crafts, apiculture and fishing/aquaculture). Add to this 622 dedicated forestry SPs and incremental (GEF-financed) SLM activities to 1583 of the 3101 SPs described above.

supporting community group formation and SP application also extends to this group, and to the Batwa as of 2008.

12. Component 2, under sub-component 2(a) *Enhancing the capacity of local communities, producer organizations, and local implementing agencies* builds the capacity of CBOs and POs for sound administration, good service provision and natural resource management; and training for LIAs to provide the support they are contracted to give local communities under Component 1. The sub-component also supports capacity building of the local and provincial SP selection committees. At a second level, under sub-component 2(b) *Support for institutional strengthening of key public services*, the Project strengthens capacities of the MAE, the MATE, and ISABU—including the financing of applied research projects and seed multiplication activities at ISABU.

13. Component 3 supports Project coordination and management. PRASAB has a National Project Coordination and Management Unit (NPCMU) under the MAE and three Inter-provincial Project Coordination and Management Units (IPCMU).

14. Figure 1 below fully depicts the multiple activities of each component and the causal links between component activities/outputs and the PDO and GEO. Given the complexity of the objective/indicators articulation for the Project described above, Figure 1 also clarifies (i) the indicators used by the Project and in the ICR; and (ii) spells out the logical flow from the Project's activities to its development outcomes in a results chain (RC).

15. The actual 'objective' portion of the PDO and GEO wording is isolated and faithfully reproduced in Figure 1 in order to clearly specify the development outcomes under assessment (as separate from the means to achieve these) although the means are also included in the RC.[12] Intermediate outcomes and indicators in the RC are drawn directly from the PAD, component-by-component, and from the 'means' specified in the PDO and GEO. The RC cites all formally approved indicators and also supplements these with other relevant indicators mentioned within and beyond the various Project documentation in order to provide as complete a picture of PRASAB outcomes as possible. ***The ICR assessment is organized around Figure 1 and it is therefore presented early to ensure readability of this assessment of PRASAB, particularly in the presence of poor M&E articulation in Project documentation.***

1.8 Revised Components

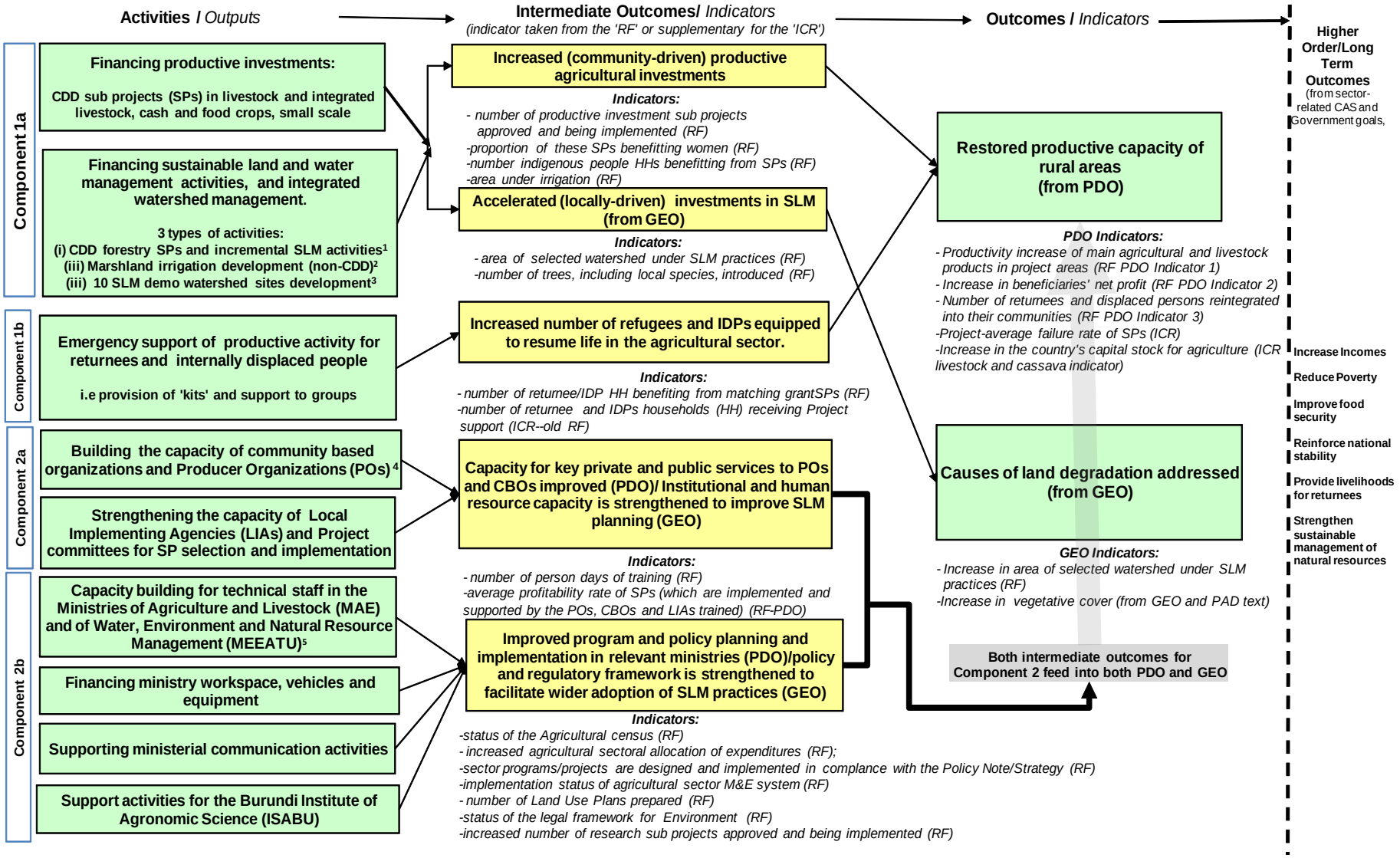
16. The components were not revised. Additional financing in 2008 was allocated across existing components as described in Table 1.

1.9 Other significant changes

17. As indicated in the Datasheet Section H, the Project was restructured twice

[12] The GEO is a good example of why the RC is necessary to assess Project impacts. The GEO ("The GEF operational program will address the causes of land degradation by [sic] accelerating locally driven sustainable land management practices, contributing to maintenance of critical ecosystem functions and structures (including maintaining agro-ecosystems, stabilizing sediment storage and release in water bodies), and improving carbon sequestration through increase in vegetation cover") confounds the *objective* (addressing the causes of land degradation) with the *means* (accelerating locally driven sustainable land management practices and increasing vegetation cover), and even with the potential indicators (stabilized sediment storage and improved carbon sequestration), all of which are important. The RC therefore respects each of these elements of the GEO and puts them in their logical place.

Figure 1 PRASAB Results Chain[13]



[13] For the numbered notes in Figure 1, please see Annex 2: Outputs by Components. Figure 1 numbered notes explain in greater detail the precise project activities.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

18. Project preparation and project design were well aligned with the rural development needs of post-conflict Burundi. This can be seen from the numerous analyses referenced in the PAD, all of which highlight the risk and needs associated with the conflict, the incipient peace process and key aftermath issues (reintegration of returnees and IDPs, destruction of capital stock, cessation of rural services, degradation of soils, etc.). Given this context, the ICR finds that the Project's objectives were appropriate, focusing on restoring the productive capacity of rural areas in Burundi (PDO) with a clear vision to sustainable land management and environmental concerns (GEO). This assessment is reinforced by ICR interviews:

> *All the [PRASAB] activities respond[ed] to Government demand and in fact, we all shared similarities in rural development programs across partners—there was a massive need and a massive response, geographically shared across the partners.*[14]

19. There is therefore evidence of good DP coordination in implementation,[15] but also in preparation, with lessons drawn in the PAD from other partner operations in Burundi. Further to this, the PAD cites lessons in the Project's design and approach from other Bank operations, including the use of CDD investments; of GEF-financed SLM additionality; and of a sufficient resource allocation to multi-level, multi-actor capacity building for implementation. The Bank safeguard policies were realistic, although OP4.10 for IPs was not triggered until later (see below).

20. Three factors made the operation risky at the time of preparation. Full scale fighting ended only in December 2003 and 14 of 17 provinces in Burundi remained under critical UN security classifications until 2005, so that the conflict was still in full swing at preparation. Second, the conflict exacerbated capacity issues (and risks) at all levels for implementation and sustainability. Third, the Project was prepared before the democratic election of 2005 with a transitional Government carrying ownership and sustainability risks. Government counterpart contribution to the Project was zero. The first two risks were largely and explicitly identified in the PAD. Assigned mitigated risk ratings were frank and conservative (High and Substantial in most cases); and accompanying mitigation measures for capacity were the right ones in terms of Project design (CDD articulation, financing for capacity-building, etc.). The risks associated with the larger macro uncertainty were not rated in the PAD but were identified and mitigated in component design and through high-level participatory preparation. Respectively:

- Component 2 includes a range of support activities for capacity and policy formation of key ministries and agencies. In terms of transitional government, the selection of CDD for Component 1was the appropriate mitigating design feature for implementation of investments.
- In terms of the risks associated with an interim government for sustainability and buy-in, the Project was fully aligned with the Bank's transitional post conflict support to Burundi. Considerable time appears to have been spent *in situ* with high-level inter-ministerial planning and preparation meetings to build consensus between the different groups as they emerged from

[14] ICR Interview with EU-Burundi.

[15] This partnership approach was evident throughout implementation with, for example, formal geographic coordination activities with other DPs for Component 1(b) activities with returnees and IDPs. Chaired by the World Food Programme, PRASAB (and other DP-supported Projects) targeted returnees and IDPs within an allocated geographic area to ensure, collectively, national coverage.The Project's participation and success in this approach was confirmed in ICR DP interviews.

conflict to co-governance. The task team maintained this intensity despite some mission curtailment by the Country Manager due to bombings in the capital.

21. The ICR concludes that the task team and reviewing Bank management were fully cognizant of the macro risks and mitigated with appropriate design and participation processes with the transitional Government (grassroots beneficiary participation in preparation could not occur as field visits were not permitted due to acute security concerns).

22. In terms of complexity, as can be seen from the component descriptions above and from the full depiction of project activities across components in Figure 1 and Annex 2, the Project is comprehensive. While this argues for a complex design, the status of outcomes and satisfactory implementation ratings attest *ex-post* to the Project's success in executing them. A key factor here was the choice of CDD implementation for the SPs, which allowed articulation and implementation to proceed even as the country's post-conflict super-structures and capacity were being rebuilt. In terms of the breadth of activities, ICR interviews (quoted above) document the need for broad-based reconstruction with geographic partition among DPs (see Annex 11 for provinces in which PRASAB was active).

2.2 Implementation

23. The restructuring for additional financing in 2008 (and underlying disbursement and implementation performance) provides evidence of the Project's ability to disburse and execute activities to the satisfaction of the Bank. Project-end Aide Memoires and ISRs confirm the sustained quality of implementation, as does the request of only a 7-month extension to conclude Project activities, despite a 40 percent resource augmentation in 2008. Several key factors contributed to successful implementation: (i) appropriate selection of a CDD approach and strong multi-level capacity support in Project design; (ii) very strong Government project management that could identify and correct problems as they arose; and (iii) close supervision and technical support from the Bank in the early days of CDD implementation, and later in terms of implementation support despite sustained security concerns. The first point (i) is discussed in greater detail in Section 3 below. All three factors contributed to the Project's ability to diagnose and correct for implementation challenges as they arose. Box 1 provides an example flagged in the MTR and independent evaluation documents.

Box 1: CDD Approval and Implementation Process

Initially, the pace of project approval by Community and Provincial SP Approval Committees (CCAPs and CPAPs, respectively) outstripped the flow of funds to approved SPs. By the start of 2007, only 43 percent of SPs approved had received financing. Even prior to the MTR at the end of 2007, the Project had identified the bottleneck on the flow of funds and requested assistance from the Bank to unblock. Namely, the Project flagged that the threshold for CCAP approval of SPs at community level was so low as to result in most SPs approval congesting at the provincial (CPAP) level, which then impaired the CPAP's ability to facilitate the follow-through of flow of funds with the NPCMU. The Bank, in turn, was responsive to this and provided support by raising the cap, but also by reviewing and emphasizing in the 2007 MTR the need to fine tune the training to both CCAPs and CPAPs to (a) accompany the raised level of responsibility of CCAPs; and (b) enforce greater selectivity in SP approval. By 2010, the rate of financing for approved SPs had risen to 81 percent, which represents 100 percent of available financing for the CDD investments activity of the project. That is, the 19 percent of approved projects that did not receive financing was due to exhaustion of Project financing for this sub component, and not to ongoing implementation bottlenecks.

24. Similar examples of good diagnostic and correction exist in the identification of challenges after an initial round of SPs. For example, clean planting material and lack of seeds came up as constraints to good SP implementation in a number of sub-sectors. The Project responded by providing support for multiplication and seed production activities to beneficiaries (see Box 2 on cassava). Similarly, corrective measures flagged in the MTR were quickly resolved in implementation. Examples include the Bank's signaling of a stronger focus on management and due diligence in PO/CBO capacity building and the need for midterm beneficiary assessments, both of which the Project undertook. There are also documented instances where the in-course correction of Bank supervision was less successful. These include the 2008 emphasis during restructuring on coffee, and the late diagnosis of the need for a more sustained extension model for productive investments (discussed in greater detail in Section 5.1(b)).

25. Disease (see Box 2) and climatic factors outside the Project's control created further challenges. Seasons of either poor or excessive rain were cited in the Government's ICR, resulting in lower-than-expected productivity for rainfed vegetables, some of which figure in the Project's (revised) PDO productivity indicator. There were some factors within the Government's control that may have impacted efficiency, including a reluctance to replace, reinforce or reform public LIAs in the five provinces where the Project did not use private LIAs. While the SPs in these provinces still had satisfactory rates of return, there is an open question about whether they could have achieved even higher returns with better performing extension support.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

M&E Design

26. The ICR notes two key weaknesses in the Project's M&E design that persist even when the RF was formally revised in 2008: (1) poor clarity; and (2) weak coverage.

1. **Poor clarity.**

a. There is a lack of clarity in the presentation of the actual key indicators, with considerable **internal inconsistency** within Project documents (see Annex 10). In exploring this issue with task team leaders, Project staff and AFTOS the ICR team concludes that a contributing factor was the delivery of the Project at precisely the moment of transition from the old PAD 'Project Design Summary' to the modern 'Results Framework'. There would have been an adjustment mid stream through Project preparation from the old format to the new that contributed at least in part to the confusion found in Project documents. Second, new or modified indicators were added to legal documents that differed from their articulation in the quality-reviewed PAD (see also Section 6, Lessons Learned); and

b. There is a lack of clarity in the actual formulation/articulation of some indicators and objectives, including the PDO and GEO. In support of this view:

- Both the PDO (from the PAD) and the GEO include a confluence of objective (e.g., restoring productive capacity in rural areas) with the means of achieving the objective (e.g., *through* investments in production and sustainable land management and through capacity, etc.). See also footnote 12 for GEO;
- The PDO is worded as if the objective were for the whole of the rural space in Burundi, when in actual fact, the objectives pertain to project areas. This can be seen both from the allocation of geographic areas of intervention among DPs who had similar programs (and not a 'national coverage' approach), as we have documented elsewhere in the ICR. This clarification was

added to the wording of revised PDO indicators that actually includes 'in Project area'(see Section F of the Datasheet);

- Articulation is sometimes unclear or inaccurate. For example, revised PDO indicator 3 refers to 'persons' whereas the baselines, targets, and data all refer to households, in line with the Projects intervention modality (i.e., targeting households). Another example is in the indicator on the agricultural census being 'adopted' with no guidance on what that means;
- The baseline for the revised PDO indicator on "beneficiaries' net profit" is mis-specified. The indicator refers to the net profit accruing to beneficiaries from Project-financed SPs. As such, the baseline should be zero to represent the 'without project' scenario and then the target of 30 percent can be (correctly) interpreted as the net average profitability from SPs accruing to beneficiaries. Instead, the baseline was specified as 25 percent (the average SP profitability in 2008) so that a project-end indicator would only show change in SP profitability over the second half of the project relative to SP performance in the first half, which does not inform on the PDO, but on project implementation over time.[16] In addition, the revised target rate was unrealistically high for the types of sub-projects proposed. These returns would also be subject be a high level of variability. The design of this indicator made it a poor indicator for measuring the PDO achievements.

2. **Weak Coverage**.

The Project's PDO indicators may not inform fully on the Project's success or failure in 'restoring productive capacity' in rural post-conflict Burundi (PDO), or in 'addressing the causes of land degradation' (GEO). That is, although intermediate PDO indicators inform on the GEO, there remains a gap in the final analysis that could be remedied by the use of some of the original Key Indicators in the PAD for the GEO that were buried in an appendix to the RF annex (in particular, see (i) in Section 1.3 above). Given this, the ICR uses as many of the GEO key indicators named in the PAD text for which there is data available to assess outcomes in Section 3.

Further to the GEO, in terms of sufficiency for coverage, revised PDO indicator (1) on productivity of eight commodities poses challenges. First, it is difficult in a CDD context to ensure the relevance of commodities chosen *ex ante*. A good example is the selection of coffee productivity in the 2008 revision: When coffee did not figure as prominently in communities as anticipated in 2008, that data became less relevant to the Project's decisions.[17] More importantly, while the ICR agrees that productivity is a critical measure, it may not *on its own* sufficiently inform on the PDO's well-placed focus on 'productive capacity' in an immediately post-conflict context. Rather, productive capacity could be more directly measured to complement the slightly higher order 'productivity' indicators. This logically follows what is known and documented in the PAD about Burundi's impaired productive capacity including:

(a) agricultural capital stock (e.g. cattle, basic farming implements, etc.) looted or destroyed during conflict;

[16] In addition to this conceptual flaw, arithmetically, the Project-end achievement of 26 percent average net profit rate is fully 87 percent of the project-end target of 30 percent, if zero were the correct baseline. In specifying 25 percent as the baseline, the Project technically achieved only 20 percent (one percentage point) of its Project-end target.

[17] "*We were starting in PRASAB from nothing at all—it was an adventure into the unknown. We were trying to envision what the targets might be. It was also CDD—we could not know what would emerge. As the Project evolved, we naturally selected indicators for the commodities that were emerging as most relevant to beneficiaries…"* Interview with Project Staff

(b) almost non-existent extension and support services for agricultural production and low capacity among producers;
(c) large number of returnees and IDPs disconnected from productive activity and assets;
(d) lack of institutional framework and policies for sustainable agricultural growth; and
(e) documented collapse in production and productivity putting pressure on marginal lands for food security and survival.

The Project's activities logically follow from these issues. So for example, respectively, Project activities on (a) SP investments in capital stock and agricultural kits to war-distressed persons; (b) financing and training for private and local service providers to provide extension and support activities for agricultural production; (c) reintegration support for returnees and IDPs; (d) support to key ministries for M&E and critical land and sector strategy formation; and (e) incremental GEF-financed SLM activities for environmental sustainability, are mapped to intermediate outcomes and indicators that inform on these (see Figure 1). Where the flow could be improved is in the selection of direct 'productive capacity' indicators.

A good example of both the challenges in selecting the right commodities and of the need to complement productivity measures can be found in Box 2.

Box 2: The Case of Cassava Productivity (MT/ha) as PDO Indicator

Consider the use of the cassava productivity indicator to inform on the PDO. It can be seen in Section F of the ICR Datasheet that there is no increase in cassava productivity from the baseline (10 MT/ha) to Project-end (10 MT/ha). The logical conclusion is that the PDO indicators was not achieved for cassava and, from that, (at least partially) infer that the PDO was not achieved (in the absence of other indicators). In actual fact, at a time when cassava production (a key food security staple) across the sub-region was devastated by the cassava mosaic virus, PRASAB imported the first clean mosaic-resistant tubers into Burundi from Uganda and the DRC. Project beneficiaries who prepared cassava SPs did so for *multiplication* of disease-resistant tubers to sell and distribute to other farmers across the country. Multiplication of tubers requires their harvest *before full maturity* (before reaching the full targeted yield in the RF). The role of the Project and of its beneficiaries in this was so critical that the National Committee for Defense Against Plant Disease cites the Project as a key instrument in the fight against the disease for Burundi, both through the support to SPs, but also to ISABU. Under PRASAB financing, the Project reports ISABU's multiplication of disease-resistant tubers to cover 3,300 ha. What proportion of the country's stock of clean disease-resistant tubers therefore comes from PRASAB activities? In other words, to what extent did the Project restore the Recipient's productive capacity [sic] in this regard? The indicator and target on cassava productivity (12 MT/ha) can not inform on this.

Finally there are further gaps in the M&E design with respect to the measurement of outcomes to training and capacity support for better service provision to SPs. While this is always a difficult impact to measure, some attempt beyond input indicators (number of hours of training provided) would better inform the PDO. This is attempted in Figure 1 and Section 3 with reference to SP profitability (average and specific) and some beneficiary survey response.

M&E Implementation

27. Despite the weaknesses in design, M&E implementation by the Government's Project team is satisfactory. For example, in addition to information on the formally revised indicators, the Project made a consistent and exemplary effort to collect data on all the disparate indicators in the different documents, both pre and post-2008 revision. The ICR further finds that the Project team was proactive in recognizing that the formal RF did not cover the full PDO/GEO for environmental sustainability and

attempted to fill the gap by measuring soil erosion.[18] As discussed in Section F of the Datasheet, it was the Project team that correctly measured and interpreted the third revised PDO indicator "number of returnees and displaced persons reintegrated in their communities" at a higher standard than either the Bank or the independent evaluation teams. Rather than stopping at the 'input' of 215,516 households receiving emergency kits and group formation/capacity support from PRASAB, the Project team tracked and reported the 'reintegration' aspect of the PDO indicator by counting only those households of the 215,516 that were sowing for two successive seasons, were able to procure their own seeds, and able to replace their own tools, to arrive at a figure of 43,103 households, thereby (correctly) making the PDO indicator an outcome indicator.[19] The Project is commended for that effort as the formally approved RF does not provide guidance to that high a standard of interpretation.

The Bank team's approach to the confusion in M&E design can be seen in the ISRs (see Table 9 in Annex 10). Namely, to retain more or less consistently a streamlined set of the most relevant indicators. That is, after an initial attempt to track the seven "key indicators" found in the PAD text, the Project teams quickly realized the intractability of these and rationalized the indicators reported in ISRs. The 2008 additional financing package formalized these modifications and the indicators approved in 2008 survived to Project-end reasonably intact, with the exception of dropping all coffee specificity and some vegetables in the productivity list as these did not manifest through CDD. While, arguably, the Project could have been restructured much earlier to formally correct the M&E weaknesses (see Section 5), the relative importance of identifying the problem early and correcting for it is noted here. Finally, the Bank team was also vigilant in ensuring adequate beneficiary input by recommending the Project undertake independent beneficiary and impact assessments to amplify their M&E information for decision making. It is this solid implementation which makes it possible to construct a results chain with informative indicators (on which data is available) to assess the Project's outcomes in Section 3 despite persistent weaknesses in the Project's M&E design.

M&E Utilization

28. The consistent tracking of a core set of indicators, formalized in 2008, made relevant decision data available, as can be seen from Project Aide Memoires. Examples cited throughout the ICR of corrective measures taken through implementation indicate that the Project well-utilized the data it collected to inform its decisions (e.g the successful correction described in Box 1 resulted from the Project's use of data on the number of SPs implemented, as compared to those approved).

2.4 Safeguard and Fiduciary Compliance

29. The project was an Environmental Category B, triggering 5 safeguard policies at Project Start: OP/BP 4.01 Environmental assessment, OP/BP 4.12 Involuntary Resettlement, OP/BP 4.09 Pest Management, OP/BP 4.37 Safety of Dams, and OP/BP/GP 7.50[20] Projects on International Waterways. The Project team prepared all the appropriate safeguard instruments, and documents were correctly

[18] The Project applied the pin-method on a number of sites. Unfortunately, despite precautionary measures (heavy cementing), most of the pins were stolen before reliable erosion control measures could be taken. The few surviving pins measured an average of 160mm/year of soil deposition (i.e. soil that would have eroded) on one site. This unusually high measure is not fully reliable given attempts to steal the pins and is cited here, rather, as evidence of commendable efforts to implement comprehensive M&E by the NPCMU.

[19] This figure is 150 percent of the original project target, and 92 percent of the formally revised target of 47,000 households.

[20] Although the Project involved rehabilitation of small-scale water management schemes which drew water from several international rivers, these activities were determined to have met the requirements for an exception to notification to the other Riparians under paragraph 7 of OP 7.50 in both 2004 and 2008. That is, project activities did not adversely change the quality or quantity of water flows to the other Riparians, and did not adversely affect the other Riparians' possible water use .

disclosed both in-country and at the Bank's Infoshop. The same is true for redisclosure of the Environmental Assessment report and the Resettlement Policy Framework at Additional Financing. Compliance with all environmental and social safeguards, as well as overall safeguard compliance, was consistently rated as satisfactory over the entire life of the Project, with only two exceptions early on. A Moderately Unsatisfactory (MU) rating for OP 4.09 and OP 7.50 were given in 2007. In the case of OP 4.09, the MU rating resulted from a lack of training in integrated pest management, which had resulted in some loss of assets. For OP 7.50, the MU rating was due to the absence of a long-term water resources management strategy for the Project. Satisfactory resolution of both was noted by the environmental safeguards specialist in Back to Office reports and Aide Memoires. In addition to consistently satisfactory compliance, Bank supervision documents note the successful adoption of Project-produced training materials on a variety of safeguard issues, by 80,000 beneficiaries across 8,500 organizations.

30. Part way through project implementation (FY08) the social safeguards specialist recommended that OP/BP 4.10 on Indigenous People be triggered and that an Indigenous People Plan (IPP) be produced to promote participation of the Batwa. The IPP was duly developed and publicly disclosed on April 1, 2008. Although the 2008 additional financing package for the project clearly states the IPP preparation and disclosure, the updated Integrated Safeguards Datasheet for the additional financing (showing the newly triggered OP 4.10 and describing measures taken by the borrower to address it) was developed but not disclosed, which is why OP 4.10 is not reflected in the project ISRs. The ICR team reviewed back to office reports and Aide Memoires and found that the implementation of OP 4.10 mitigation measures was consistently rated satisfactory.

31. There were no serious fiduciary issues raised for the Project, and the financial management ratings were consistently satisfactory across the life of the project, with one Highly Satisfactory early on in the Project and a Marginally Satisfactory at the end of 2008. The 2008 Aide memoire and its fiduciary annex document a delay in submitting one of the quarterly reports and noted some computational errors therein. The same Aide Memoire summarizes the independent audit for that period, which confirmed the fiduciary soundness of the Project's audited accounts but notes format errors and omissions to be corrected. By the next mission the Project had undertaken the remedial measures recommended in the audit and FM ratings remained satisfactory to the end of the Project life. Procurement under the project was mainly for Consultancy Services and Community Based Procurement. Procurement was rated as satisfactory throughout the Project.

2.5 Post-completion Operation/Next Phase

32. In order not to create a gap in the Bank's support (as per the CAS) to Burundi's rural development, the Bank prepared a second operation, Agro-pastoral and Markets Development Project (PRODEMA) to overlap the PRASAB operation. To a great extent, PRASAB informed PRODEMA, as can be seen from the PAD where PRASAB is referred to as the 'first stage' in the Bank's support to post-conflict sectoral reconstruction. The PRODEMA PAD is explicit in its reference to lessons learned from PRASAB. Specifically, in PRASAB's success in using grassroots organizations and a matching grant CDD approach and its superior experience of private sector LIAs delivery over public. PRODEMA's 'next stage' of marketing builds on PRASAB's restoration of basic capacity.

33. In terms of sustainability, PRODEMA Component 1 activities are designed to include support by LIAs 'responsible for managing and consolidating PRASAB's sub-project portfolio'; and this includes capacity for management of PRASAB irrigation schemes. PRODEMA's focus on marketing

of output provides a further needed sustainability support to the investments under PRASAB and targets these. The PRODEMA project provides *transition in implementation* by maintaining PRASAB's implementation structure, implementation team and geographic coverage. Finally, like PRASAB, PRODEMA finances activities that follow on with capacity building efforts of public institutions including the MAE and ISABU. This is important for consolidating the gains made in PRASAB at central level on planning and policy capacity for the agricultural sector (see Section 3).

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

34. The context of post-conflict reconstruction persists in Burundi at Project-end. Burundi is still predominantly rural, with some 90 percent of the country's 1.2 million households living in rural areas and engaged in low-yielding multi- crop subsistence agriculture. As at appraisal, agriculture still accounts for almost 50 percent of GDP and its farming systems are dictated by weather cycles.[21] While the majority of refugees and IDPs have returned to Burundi and their reintegration has advanced[22] over the situation at appraisal, DPs in Burundi estimate there are some 37,000 returnees in refugee camps in Tanzania and many of the challenges of post-conflict reconstruction documented at appraisal remain. The Bank's most recent Country Economic Memorandum (CEM) for Burundi documents overall sluggish growth of Burundi's economy over the past years, which is largely ascribed to limited progress in agricultural productivity.[23] The country has had weak agriculture growth of less than 3 percent over 2006-2009. [24] Because of the role of agriculture in rural poverty reduction, the core development objective of PRASAB is consistent with Burundi's priorities even today, as outlined in the World Bank's CAS for Burundi. The first objective of the CAS is to support the increase the productivity of both food and high value export crops. Furthermore, agriculture is still first of the four growth sector pillars identified in the Government's most recent PRSP (2011). In summary, the objective of PRASAB was highly relevant to the situation in Burundi at the time, and remained so through the life of the project.

35. The design of the project, which focused on a CDD approach to restoring agricultural productivity in communities that were recovering from a post conflict situation, was the appropriate design for the situation. It allowed communities to rebuild cohesion, allowed returnees to reintegrate and allowed a quick recovery of production. The clear link between the design of the project inputs and outcomes is illustrated in Figure 1 above. Implementation was also an important factor in achieving the project objectives in a fast changing context. With a few exceptions, adjustments were made quickly in order to increase the effectiveness of project interventions and were an important part of achieving the project outcomes. This implementation effectiveness is discussed in more detail under the implementation agency ratings below.

3.2 Achievement of Project Development Objectives and Global Environment Objectives

36. Primary among the issues concerning the articulation and coverage of the PDO and GEO discussed in Section 2.3, is that the PDO indicators could be supplemented in assessing the PDO to 'restore productive capacity' in rural Burundi and in addressing the causes of land degradation. This

[21] World Bank. 2010. PRODEMA Project Appraisal Document.
[22] The reintegration of 20 percent of whom can be attributed to PRASAB itself, according to the 2010 evaluation.
[23] World Bank. 2010. *Burundi Country Economic Memorandum: The Challenge of Achieving Stable and Shared Growth*.
[24] World Bank. 2011. *Country Assistance Strategy Progress Report for the Republic of Burundi*, p.5.

supplementing is possible through a number of independent evaluations (see Annex 9) commissioned throughout implementation, but particularly at and after MTR on the Bank's recommendation. The ICR team reviewed these evaluations and finds them, qualitatively, to be comprehensive and the associated survey instruments to be of good quality. They are not, however, statistically generalizable, given that samples are representative, not random. The ICR cites results accordingly. Quantitatively, the independent assessments are exhaustive in component activity/output description, providing an independent basis for Project-reported figures in the Government ICR. These allow for some confidence, for example, in calculating carbon sequestration (i.e., based on independently verified reported ha for Project SLM coverage). In general, the representative samples covered by the independent assessments tend to confirm Project and ISR-reported indicators and issues. Where necessary (e.g., calculating carbon sequestration), external data sources for the sub-region are used. World Bank analyses (e.g., CEM) are also used extensively.

37. Based on modest to good progress on the three (correctly specified) formally revised PDO indicators; and on positive evidence from the supplementary RC indicators and data, **the PDO of the project was substantively achieved**. Based on the excellent performance of the two GEO indicators drawn from the PAD, supported by an assessment of the intermediate outcome indicators and supplementary environmental data, the **GEO of the Project was achieved**. For both, as discussed above, the PDO and GEO are assessed for project-affected areas and not the rural space in Burundi as a whole, although some Project activities can be seen to have had national impact.

38. A review of the evidence on the three revised PDO indicators provides a starting point. Productivity increases of main agricultural and livestock products in project areas (revised PDO indicator 1) measured at Project-end represent seven (of nine) formally approved commodities (see Section F of ICR Datasheet). Five of the seven show productivity improvements over the 2008 baseline, with cassava (see Box 2) and beans having project-end results equal to baseline level, despite the disease and climate shocks documented, respectively. Table 2 shows attainment levels of revised targets for the PDO indicator. Productivity improvements range from modest (40 to 50 percent attainment of target yield) for those commodities most affected by rain variations (tomatoes, onions and especially, beans (whose 'attainment' equates no progress over baseline—See Section F in Datasheet and Section 2.2) to good (78 percent-100 percent) for the other four.[25]

Table 2 PDO Indicator 1 Results: Productivity of Main Agricultural and Livestock Products

Commodity	Revised Target	Project-end Value	Attainment Level
Beans	0.9 MT/ha	0.7 MT/ha	78 percent
Irrigated Rice	5.0 MT/ha	4.2 MT/ha	84 percent
Onions	15.0 MT/ha	6.3 MT/ha	42 percent
Tomatoes	15.0 MT/ha	7.0 MT/ha	47 percent
Cassava	12.0 MT/ha	10.0 MT/ha	83 percent
Palm Oil	3.0 MT/ha	3.0 MT/ha	100 percent
Milk	7ℓ/cow/day	5.5ℓ/cow/day	79 percent

39. For PDO indicator 2, beneficiaries' net profit at Project end was 26 percent, only marginally up from the 2008 baseline of 25 percent. As per the discussion on M&E in Section 2.1 above, however, the 25 percent baseline does not inform on the PDO. A baseline of zero provides the 'without Project scenario' for this indicator, in which case the correct interpretation of the reported project-end value of 26 percent for beneficiary net profit would be that the Project achieved 85 percent of the final net profit

[25] Attempts to compare productivity gains reported by the Project against nationwide productivity figures (with/without) were constrained by what ICR assessed to be unreliable data on productivity in Burundi, even from international sources.

rate target of 30 percent.[26] This is a conservative interpretation since the ICR found that the value of 26 percent includes a large portion of financed SPs (38 percent) that have not been completely executed (e.g., still prior to first harvest at the time of calculation).

40. The third revised PDO indicator achieved 92 percent of its 2008 formally revised target of 47,000 households of returnees and IDPs reintegrated into their communities (upgraded from 28,000 originally). The Project ultimately delivered support to over 215,000 households, and this is in fact the value reported in the independent evaluations and the Bank's last ISR for PDO indicator 3. As discussed above, the Government's ICR voluntarily applied the higher (correct) standard of interpretation of the PDO indicator in measuring the 'reintegration' aspect of the PDO indicator. The reported result of 92 percent counts only those households that have achieved some level of integration as defined by sowing activities for at least two successive seasons, the ability to procure their own seeds, and to replace their own tools. More generally, the 2010 independent evaluation estimated that support from PRASAB's sub-component 1.2 activities impacted on almost 20 percent of all of Burundi's war-displaced people.[27] Further to the formally revised indicator, after an assessment in 2007[28] on these activities flagged the poor participation of returnees and IDPs in SP application, the Project made special efforts to support group formation and capacity of these groups to apply for SP support under Component 1. These efforts resulted in 67 SPs approved for these groups, 66 percent of the RF target for this indicator. Perhaps more importantly the independent assessments noted an increase in 'social cohesion' resulting from Project support:

> *Support from PRASAB was a tool for creating and reinforcing social cohesion. In the context of restoring and developing the agricultural sector, most war-displaced households created producer organizations in the hopes of developing sub projects to submit to the CCAP. The resulting association permitted the creation and strengthening of social cohesion among members of the POs in general, and particularly among those POs that received [PRASAB] financing. The evaluation notes the presence of groups whose members are drawn from all three ethnicities (Tutsi, Batwa and Hutu).*[29]

41. Based on the evidence available from multiple sources on the three formally revised PDO indicators, the ICR finds the targets were largely met, despite the difficult context described.

42. Yet, as argued in Section 2.3, these three PDO indicators do not tell the full story of PDO and GEO achievement. In particular, while productivity is obviously the ultimate goal, a more comprehensive set of PDO indicators informing on actual 'productive capacity' would be useful. To that end, the ICR summarized data on four further indicators based on the notion of 'productive capacity' built through group formation and CDD execution; and 'productive capacity' in terms of replacement of agricultural capital stock looted and lost during the civil crisis.[30] These indicators

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[26] Using the 25 percent baseline tell us that the Project increased the net profitability rate of sub projects relative to the subprojects implemented by 2008 by 20 percent. See discussion in Section 2.1.

[27] Pesquet, J.-J.. 2010. *Etude d'évaluation finale indépendante des résultants et des impacts du projet: Rapport Final*., p. 35. This figure is plausible since 215,000 households represent only slightly less than the full documented number of returnees and IDPs at appraisal, an estimate that grew over the Project implementation period with the identification of large numbers of Burundians still in camps in Tanzania.

[28] CURDES. 2007. *Evaluation des résultats, effets et impact du volet réinsertion agricole des sinistrés.*

[29] Ibid, p. 38.

[30] These additional indicators do not, of course, cover the full scope of 'productive capacity' either. For example, the 2007 beneficiary assessment of Component 1(b) activities compares the results of project beneficiaries having received

include: (i) measures of net profitability of SPs (PDO Indicator 2 and Financial Rate of Return (FRR) of SPs) and SP rate of failure, in order to measure community capacity to implement productive activities; the relative contribution of the Project to the national stock of (ii) disease-resistant cassava and (iii) livestock. Despite the PDO's logical interpretation as 'for project areas', Project impact has been found to be sufficiently important as to register nationally in terms of capital stock. In sum:

- The average net profitability (conservatively) reported at Project-end of SPs financed under the project is 26 percent. The weighted average FRR of the main SP categories from the ICR economic and financial analysis (EFA) is 78 percent. The reported 'failure rate' of SPs is very low at 2.4 percent. These indicators point to good capacity for conceptualization and implementation of productive activity (i.e., human 'productive capacity') that can be to some extent attributed to the Project's intensive training and support activities to POs, CBOs and to the public and private LIAs. More concrete causality analysis (in terms of other support factors) requires data and regression analysis not available in the ICR, but given the verified approach of geographic partition among development initiatives, at least partial causality is not implausible for the impact of Project training activities on the productive human capacity PDO aspect in project areas.
- Cassava production in Burundi was under mosaic attack since 2002. The National Committee for Defense Against Plant Disease of the MAE estimates the country's food security needs for cassava to be equivalent to some 90,000 ha of disease-resistant plantation. PRASAB, through its cassava SPs and its support to ISABU is responsible for the multiplication of enough disease resistant cassava to cover 4 percent of the national territory (3,800 ha).
- The most recent (2007) estimates[31] of the country's national stock for cattle and goats are 480,000 and 1.6 million heads, respectively. In 1993 (prior to the end of conflict) these numbers were 434,000 and 900,000 respectively. The 2007 figures therefore represent the partial recuperation of the national stock of these animals. Over the course of the Project, cattle financed by PRASAB resulted in 13,100 heads (or 3 percent of the estimated national stock of cattle) and goats financed by PRASAB resulted in 183,000 head (or fully 11 percent of the most recent national stock figure).[32]

43. The PDO, with its focus on productive capacity, is also an environmental objective in the Burundian context since the only way to prevent encroachment on fragile lands for production is to increase the productivity of arable land. This is why the attainment of the PDO reflects also the introduction of SLM, and is therefore measured by the Project's intermediate outcome indicators. Despite the absence of clear formal GEO indicators, the ICR does attempt to further measure the Project's progress on 'address[ing] the causes of land degradation' using these intermediate objectives indicators on SLM, and supplemental data on vegetative cover and carbon sequestration (see Figure 1):[33]

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agricultural kits and Project support with those of a control group. The key difference identified by the study between beneficiaries and non-beneficiaries is a higher re-investments rate of (seed) production surplus. I.e. the Project had a measurable impact on the productive capacity [sic] among beneficiaries (as shown by reproduction of seed, a key input).

[31] FAO. 2010. *Burundi : Document d'orientations stratégiques pour le secteur de l'élevage*. FAO : Rome.

[32] Even accounting for any growth in the national stock to 2011, this is unlikely to outweigh the reported growth rates of the Project's livestock investments of 37 percent for cattle and 64 percent for goats (through normal animal reproduction and controlled animal mortality rates achieved in the Project).

[33] These follow logically from the factors contributing to land degradation documented in the PAD: (i) deforestation and reduced vegetative cover due to strong population pressures, exacerbated by (ii) conflict which prevented normal agricultural activity and further contributed to harvesting and degradation of natural resources. The (iii) hilly environment of

- GEO Indicator 1 on vegetative cover can be calculated using the intermediate outcomes on SLM (which were more than fully attained, see Datasheet Section F) and supplemental data on Project forestry activities. In addition to the 11,279 ha of SLM reported in the RF, some 93,000 ha reforested (forestry and agroforestry) under the Project's 622 forestry SPs and 1774 ha forested on the Project's 10 watershed demonstration sites were planted. Putting these together results in 104,805 ha of increased vegetative cover in Burundi from the Project. **This represents fully 11 percent of all arable land** in Burundi, and completely restores the estimated 30,000 ha deforested during two years of conflict (1993-1994);[34]
- Carbon sequestration was estimated at 2.6 million tons over a 20 year growth cycle for the 622 forestry subprojects alone (i.e., it was not estimated for the total vegetative cover achieved by the Project, and as such is a conservative estimate of carbon sequestration benefits); and
- The 2009 independent evaluation documents that the Project's soil erosion pin-method measurement yielded a positive soil deposition (i.e., soil that would have eroded) measure. The ICR finds the precise measure unreliable (see footnote 18), but the broad direction of the measure is confirmed by interview responses[35] that document beneficiary observations on reduced siltation in valley bottoms since project start.

44. From these supplementary observations, the ICR concludes that the Project satisfactorily achieved the GEO of addressing the causes of land degradation and contributed to sustainable land management in Burundi.

The Project's remaining intermediate outcomes complete the picture on achievement of the PDO:

- *Water management*: As was seen in the PDO indicator 1 on productivity, water management is key to productive capacity in Burundi. The Project developed 1,573 ha of irrigation, fully 129 percent of its revised target;
- *Institutional Strengthening*: Productive capacity in rural Burundi (as elsewhere) depends on greater capacity among service providers and better enabling policies and frameworks for agriculture and land use. With respect to the latter, the Project achieved almost all of its intermediate outcomes (see Datasheet Section F). Of particular note in terms of policy framework, is the Project achievement of having the MAE put a National Strategy for Agricultural Investment (NAS) in place by 2008, at which point the targets were changed to improved sectoral allocation to agricultural expenditure and better development partner coordination, both fully successful. The ICR notes that the NAS permitted Burundi's CAADP participation and formed the basis for the development of the Agricultural Investment Plan. DPs interviewed for the ICR emphasize the critical role of the PRASAB-financed NAS and the follow-on investment plan to which it led, in 'vastly improving' donor coordination and dialogue within the sector.

3.3 Efficiency

45. The ICR updated the original economic and financial analysis (EFA). Neither version attempted to quantify the financial or economic net benefits of the Project as a whole. Instead, a 20-year discounted cash flow model of 10 representative sub-projects was used to assess the productive SPs of Component 1. Both the original and the ICR EFA therefore exclude SLM investments and emergency

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Burundi naturally adds erosion control (or the lack thereof) to the mix. The selected indicators are a subset directly drawn from the Project's own GEO Key Indicators.

[34]Conflict deforestation estimate in Pesquet, 2010, p.29.

35 Ibid

support for returnees and IDPs, although capacity building and project management costs are included in the ICR EFA. The choice of representative SPs was updated at ICR to reflect actual project implementation and covers 78 percent[36] of the productive SPs financed by PRASAB (see Annex 2 for complete list of assumptions and further details). Results indicated a high overall return on investment, and individual SP returns were higher than in the original PAD analysis. The calculated total economic NPV was BIF 43.7 billion (US$35.5 million) with an ERR of 58 percent. Most of the economic NPV was generated by cattle, post harvest rice shelling, and goat herd SPs (55 percent, 17 percent and 16 percent, respectively). Switching values were identified for each SP separately. The most sensitive variables were output prices: a 14 percent reduction in rice price leads to negative returns in the irrigated rice sub-projects; and a 28 percent reduction in honey price reduces economic NPV of apiculture sub-projects to zero. Similarly, the project ERR was most sensitive to changes in unit output prices where a 50 percent reduction in all prices brought the project ERR to 16 percent (close, but still above, the 12 percent break-even point). Project returns are less sensitive to both investment and input price increases.

46. The ICR EFA understates the total benefits of the Project, particularly in terms of environmental benefits from SLM investments, support to IDPs, some multi-level capacity building, knowledge transferred outside the project area, and benefits realized beyond the 20-year time frame. In an attempt to illustrate some of the excluded benefits, a rough estimate of economic NPV that includes the 622 forestry sub-projects was calculated. The NPV rose from BIF 43.7 million to BIF 72 billion by including BIF 19 billion from carbon sequestration of 2.6 million tons of carbon over 20 years. This calculation excludes other potential environmental benefits. It was not possible to obtain separate benefit and cost estimates for the 9,866 ha that incorporated incremental anti-erosion and SLM measures due to data constraints. This constraint applied also to the 10 demonstration watershed sites covering forestry and anti erosion on 3,187 ha.

47. In terms of efficiency, a number of issues were reviewed.

- A comparison to unit price/cost data from Rwanda showed no evidence that the project was inefficient in its investment or input costs**.** On the contrary the unit cost of marshland irrigation rehabilitation is significantly lower in PRASAB, than for similar activity in Rwanda;[37]
- The efficiency analysis of the EFA indicated a potential for higher project returns if output prices were to rise relative to the Rwandan comparator, providing an empirical basis for the increased emphasis on marketing in Section 6 Lessons Learned (already internalized in the follow on project (PRODEMA) in its marketing emphasis).
- The ICR can speculate whether the observed need for more continuous capacity support in certain productive activities (see Section 5.1 (b) and 6 below) could have helped further increase the returns to the project's SP activity. While the ICR- ERR is certainly sufficiently high, it may be true that greater depth in training support may have resulted in higher returns still, particularly for beneficiaries using public LIAs, who were seen to have had a weaker support performance than the private LIAs. There was insufficient data to assess such a claim but is flagged here as a possibility that impacts less on the Project's positive development outcomes and more on the lessons learned for future operations.

[36] The remaining 22% are made up by numerous SPs for which only a few examples were undertaken. The added cost of constructing the elaborate activity models required for the EFA for a large number of low-frequency SPs outweighed the additional information these small activities could add to the EFA.

[37] World Bank.2011. *Technical Annex to RSSP 3 Preparation Mission Aide Memoire*.

- Observations on the pedal pump technology chosen for some irrigation SPs include an estimated 10 percent breakdown frequency which imply delays and loss of productivity while awaiting repairs and parts, which are not locally available. Obviously, local sourcing would improve efficiency in these SPs. While no local manufacturers are currently available, sub-regional solutions and in-country value chain capacity may prove useful.
- Finally, the ICR notes that the Project was able to effectively reinsert returnees and IDPs into productive activity at a much lower cost than the original Government/UN estimates of the US$1,200 per household at appraisal.

Based on these observations, overall the efficiency of the Project in the achievement of its PDO and GEO are substantial.

3.4 Justification of Overall Outcome of Rating of Moderately Satisfactory and Global Environment Outcome Rating of Satisfactory.

48. The Project objectives and design are consistent with the key current development priorities in Burundi, as evidenced by the Bank's assistance strategies and the Government's own poverty reduction and post-conflict reconstruction strategies (See Section 3.1). The ICR finds that the Project has substantially achieved the objective put forth in the PDO on restoring productive capacity in project-affected rural areas and in the GEO statement on addressing the causes of land degradation in these areas. The three revised PDOs indicator targets have been moderately well met in the case of productivity, and largely met in terms of (correctly specified) net profit, and returnee and IDP reintegration. Given the PDO indicator coverage issues discussed in Section 2.3, however, additional indicators used by the ICR provide a more complete coverage of the notion of productive capacity and land degradation and provide additional justification for the Moderately Satisfactory rating. Indicators on rural community capacity for conceptualization and implementation of productive activities and projects through successful CDD SPs, as well as capital stock indicators for cassava planting materials (key to food security) and livestock show success in the Project's restoration of different aspects of 'productive capacity' that are fully aligned with the documented constraints at appraisal and project-end. Datasheet Section F also shows that most revised intermediate outcome targets for the Project were either met or surpassed, including the higher level policy framework targets. The Project's institutional objectives in terms of policy planning and frameworks were all met or exceeded and their importance to the sector has been confirmed by DPs operating in Burundi. In addition, an FRR of 78 percent for sub-projects supports the fact that sub-projects were very successful investments, and supporting the argument that indicator 2 on net income was incorrectly specified in the project design. In terms of the GEO rating of satisfactory, independent evaluations provide positive evidence on the Project's role in significantly increasing SLM and vegetative cover in Burundi, and contributing to carbon sequestration. Finally, the ICR finds that overall; the Project was efficient in its use of resources, in some cases achieving higher results at lower cost than estimated at appraisal (e.g., reintegration of IDPs and returnees). The EFA for the Project was carefully updated for the ICR and found that, even in excluding the positive externalities/benefits from the environmental contributions, the ERR is well above the opportunity cost of capital, and comparators with nearby Rwanda failed to turn up any evidence of inefficiency in delivering outcomes. While Section 6 identifies lessons for the sustainability of these outcomes, the assembled body of evidence supports the conclusion that the PRASAB Project has satisfactorily met its development and environmental objectives for project areas as embodied in the approved PDO and GEO.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

49. Poverty reduction, increased incomes, and improved food security are among the Project's higher order objectives (see Figure 1) and so do not figure among the measurable parameters of the Project, nor of the ICR. [38] The ICR has, however, reviewed the Project impacts on both gender and social cohesion documented in the independent assessments and beneficiary responses therein.[39]

50. Just over one third of all SPs financed by the Project have been initiated and managed by women. Women are reported to make up 44 percent of PO membership under the Project, and 31 percent of CBOs. These figures are even higher among the returnee and IDP households, where 45 percent of SPs for this group are initiated and headed by women (who are also head of household in most cases). Women interviewed in the 2010 beneficiary survey, particularly among those engaged in livestock; report that the initial opposition of their husbands in their participation in the POs has been replaced by a greater respect towards the women and a greater participation in household spending decisions.[40] Women make up between 30 and 50 percent of training recipients in most of the Project's trainings, with the notable exception of forestry and agroforestry training, where only 5 percent of training recipients were women.

51. The Project's activities appear to have had an important impact in building social cohesion in the communities in which it operated. This is most obvious for the 215,516 households of returnees and IDPs. Many of them landless, either permanently or pending conflict resolution over land, they do not have the means to economically re-engage. Assessments report that the Project's agricultural kits provided households with the means to reintegrate into their communities, not only in terms of the local (agricultural) economic activity, but in joining CBOs and community work. Hoes and other implements in the kit enabled even landless households to participate in public works opportunities, for example, that they otherwise would have been excluded from. Among the representative households interviewed for the 2010 evaluation, fully 100 percent of returnees, IDPs and indigenous people having received the kits reported joining POs as a result. This reinforces the result cited in Section 3.2 concerning the Project's economic incentive to broad based group formation and social cohesion.

(b) Institutional Change/Strengthening

Please see Sections 2.5 and 3.2 for a discussion on institutional strengthening, particularly with respect to the policy frameworks developed by the Project. See also Datasheet Section F.

(c) Other Unintended Outcomes and Impacts (positive or negative)

Please refer to preceding section (a) on social cohesion.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

Please see Annex 5.

4. Assessment of Risk to Development Outcome and Global Environment Outcome

Rating: Moderate

The ICR finds the risk that development outcomes (DOs) will not be maintained to be moderate:

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[38] The results of beneficiary surveys do convey some perceptions of improvement in food security and poverty reduction. For example, in the 2010 study, 55 percent of returnees and IDPs surveyed reported having two meals a day, up from the baseline of 35 percent in 2007. The same figure for three meals rose to 10 percent from the 2007 baseline of 7 percent. Some 58 percent of POs members interviewed in 2010 report a 100 percent increase in their milk consumption. All these figures are based on a non-random representative sample, however, and are therefore more indicative that definitive.

39 See also Annex 5 for a summary of beneficiary responses on issues ranging from nutrition to producer associations.

[40] GoB. 2010. p.19

- *Institutional Capacity for Sustainable Rural Development*: As discussed above, the Project design intentionally targeted the micro, meso and macro levels to ensure sustainability of DOs. The project provided the basic tools and capacity for environmentally sustainable restoration of productive capacity for women and men, but also assisted the line ministries with their policy and planning tools, as well as the key policy frameworks to do so (e.g. NAS). Land use plans and environmental frameworks follow in the same vain. While the institutional support of the PRASAB project contributes directly to an enabling environment for sustained DOs, a note of caution informs the risk rating to moderate as there is ongoing work to ensure the ownership and operationalization of several key frameworks; including the provincial land use plans.
- *Continuous Post-Operation Support:* As discussed above, the PRODEMA operation uses the same implementation team and covers at least the same provinces as PRASAB. LIAs hired by PRODEMA provide follow-on support to PRASAB SPs as part of their contracted tasks, including operation and maintenance (O&M)[41] of PRASAB-financed irrigation schemes, and marketing for SP outputs.
- *Output Prices*: Related to the marketing activities referenced above, the risk rating is also informed by price risks outside the Project's control (as well as their likely impact). The updated EFA assisted the ICR in attaching a likely impact to risks through sensitivity analysis. The long run projected returns to the Project were found to be most sensitive to changes in output prices, which are only partially in control of the Project (i.e., with reference to better access to markets). Deteriorating prices for commodities are to some extent globally determined and there will be residual risk related to output prices that the Project cannot control. With the current elevated levels of food prices, however, this risk is remote.
- *Conflict*. The residual risk, over which the Project has little control, is that of resumption of conflict, at least in some parts of the country.

These combined factors contribute to the ICR's moderate rating for risks to development outcomes.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry Rating: Moderately Satisfactory

52. While identification and *technical* preparation/appraisal under a very difficult security situation was found to be highly satisfactory, the ICR finds that there were important shortcomings in the preparation related to M&E design and project documentation at entry. Strong points in QAE include:

- *Strong strategic relevance*, as evidenced by the constraints identified in Burundi at preparation and their enduring relevance (see Section 3.1). Conflict experts at the Bank particularly note the best practice of the Project in "pre-positioning a peace building operation in advance of a real cessation of hostilities".[42]
- *Reasonable estimation of benefits* at appraisal, as confirmed by the ICR EFA.
- *Astute social assessment* of the sensitive issues at appraisal is evidenced by the focus of support to community based organizations and on the very real issue of returning refugees and IDPs.

[41] ICR interviews with DPs in Burundi flag the simultaneous appreciation of the Project's attention to water management infrastructure but signals the need for strong water user associations and attention to O&M.
[42] See ICR Peer Review comments in WBDocs.

Both received explicit analysis and resources in the design of project activities. The selection of the PDO to focus on restoring productive capacity cuts to core of Burundi's poverty challenge.

- *Highly satisfactory attention to environmental aspects* was facilitated by the decision to blend GEF funds and ensure incremental resources to the Project's activities for environmental stewardship and SLM, and evidenced by better than average analysis in the PAD on the environmental challenges and issues in Burundi.
- *Appropriate multi-level approach* including policy and institutional aspects.
- *Satisfactory fiduciary aspects* as signaled by consistently satisfactory rating throughout the seven years of implementation (with one early exception discussed above).
- *Accurate risk assessment and mitigation* that was validated by rapid early disbursement and additional financing in 2008. The Project's CDD approach with designated resources for group formation and capacity support and technical assistance for SP articulation and implementation all show accurate cognizance of the limitations to Government capacity for large scale intervention of this nature in a post-conflict context.

53. On the other hand (i) weak Project M&E design (documented in Section 2.3 and in Annex 10); and (ii) poor consistency between the main body and annexes of the PAD and (importantly) between the PAD and the legal agreements, downgrades an otherwise highly satisfactory QAE to moderately satisfactory.

(b) Quality of Supervision Rating: Satisfactory

The ICR finds many aspects of Bank supervision to be highly satisfactory, including:

- *Safeguards*: Any deficiencies appeared to be quickly diagnosed and corrective support applied without delay, including the triggering of additional policies when necessary (see Section 2.4 for evidence and discussion).
- *Technical*: Documented instances, supported by interviews with the Project team, of the Bank team maximizing returns to investments (e.g., encouraging beneficiaries to maximize use of the second (non irrigated) season on rehabilitated perimeters); improving decision making (e.g., recommending external evaluation at MTR); and relieving bottlenecks in implementation (e.g., documented procurement and FM support in Aide Memoires) despite an extremely challenging security environment that precluded easy and frequent site access.
- *Process*: The Government Project team reports good early implementation support in the post conflict context. Later, with the move from the transitional government at appraisal to the democratically elected government, strong implementation support and dialogue is evidenced by continuity in disbursement around the transition.
- *Supervision for Sustainability*: The task team was vigilant in resolving and negotiating issues on continuity in implementation for the PRODEMA project through the successful PRASAB team, despite initial resistance from the Government.
- *Good partner coordination*, particularly in returnee and IDP activities, confirmed by ICR interview with development partners (see also footnote 15).

54. On the development impact side, as noted earlier, evidence from the independent evaluations indicate that among the small sample of less successful sub-projects (the 'failure rate' on SPs is estimated at under 3 percent), particularly livestock, a key factor was the lack of a more sustained training model. The Project documents a vast amount of training provided, but there may have been a need during implementation to fine tune the training approach for greater investment sustainability. There was an opportunity to allocate greater resources and attention to the issue when the project was

restructured in 2008, where instead the issue of coffee privatization seemed to have taken over the spotlight. The consequence was that at restructuring, a large sum was earmarked for training related to coffee SPs, which did not figure as prominently as expected. In the end, in 2010 there was a reallocation of resources *away* from training activities (that were earmarked for coffee) towards further SP financing. These funds could have better been allocated at restructuring for in-depth training follow up (rather than for a particular sub-sector like coffee). Second, while the task team quickly corrected for the poorly designed indicators early on, restructuring for RF adjustment could have been an earlier option during supervision.

55. In sum, the ICR recognizes the 'massive' need being addressed by the breadth of Project activities and the demands this entails on supervision in a constrained security environment. It cites the case of the Project's training approach and RF adjustments as the basis for a satisfactory rating, as opposed to an otherwise highly satisfactory supervision performance.

(c) Justification of Rating for Overall Bank Performance Rating: Satisfactory

56. The Bank's design, preparation and implementation of the PRASAB project were evidence-based, appropriate and responsive to the needs of post-conflict Burundi. In particular, the issue of capacity building for public and private service provision for productive activity was well conceived and well resourced, as were the risk-mitigating capacity activities for SP implementation from the community to the provincial levels. The Bank showed good due diligence on technical, financial management, procurement and safeguard aspects of implementation, and this, despite challenging security environment that sometimes constrained field visits. The Bank had a demonstrated regard for the Project's sustainability issues in its preparation of another agricultural operation (PRODEMA) near the end of the Project's life. Although not explicitly a follow-on operation, the Bank team nevertheless ensured continuity for the PRASAB investments through implementation arrangements and scope of PRODEMA activities. The performance outcomes assessed in Section 3 evidence achievements of the PDO and GEO. This highly satisfactory performance Bank-side is qualified by poor M&E design and articulation and document inconsistencies. This was fortunately overcome during implementation with the early identification and correction by the Bank team of weaknesses in M&E.

5.2 Borrower Performance
(a) Government Performance Rating: Satisfactory

57. The project went effective whilst the transitional government was still in place and before the democratic election of the Government. This, given the post-conflict context, meant that the Project did not have any Government counterpart funding (100 percent IDA and GEF). While the Government performance and commitment was otherwise highly satisfactory under the circumstances, the ICR identified some issues related to Government commitment and performance, including:

- The project's National Steering Committee (further to the Project's Technical Steering Committee), which only met twice over the seven year life of the Project due to the reported difficulty in arranging the meeting between several ministers.
- After allocating training funds to support wider Government reforms in the coffee sub-sector in the 2008 additional financing, the reforms were implemented more slowly than envisioned so that CDD demand for coffee SPs was lower than anticipated. The Project was able to reallocate resources in the 2010 restructuring, however, and effectively shift its activities to support other critical sub sectors based on its normal CDD processes.

- At the time of transition for the PRODEMA project, the Government expressed initial reluctance to maintain continuity in project management, creating delays and uncertainties on staffing.
- In five of the 10 provinces, the LIAs were public sector employees. Although they were provided with incentives, the quality of support to beneficiaries in these provinces was documented as lower than that of private LIAs. The MAE was not proactive in replacing them with private LIAs or in exacting performance from their decentralized staff.
- Government was slow to reimburse the VAT for the Project, placing the project out-of-pocket for its activities at the end of its life which threatened successful completion of activities, and placed a flag on pipeline operations to the Board. Eventually, the VAT was reimbursed.

58. Based on these points, the ICR finds moderate shortcomings to the Government performance, which in many other respects was highly satisfactory. This is particularly true in the latter part of the Project's life but also during preparation when the task team recalls the Government's commitment to attend and finalize preparation meetings despite the bombings in the capital.

(b) Implementing Agency or Agencies Performance Rating: Highly Satisfactory

59. The ICR finds the performance of the Project's implementation unit, the NPCMU and their inter-provincial units, to be highly satisfactory. In particular:

- The NPCMU showed a clarity and commitment to the Project's PDO and GEO, having a clearer articulation and more comprehensive data collection systems than is conveyed by even the Bank's own ISRs. Even with initially weak M&E design, they did not stray from the PDO in the execution of their activities, so that in reviewing Project documents and evaluations, a clear alignment can be seen throughout implementation (as documented in Figure 1);
- Implementation is consistently rated as Satisfactory in all aspects in most ISRs, with evidence of quick correction and compliance when ratings fell marginally below Satisfactory;
- The Bank approved additional financing half way through the Project's life due to excellent disbursement and implementation;
- The government ICR is replete with frank examples of learning and timely resolution of implementation issues (e.g., early assessment of the factors leading to less successful SPs; the Project's diagnosis and correction for an initial sluggish fund flow; the Project's response to recommendations of the 2007 independent assessment of PRASAB activities with IDPs, etc.);
- DP partner interviews for the ICR confirm good collaboration of the NPCMU with partners in Burundi.

Based on this evidence, the implementation agency performance is rated as highly satisfactory.

(c) Justification of Rating for Overall Borrower Performance Rating: Satisfactory

60. Given the highly satisfactory performance of the Government's implementing agency and the moderately satisfactory performance of the Government from the immediate post conflict period of 2004 through to 2011, the ICR rates the Government performance as satisfactory.

6. Lessons Learned

61. In its comprehensive review of the PRASAB Project, the ICR distills four key lessons[43] for similar operations and one further lesson for internal processes at the Bank:

1. **Depth over breadth in training and capacity building**. While the failure rate of Project-financed SPs is very low, a recurring explanation for failed or lower-than-expected returns for some SPs pertains to beneficiary capacity for adhering to good practices, particularly in livestock. While the Project provided over 275,000 person days of training, many of these agro-technical in nature, there was a need for sustained monitoring or mentoring that may have improved the efficiency of outcomes.
2. **Performance based contracts for better performance.** The incentive to LIAs, both public and private, needs to be performance based. Outcome orientated contracts (in the case of private) or enforced performance agreements (in the case of public) would strengthen their accountability and performance towards beneficiaries.
3. **Sustaining sustainable land management.** Project lessons show that SLM needs to be economically interesting to be sustainable: Where the economic incentives were lower in the Project, there was greater deterioration of Project-financed SLM infrastructure, and vice versa. Therefore, the Government ICR notes that SLM beneficiaries that also have livestock (to whom to feed the soil-fixing grasses that reinforce terraces, for example) tend to better sustain their SLM investments. Similarly, landowners appear to take better care of SLM infrastructures than renters. While beneficiary shortsightedness on the SLM gains of good environmental stewardship *can and should be corrected by education* such as that amply undertaken by the Project, the lesson here is that this educational approach should in every instance be reinforced by tangible economic benefits to the beneficiaries involved;[44]
4. **Marketing matters.** Having a firm handle on the environmentally sustainable restoration of productive capacity in Burundi, future operations should lend further attention in SP approaches to facilitating market access (a lesson noted even before project end and taken on board in the Bank's PRODEMA operation in Burundi).

In terms of Bank processes:

5. **Teamwork.** One further lesson emerging from the ICR review of Project M&E design relates to support units in the Bank. In exploring the issue of PRASAB's weak M&E design, the ICR team concludes that a contributing factor to the poor original design was the delivery of the Project at precisely the moment of transition from the 'Project Design Summary' to the modern 'Results Framework'. The mid stream adjustment in Project preparation from the old format to the new that contributed at least in part to the confusion found in Project documents. There is a need for better 'hands on' support to task teams when new M&E tools and formats are developed and when 'new and improved' Bank processes are introduced more generally. Further to this, there is a need for greater accountability on the part of legal staff in faithfully replicating RF parameters from the PAD, which should prevail given that the PAD usually benefits from strong technical input and quality review, as well as buy-in from the Client.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

[43] There are, of course, many more lessons than these four, particularly in confirming the benefits of the CDD approach in post-conflict reconstruction. The Government's ICR alone is an excellent source of project-specific lessons (see summary in Annex 7).

[44] Productivity gains on hillsides under similar SLM in neighboring Rwanda have been phenomenal—over 100 percent increases in just one season.

No Major issues except the Government requested an upgrade in the Government's Performance Rating from "Moderately Satisfactory" to "Satisfactory". The Bank has taken this comment into consideration and revised the rating to Satisfactory. (See Annex 7 for details)

(b) Cofinanciers

N/A

(c) Other partners and stakeholders

One development partner requested that development partner cooperation be emphasized. This was taken into consideration in the final draft. (See Annex 8 for details)

Annex 1. Project Costs and Financing
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
1.Support for Production and Sustainable Land Management Investments (SLM)	42.45	41.19	97
2.Support for Capacity Building and Institutional Strengthening	7.31	7.70	105
3.Support to Project Coordination and Management	4.99	5.30	106
Total Baseline Cost	54.75	54.19	
Total Financing Required	54.75		

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		0.00	0.00	
International Development Association		49.3	50.5	101
GEF		5.00	5.00	100
Local Communities		0.47	0.47	100

Annex 2. Outputs by Component
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

This annex delineates the outputs by component as tracked by an expanded set of indicators.

Selection of outputs by components:

Component 1: Support for Production and Sustainable Land Management Investments

Principal activities and outputs	Indicators	Projection target	Baseline (2004)	Result (2010)	Rate of realization
Sub-projects	Number of sub-projects supported	3,300	2,300	3,113	94%
Sub-projects	Percentage of subprojects supported initiated and managed by women	30%	NA	27.4%	82%
Sub-projects	Percentage of sub-projects introducing SLM techniques	50%	NA	52%	>100%
Sub-projects	Land degradation reduced and SLM practiced over at least 1,000ha	20,000ha	NA	41,797	>100% (not directly comparable)
Sub-projects	Number of returning refugees receiving project support	20,000	NA	215,516	>100% (not directly comparable)
Sub-projects	Percentage of annual training plans satisfactorily implemented.	80%	NA	85%	>100%
Sub-projects	Percentage of subprojects submitted to selection committees approved and implemented.	80%	NA	92%	>100%
Sub-projects	Percentage of POs and LCs interested in starting sub-projects have access to LIA services in 4th year	75%	NA	82%	>100%

Component 2: Support for Capacity Building and Institutional Strengthening

Principal activities and outputs	Indicators	Projection	Baseline (2004)	Result (2010)	Rate of realization

Principal activities and outputs	Indicators	Projection	Baseline (2004)	Result (2010)	Rate of realization
Capacity building	Percentage of annual plans for capacity building implemented satisfactorily	80%	NA	85%	>100%
Capacity building	Environmental monitoring plan prepared and implemented in second year.	Yes	NA	Yes	Mostly achieved
Capacity building	Number of territorial development schemes put in place in provinces	10	NA	8	80%
Capacity building	Number of technologies disseminated in project areas by public sector	15-35	NA	56	>100%

Component 3: Support to Project Coordination and Management

Principal activities and outputs	Indicators	Projection	Baseline (2004)	Result (2010)	Rate of realization
Project Coordination	Percentage of contracts signed by NPCMU with LIAs and others implemented satisfactorily.	80%	NA	91%	>100%
Project Coordination	Percentage of progress and audit reports being submitted timely	100%	NA	94%	94%

Source: Compiled from Government ICR and evaluation reports.

Linking Project Components to Outputs and Outcomes

The results chain presented in Figure 1 of the main text, provides a schema aligning project components and activities with outputs and outcomes, complementing the component level indicators above. As indicated at the bottom of Figure 1 some footnotes are presented here**:**

> [1]Project SLM activities in Component 1 include anti erosive measures such as progressive terracing, bunding; living terraces and afforestation; soil fixation, etc. Project activities here also include capacity for hillside water management, including formation of water user associations (WUAs) and operation and maintenance (O&M) of small scale irrigation;

[2]Project activities in marshland irrigation development include: Rehabilitation of existing irrigation structures (canals, etc.); hillside protection measures around irrigated perimeters; and river dams and pump/gravity schemes;

[3]Project activities on the 10 watershed sites developed in Component 1 include: Anti erosive measures such as progressive and radical terracing, bunding, and living terraces, all with vegetative cover (soil fixing grasses and shrubs); afforestation; and agroforestry initiatives in full demonstration;

[4]Project activities in Component 2(a) include training in organization; governance; procurement and financial management capacity; technical crop and livestock; soil and water conservation; on integrated pest management (IPM), forestry and agroforestry, and social /environmental analysis; and for WUAs, small dams, and irrigation O&M;

[5]Project capacity building activities with key ministries in Component 2(b) includes: Trainings covering M&E, project management, value chain development, environmental analysis, and GIS. Project activities also include studies and policy inputs on: land use frameworks; environmental management; SLM; direct financing for the National Strategy for Agricultural Investments; rural sources of growth diagnostic; and water regulation frameworks;

[6] Project activities of Component 2 with ISABU include the financing of 16 applied research projects and seed/tuber multiplication; training and exchange visits for ISABU technical staff; rehabilitation of research infrastructure and equipment; and support for continuing education of research staff; and

[7] Legend for designations after indicators: RF = 2008 formally revised results framework; ICR = supplementary indicators used by the ICR to assess outcomes, drawn from old results framework tracked (see Annex 10); from indicators listed in disparate parts of the PAD and legal agreements, which were deemed measurable for which data exists.

Annex 3. Economic and Financial Analysis
REPUBLIC OF BURUNDI
AGRICULTURAL REHABILITATION AND SUSTAINABLE LAND MANAGEMENT PROJECT

ECONOMIC AND FINANCIAL ANALYSIS
FOR
IMPLEMENTATION AND COMPLETION REPORT

EXECUTIVE SUMMARY

Methodology

1. As with the original economic and financial analysis (EFA), the current analysis did not attempt to quantify the financial or economic net benefits of the project as a whole. Instead, a 20-year discounted cash flow model of 10 representative sub-projects was used to assess the economic and financial impact of the productive investments of Component 1.[45] This analysis therefore excludes Sustainable Land Management (SLM) investments and emergency support for returnees and internally displaced people, although capacity building and project management costs are included. This model structure was maintained from the original economic and financial analysis conducted for the PAD in 2003 for comparability: the choice of representative sub-projects was updated to reflect actual project implementation. The ICR EFA covers 78 percent of the productive sub-projects financed by PRASAB.

2. **Results indicate a high overall return on investment, and individual sub-project returns were higher than in the original PAD analysis.** Higher returns at Project-end were primarily due to increased revenue and costs but also due to changes in sub-project designs. The calculated total economic NPV at ICR was BIF 43.7 billion (US$35.5 million) with an ERR of 58 percent. The analysis covered 2,407 projects with year 1-5 investments of BIF 24.4 billion equal to US$20 million. The investment included US$10.4 million direct investment costs and US$9.5 million other project costs for capacity building and project management. Most of the economic NPV was generated by cattle, post harvest rice shelling, and goat herd sub-projects (55 percent, 17 percent and 16 percent, respectively).

3. **A comparison to unit price/cost data from Rwanda showed no evidence that the project was inefficient in its investment or input costs.** The analysis indicated a potential for higher project returns if marketing constraints were removed and output prices were left to increase, as these were lower than the Rwanda comparators. The ERR was most sensitive to changes in unit output prices where a 50 percent reduction in all prices brought the project ERR to 16 percent and close to the 12 percent break-even point. Compared to this, increased investment costs had less impact on project returns with estimates ranging between 37 percent and 79 percent. Project returns

[45] The discounted cashflow model is available in Excel spreadsheet format: PRASAB_ICR_EFA_Model_06Dec2011.xlsm

were found to not be very sensitive to input price increases, and the economic NPV increased only by 12 percent when the price increased by 70 percent.

4. **Because the project only fell 6 percent short of its original target number of productive sub-projects there were almost no missed opportunities in increasing project returns.** Achieving the original goal by investing another BIF 1 million would only have increased the economic NPV by BIF 3.5 billion to a total ERR of 60 percent. The estimated project return was dependant on, but not very sensitive to, how quickly the build-up of sub-projects was from year 1 through 5.

5. **Switching values** were identified for each sub-project separately. The most sensitive variables were: A 14 percent reduction in rice price leading to negative returns in the irrigated rice sub-projects, and a 28 percent reduction in honey price reducing economic NPV of apiculture sub-projects to zero.

6. **The estimated financial and economic benefits understate the total benefits of the project** particularly in terms of environmental benefits from SLM investments, support to IDPs, some multi-level capacity building, knowledge transferred outside the project area, and benefits realized beyond the analyzed 20-year time frame.

7. **In an attempt to illustrate some of the excluded benefits, a rough estimate of economic NPV that includes the 622 forestry sub-projects covering 93,526 ha was calculated. The NPV rose from BIF 43.7 million to BIF 72 billion by including BIF 19 billion from carbon sequestration of 2.6 million tons of carbon over 20 years.** This calculation excludes other potential environmental benefits. It was not possible to obtain separate benefit and cost estimates for the 9,866 ha that incorporated incremental anti-erosion and SLM measures due to data constraints. This constraint applied also to the 10 demonstration watershed sites covering forestry and anti erosion on 3,187 ha (1,774 forestry and 1,413 ha anti erosion). This reinforces the ICR observation that the impact of the Project extends beyond what the results framework can tell.

Project Description

8. The development objective of the Agricultural Rehabilitation and Sustainable Land Management Project (PRASAB) is to restore the productive capacity of rural areas through investments in production and sustainable land management and through capacity building for producer organizations and local communities. Beneficiaries also include war-distressed returnees and internally displaced persons. The Project has three main components with a total final budget of US$55 million, after additional financing in 2008 of US$15 million:

9. ***Component 1 (US$38.17 million): Support for production and sustainable land management investments*** finances demand-driven subprojects and their effective planning and implementation by producer organizations and local communities. It also provides emergency support for returnees and internally displaced persons for their reintegration in the agricultural sector. The component includes: Productive investments; Sustainable Land Management (SLM) Investments; Support services; Emergency support for returnees and Internally Displaced Persons (IDP).

10. ***Component 2 (US$10.92 million): Support for capacity building and institutional strengthening*** enhances the access to information and capacity of producer organizations, local communities and local project's implementing agencies.

11. Component ***3 (US$5.91 million): Support for project coordination and management*** finances project management and monitoring and evaluation.

Methodology and Assumptions

12. **A 20-year discounted cash flow model of productive investments.** As with the Project's original EFA, the current analysis did not attempt to quantify the financial or economic net benefits of the project as a whole. Instead, a 20-year discounted cash flow model was used to assess the economic and financial impact of the productive investments part of the project. This analysis therefore excludes Sustainable Land Management (SLM) investments and emergency support for returnees and internally displaced people. The financial and economic rates of return on investment (FRR and ERR) were calculated as well as the Net Present Value (NPV) of net benefit. [46] All results were based on net benefits relative to the without-project situation.

13. **Ten representative sub-project models.** In line with the economic and financial analysis conducted for the Project Appraisal Document (PAD), annual benefits and costs of productive investments were calculated using representative sub-project models aggregated up to the project level. Table 3 lists the ten representative sub-project models that were included in this analysis. In reality, this covered 78 percent of the productive sub-projects and it excluded forestry projects. Note that, because of the demand-driven nature of the project, some of the sub-projects included in this analysis were not considered in the original PAD. Similarly, some of the sub-projects included in the original PAD were not represented frequently and were therefore excluded from the current analysis. In other words, the current analysis included sub-projects that were implemented rather than appraisal stage projections.

14. **Same model structure as in original PAD with updated assumptions.** The model structure was maintained from the original economic and financial analysis conducted for the PAD in 2003 although the choice of representative sub-projects was updated.[47] All price, cost, and quantity assumptions for the 10 sub-project models are listed in EFA Annex 1. The sub-project models included typical revenue and input cost items also taking into account wage and family labor. As indicated in the annex, when applicable, the investment costs include replacement costs within the 20-year horizon in line with the item's expected lifetime. It is important to note that the current model does not have the capabilities of a standard farm-level model because the assumptions are tied to the set number of hectare or heads of livestock on each representative sub-project (see Table 3). As such, a change in the size of a single sub-project must be reflected separately in each line-item in EFA Annex 1. For comparison, the assumptions used in the original PAD analysis are

[46] If a net profit is received already during the first year, NPV is used in place of the FRR and ERR.

[47] The original EFA model that formed the basis for the model used in the current analysis is contained in two Excel files: *"PRASAB-ANECO.xls"* (dated Nov 11, 2003) and "PRASAB-analyse economique - sousprojet_regroupement.xls" (dated Oct 17, 2003). These Excel files include detailed line items and calculation results but do not contain any formulas documenting how the calculations were performed. Time was spent reverse-engineering these files to replicate the results presented in the original project PAD. Subsequently the reverse-engineered model structure was used in the current analysis with updated assumptions for prices, costs, quantities, and numbers of projects.

shown in EFA Annex 2 – although this only includes the sub-projects that are also included in the current analysis.

Table 3: Sub-project models represented in analysis

Sub-Project Models	Number of Sub-Projects	Share of Total excl. forestry
Sub-Projects represented in analysis		
Goat Herd (11 heads)	688	22 percent
Goat Herd and Agriculture:		
Goat Herd (3 heads) and Seed Potato (0.1 ha)	396	13 percent
Goat Herd (3 heads) and Cassava (0.1 ha)	130	4 percent
Goat Herd (3 heads) and Banana (0.1 ha)	73	2 percent
Cattle Herd (10 heads)	858	28 percent
Apiculture	104	3 percent
Seed Potato Production (1 ha)	55	2 percent
Irrigated Rice Production (10 ha)	48	2 percent
Irrigated Vegetables (0.4 ha)	34	1 percent
Post Harvest Rice Shelling	21	1 percent
Total represented	**2,407**	**78 percent**
Sub-Projects not represented in analysis		
Other livestock production	360	12 percent
Other food production	42	1 percent
Cash crops	89	3 percent
Other non-agricultural production	203	7 percent
Total not represented	**694**	**22 percent**
Total Number of Projects (excl. forestry)	**3,101**	**100 percent**

Note: Numbers in parentheses indicate how the models reflect the typical size of each sub-project.
Source: PRASAB Team, November 2011

15. **Productive investment costs and other project costs.** Using the assumptions in EFA Annex 1to this EFA, the estimated productive investment costs in Year 1-5 for these 2,407 representative sub-projects amounted to BIF 12.8 billion (US$10.4 million). In addition to these investment costs, the analysis also incorporated a portion of other budgeted project costs, without which there would be no productive investments. Using the approach in the original PAD analysis, this included BIF 11.6 billion (US$9.5 million) derived from: an additional 10 percent of productive investment costs to cover sub-project planning and implementation assistance; 50 percent of the budget for capacity building, research and extension, and support for agency investments; and 50 percent of the project administration budget. In total, the current analysis included US$20 million or 36 percent of the US$55 million project budget. It is therefore assumed that the remaining budgeted costs covered other sub-components as well as long-term benefits not incorporated in this current analysis.

16. **Gradual build-up of benefits.** The analysis included a gradual uptake of sub-projects over the first 5 years based on the number of actual sub-projects financed over the years: 10 percent, 30 percent, 15 percent, 10 percent, and 35 percent.[48] In addition, while most sub-projects incur

[48] According to the Government's project completion report the actual number of productive sub-projects financed in the first years after 2005 were: 398 (11 percent), 1078 (29 percent), 618 (17 percent), 371 (10 percent), 1279 (34 percent for 2009-2011) to a total of 3744 (Republique du Burundi, 2011).

investment/input costs and revenue from year 1, a one year delay was assumed in revenue from cattle and dairy production (see EFA Annex 1). In line with the original PAD analysis, it was also assumed that some yields would increase gradually and only be achieved fully after 2-3 years of production. This gradual build-up of yields and associated input costs was incorporated in sub-projects for seed potato production, irrigated rice, and apiculture.

17. **Inflation adjustment, discount rate, and exchange rate.** For consistency, all prices and costs obtained in 2011 currency amounts. A discount rate of 12 percent was used to calculate net present value of the investment in accordance with typical Bank practice (as described, e.g., by Belli et al. 1998, p. 179), and for coherence with the original PAD. An exchange rate of 1,231 BIF per US$ was used.

18. **Economic analysis adjustments.** The adjustments made for the economic analysis included removing the 18 percent Value Added Tax (VAT) that was introduced on imported goods from 2009. [49] In addition and in line with the PAD, a conversion factor of 0.50 was used in the calculations to reflect the opportunity cost of unskilled labor.

Results

19. **Table 4 shows that financial rates of return on individual sub-projects are much higher than the 12 percent discount rate and they range between 36 percent and 464 percent.** Note that these estimates exclude project costs from components 2 and 3 which could not be allocated accurately to specific sub-projects. While not shown specifically in the table, these financial returns were lower than economic returns because of the removal of VAT on imported goods and a 0.5 conversion factor for the opportunity cost of labor.

20. **Calculated sub-project returns were higher than in the original PAD analysis primarily due to higher revenue and costs together with some changes in sub-project designs.** Table 4 also shows that the sub-project returns on investment were found to be higher than what was projected in the original PAD analysis. In general, both revenue and cost estimates increased from the original PAD projections – with output prices increasing relatively more thereby leading to higher net returns. Assumptions are shown in EFA Annex 1 and EFA Annex 2. Other differences were found because the original goat herd analysis excluded net benefits from herd growth (i.e., number of goats was maintained at 11 while the current analysis' herd projection stabilizes at 50 female goats per sub-project after 5 years). A second example of the difference between the current and original analyses was that the original seed potato sub-project included additional investments including a second shed and a potato propagator unit per sub-project.[50]

21. **The calculated total economic NPV was BIF 43.7 billion (US$35.5 million) with an ERR of 58 percent** (see Table 5). When other project costs were excluded, the ERR was 109 percent. As

[49] It was assumed that the following investment and input cost items were imported: Male Boer goats, feed/concentrates, sprayers, improved seed/cuttings/plants, fertilizer, pesticides, lime, protective equipment, scales, furniture, modern bee hives, beekeeping investment equipment, pumps, rice shelters, electricity, and equipment/spare parts. Details are shown in Annex A.

[50] Note that, the FRRs compared in Table 4 were calculated on cashflow before financing - as is standard practice in project assessment. The numbers in Table 4 were calculated using the original PAD EFA model and differ from those reported in Table 1 of the original PAD as those were calculated on cashflow after financing.

noted before, the analysis covered 2,407 projects with year 1-5 investments of BIF 24.4 billion (US$20 million).

22. **Over half of the economic NPV was generated through sub-projects for cattle.** Table 5 shows that most of the economic NPV was generated by the cattle herd, post harvest rice shelling, and goat herd sub-projects (55 percent, 17 percent and 16 percent, respectively). The calculated rates of return by sub-project were high because other project costs from components 2 (capacity building) and 3 (project coordination and management) were not allocated to each sub-project group.

Table 4: Project NPF and FRR for one sub-project

	Current Analysis			PAD Analysis	
Sub-Project	**# of Sub-Projects**	**Financial NPV**	**FRR [1]**	**# of Sub-Projects [2]**	**FRR [3]**
	#	BIF million	percent	#	percent
Goat Herd (11 heads)	1	6.1	94	1	38
Goat Herd (3 heads) and Cassava (0.1 ha)	1	2.5	144	0	
Goat Herd (3 heads) and Banana (0.1 ha)	1	1.8	114	0	
Goat Herd (3 heads) and Seed Potato (0.1 ha)	1	2.1	201	0	
Cattle Herd (10 heads)	1	18.1	56	1	45
Apiculture	1	5.7	52	1	30
Seed Potato Production (1 ha)	1	8.1	464	1	52
Irrigated Rice Production (10 ha)	1	6.6	36	1	17
Irrigated Vegetables (0.4 ha)	1	7.0	-	1	66
Post Harvest Rice Shelling	1	277.2	-	0	

Notes: 1. "-" indicates net profit is received already during the first year; NPV is used in place of the FRR. Discount rate = 12 percent.
2. Other sub-projects analyzed in the original PAD were: Pineapple Processing; Brick making, Pottery production, Production of farming tools, Yellow bean production, Groundnut production (1 ha); Soya Production (1 ha); Tea collection shed; and Coffee collection center.
3. FRR estimates presented in Table 1 in original PAD were based on cash flow after financing. FRR estimates shows here are recalculated - as is standard practice in project assessment – on cash flow before financing.

Table 5: Project NPV and ERR for all sub-projects

Sub-Project	**# of Sub-Projects**	**Economic NPV**	**Share**	**ERR [1]**
	#	BIF million	percent	percent
Goat Herd (11 heads)	688	8,397	16	186
Goat Herd (3 heads) and Cassava (0.1 ha)	130	2,049	4	-
Goat Herd (3 heads) and Banana (0.1 ha)	73	473	1	230
Goat Herd (3 heads) and Seed Potato (0.1 ha)	396	277	1	98
Cattle Herd (10 heads)	858	28,540	55	86
Apiculture	104	1,023	2	50
Seed Potato Production (1 ha)	55	837	2	249
Irrigated Rice Production (10 ha)	48	972	2	41
Irrigated Vegetables (0.4 ha)	34	373	1	397
Post Harvest Rice Shelling	21	8,832	17	-
Total excl. Other Project Costs	2,407	51,774	100	109
Other Project Costs		-8,117		
Total	**2,407**	**43,656**		**58 percent**

Note 1: "-" indicates that net profit is received during the first year, NPV in place of the FRR and ERR. Discount rate = 12%

23. **A comparison to data from Rwanda showed no evidence that the project was inefficient in its investment or input costs,** although on the revenue side, obtained output prices were generally lower than in Rwanda. It was of interest to explore if output prices, investment costs and

input costs realized in the project were inefficient relative to comparable alternatives. Data were obtained for comparable revenue, investment and input cost items in neighboring Rwanda. The Rwanda data included 41 unit prices/costs.[51] Table 6 shows that: output prices were generally higher in Rwanda and ranged between -10 percent and +80 percent of the current Burundi assumptions. Investment costs ranged between -60 percent and +100 percent and input costs ranged between -80 percent and +90 percent of the current Burundi assumptions. Overall, this shows no evidence that the project was inefficient in its investment or input costs. It is important to keep in mind that this analysis only compared a limited number of specific output and input prices. In addition, this analysis does not take into account that agricultural productivity is higher in Rwanda than in Burundi.

Table 6: Average unit price and unit cost differences between Burundi and Rwanda

Rwanda price/cost is x percent higher (-lower) than in Burundi	**Output Prices**	**Investment Costs**	**Input Costs**
Mean	26 percent	23 percent	5 percent
Minimum	**-9 percent**	**-59 percent**	**-81 percent**
Maximum	**75 percent**	**98 percent**	**93 percent**
Range	84 percent	157 percent	175 percent
Std. Dev.	29 percent	52 percent	51 percent
Observations	9	14	18

Source: Project Team

24. **The analysis indicated a strong sensitivity/potential for higher project returns if output prices were to increase. An 80 percent increase in all unit output prices could double the ERR to 113 percent.** This points to strong potential returns to marketing investments such as those under PRODEMA. Table 7 shows the estimated ERR when all unit prices or unit costs were changed while keeping other assumptions fixed. This illustrated a general decrease or increase in unit prices/costs rather than a specific change in one item cost at a time. If one interprets the unit price/cost ranges identified in Table 6 as possible in the Burundi situation, the project ERR could vary between 50 percent and 113 percent due to changes in unit output prices. This indicates that there was potential for higher project returns if market constraints were removed and output prices were left to increase.

25. **The ERR was most sensitive to changes in unit output prices where a 50 percent reduction in all prices brought the project close to the 12 percent break-even point.** In addition to the ranges ascertained from Table 6, the analysis included +/- 50 percent changes in unit prices/costs to illustrate that the ERR is most sensitive to changes in unit prices (revenue) such that a 50 percent reduction in all prices could bring the project close to break-even (16 percent compared to the assumed discount rate of 12 percent).

[51] The initial analysis included 77 unit prices and costs. However, 6 unit cost items were excluded as they were found to be very different (difference exceeded 100 percent). It was assumed that these unit costs were not directly comparable thereby skewing the analysis. The unit output prices included: rice, milk, calves, goats, cassava, banana, honey, rice bran, shelling. Unit investment costs included: goats, heifers, sprayers, scales, irrigation, farm/troughs, shelter, hives, smoker, honey press. Input unit costs included: labor seeds/plants, manure, fertilizer, chemicals, concentrates, transport, veterinary services, and stud fees.

26. **Compared to reduced output prices, increased investment costs had less impact on project returns with estimates ranging between 37 percent and 79 percent.** Table 7 also shows that changes in unit costs had much less impact on the ERR than changes in output prices. In general, the ERR ranged between 37 percent and 79 percent depending on how much the unit costs changed. In total the ERR remained significantly higher than the discount rate of 12 percent. This indicates that increased investment and input costs had relatively little impact on project returns.

Table 7: ERR with different levels of unit output prices, investment costs and input costs.

Output Prices	ERR	Investment Costs	ERR	Input Costs	ERR
-50 percent	16 percent	-60 percent	79 percent	-80	76 percent
-10 percent	50 percent	-50 percent	75 percent	-50 percent	69 percent
Base Case	**58 percent**	**Base Case**	**58 percent**	**Base Case**	**58 percent**
+ 50 percent	94 percent	+ 50 percent	46 percent	+ 50 percent	48 percent
+80 percent	113 percent	+100 percent	37 percent	+90 percent	40 percent

Note: Rather than changing the unit prices/costs by randomly chosen percentages, such as +/- 10 percent, the minimum and maximum ranges shown in Table 6 were used to guide this sensitivity analysis.

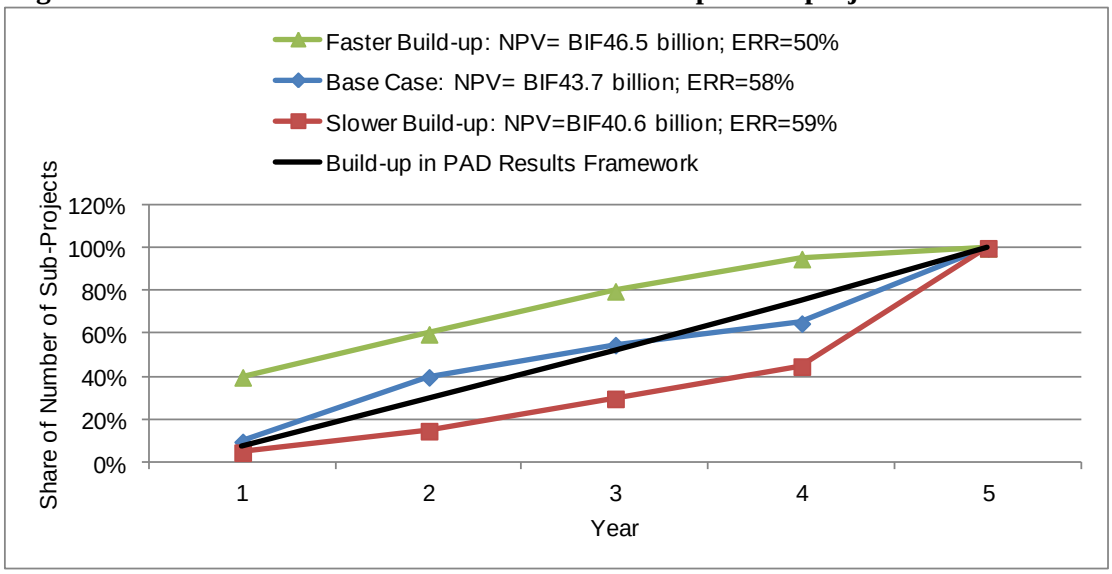
27. **Similarly to the situation in Rwanda, there is a potential that the price of manure could be driven up by an unmet higher demand for manure. However, project returns were found to be not very sensitive to increases in the price of manure, and the economic NPV increased only by 12 percent when the price increased by 70 percent.** Monitoring of sub-projects that combine goats or cattle with crop production has indicated that there are substantial benefits from organic manure – both through sales revenue and from increased crop yields (see Republique du Burundi, 2010 and 2011). This has been reflected in the model through higher value per tonne of manure, increased manure available for sale, and increased crop yields compared to the without-project situation. The unit cost comparison with Rwanda showed a price of manure 70 percent over that in Burundi – primarily driven by high demand for manure from numerous development projects. However, further analysis showed that the economic NPV increased only by 12 percent when the price of manure went up by 70 percent, and the economic NPV increased by 18 percent when the manure price doubled.[52] In other words, if an unmet demand for manure pushed up its price by 70 percent-100 percent, the project returns did not change significantly.

28. **Because the project only fell 6 percent short of its original target number of productive sub-projects there were almost no missed opportunities in increasing project returns. Achieving the original goal by investing another BIF 1 million would only have increased the economic NPV by BIF 3.5 billion to a total ERR of 60 percent.** The Government's project completion report indicates that the project has funded 94 percent of the targeted 4,000 sub-projects (Republique du Burundi, 2011, Table 12). The current analysis was representative of 2,407 sub-projects. If the project had achieved its target of 2,572 sub-projects, and it is assumed that each of these sub-projects achieved an average return the same as the sample collected, then investment would have increased by BIF 964,000 and the economic NPV by BIF 3.5 billion. The overall project ERR could have increased from 58 percent to 60 percent.

[52] Calculations include economic NPV for sub-projects that produce or use organic manure. This excludes sub projects for apiculture, irrigated rice and post harvest rice shelling.

29. **The estimated project return was dependant on, but not very sensitive to, how quickly the build-up of sub-projects was from year 1 through 5.** A faster build-up of the number of sub-projects extends the years with net benefits giving a higher NPV. Conversely, this lowers the ERR due to the time-value of money of earlier investment costs. Figure 2 shows two alternative scenarios to the current assumption. If the project could have initiated 80 percent of the sub-projects by year 3 rather than 55 percent (faster build-up), the economic NPV could have increased by BIF 2.8 billion while the ERR could have fallen to 50 percent. A slower build-up of sub-projects to only 30 percent by year 3 could have reduced the NPV by BIF 3.1 billion with little effect on the ERR. Note that, as shown in the figure, the actual build-up rate of sub-projects was very similar to that projected in the original PAD.

Figure 2: NPV and ERR with different rates of build-up of sub-projects.



30. **Switching values were identified for each sub-project separately. The most sensitive variables were: A 14 percent reduction in rice price leading to negative returns in the irrigated rice sub-projects, and a 28 percent reduction in honey price reducing economic NPV of apiculture sub-projects to zero.** Switching values indicate how much a single unit price/cost variable has to change to make economic NPV zero – while holding all other variables fixed. The switching values were calculated separately for each sub-project model.[53] Calculations indicated that the economic NPV of irrigated rice sub-projects turned negative with a 14 percent reduction in rice price. In apiculture sub-projects the economic NPV turned negative with a 28 percent reduction in honey price. In several other sub-projects, the main switching values were output prices at between -50 and -80 percent of the original assumptions.

[53] Theoretically, switching values could be calculated for the project as a whole; however this would suggest that the positive net benefits of one sub-project should carry all other sub-projects. Unless one sub-project was implemented much more frequently than others, total economic NPV would be very insensitive to changes in one sub-project assumption. As an illustration, further analysis indicated that, due to the number of cattle sub-projects a 350 percent increase in the price of heifers could lead to a negative overall project return.

31. This sensitivity analysis has focused on calculating the effect on project returns from changes in unit prices/costs. With the current model structure, there was an equivalent sensitivity to changes in quantities: For example, a 10 percent decrease in the price of potatoes lead to a 21 percent decrease in NPV, and the same was the case with a 10 percent decrease in potato yield. It is important to note that the current model does not have the capabilities of a standard farm-level model because the assumptions are tied to the set number of hectare or heads of livestock on each representative sub-project (see Table 3). As such, a change in the size of a sub-project would have to be reflected separately in each line-item in EFA Annex 1.

32. **The estimated financial and economic benefits understate the total benefits of the project particularly in terms of environmental benefits from SLM investments, support to IDP, some multi-level capacity building, knowledge transferred outside the project area, and benefits realized beyond the analyzed 20-year time frame.** In particular, this analysis did not include substantial environmental benefits expected from SLM investments including forestry and anti-erosion measures. The analysis also did not include support for IDPs or multi-level training activities of component 2 – except the proportion that was seen to contribute directly to productive investments (see paragraph 15). The estimated benefits also did not include benefits generated by the project-supported activities that could be transferred outside the project area through trained farmers interacting with other communities. Benefits are also expected to extend beyond the 20 year time-frame included in this analysis.

33. **A rough estimate of economic NPV from 622 forestry sub-projects covering 93,526 ha was BIF 72 billion including BIF 19 billion from carbon sequestration of 2.6 million t carbon over 20 years.** This analysis has excluded all environmental benefits expected from SLM investments of component 1 including forestry and anti-erosion measures. Due to the lack of detailed data, only an illustration of its potential net economic NPV from carbon sequestration was estimated for 622 sub-projects covering 28,744 ha of forestry and 64,782 ha of agro-forestry, respectively. The following assumptions were used (see detailed assumptions in EFA Annex 2): Productive revenue from sale of timber was only assumed on forestry areas. The benefit of 2.6 million t carbon sequestration over 20 years [54] was valued at US$20/t C and only as an economic benefit because sub-projects received no direct compensation for this.[55] Investment costs were BIF 5 billion and consisted of seedlings, nursery labor, and beneficiary contribution in the form of labor for planting. An additional 25 percent of other project costs was included equal to BIF 5.7 billion to

[54] Using estimates in Falloon et al. (Table 5.1, 2009) it was assumed that land management practices converting areas to woodland could lead to increased carbon sequestration of 0.5 t carbon/ha/year in the soil on forestry and agro-forestry areas, and 2.5 t carbon/ha/year and 2.5/4 t carbon /ha/year in above-ground biomass on the forestry and agro-forestry areas respectively. This amount of carbon sequestered on agro-forestry areas is 25 percent of the forestry area due to the assumed ratio of plant density between the two areas (see EFA Annex 2).

[55] The social price of carbon emissions is conventionally calculated as the pollution tax required to keep Greenhouse Gas (GHG) emissions at the socially optimal level. Expressed in terms of global warming, the optimal level of GHG emissions is the level at which the incremental cost of GHG mitigation is equal to the value of averted damage due to climate change attributable to GHG. The estimated range of economic or social prices in the Project Appraisal Documents for the Rwanda Rural Sector Support Project 2 and the Land Husbandry, Water Harvesting and Hillside Irrigation Project was based on findings in Fankhauser (1995). This compares to financial prices such as those used in Biocarbon Fund projects where activities that result in increased carbon sequestration are typically compensated at a level of US$ 4-5/t C.

account for capacity building (component 2) and project management costs (component 3). Input costs included maintenance costs in the initial years after planting and operating costs in years with productive revenue. The calculation therefore excluded any sales and operating costs on agro-forestry areas. It was also assumed that no other productive activities would have been conducted on the converted land areas without the project (i.e., the net benefit of a counterfactual was assumed to be zero). Total economic NPV was estimated at BIF 72 billion with 26 percent attributed to the economic value of carbon sequestration (BIF 19 billion). The above estimate of net benefits from carbon sequestration still underestimates the area of land that is expected to provide environmental benefits. It was not possible to obtain separate benefit and cost estimates for 9,866 ha of the productive investments in Table 3 that also included some anti-erosion and agro-forestry measures. The same was the case for 10 demonstration watershed sites covering forestry and anti erosion on 3,187 ha (1,774 forestry and 1,413 ha anti erosion).

Table 8: Main switching values for each representative sub-project.

Goat Herd (11 heads)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Sale of Goats-W/P	head	65,000	30,647	-53%
2	Sale of Goats-WO/P	head	35,000	88,853	154%
3	Veterianary Care for Goat-W/P	dose	9,150	55,654	508%
4	Adult Goat Feed-W/P	kg	250	4,911	1864%
5	Buy Goat (male)-W/P	head	280,000	10,581,080	3679%
6	Buy Goat (female)-W/P	head	45,000	1,795,276	3890%

Goat Herd (3 heads) and Seed Potato (0.1 ha)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Sale of Goats-W/P	head	65,000	11,606	-82%
2	Sale of Goats-WO/P	head	35,000	128,046	266%
3	Improved Potato Seeds -W/P	kg	1,000	6,586	559%
4	Veterianary Care for Goat-W/P	dose	9,150	81,413	790%
5	Potato-WO/P	kg	300	3,713	1138%
6	Fertilizer-W/P	kg	1,400	33,321	2280%

Goat Herd (3 heads) and Cassava (0.1 ha)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Sale of Goats-W/P	head	65,000	27,435	-58%
2	Sale of Goats-WO/P	head	35,000	93,895	168%
3	Veterianary Care for Goat-W/P	dose	9,150	59,979	556%
4	Cassava-WO/P	kg	200	1,489	644%
5	Family labor-W/P	person d	500	16,704	3241%
7	Buy Goat (female)-W/P	head	45,000	1,784,109	3865%

Goat Herd (3 heads) and Banana (0.1 ha)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Sale of Goats-W/P	head	65,000	25,780	-60%
2	Sale of Goats-WO/P	head	35,000	90,049	157%
3	Banana-WO/P	kg	250	924	270%
4	Improved Banana Plants-W/P	kg	1,500	9,722	548%
5	Veterianary Care for Goat-W/P	dose	9,150	62,273	581%
6	Fertilizer-W/P	kg	1,400	21,954	1468%

Cattle Herd (10 heads)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Milk production-W/P	litre	500	97	-81%
2	Buy Heifers-W/P	head	950,000	3,564,170	275%
3	Sale of calves-WO/P	head	250,000	1,539,563	516%
4	Veterinary Care-W/P	amount	1,050,000	6,942,326	561%
5	Concentrates-W/P	kg	350	2,319	562%
6	Milk production-WO/P	litre	500	3,366	573%

Apiculture

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Honey-W/P	kg	3,750	2,695	-28%
2	Honey-WO/P	kg	3,750	5,806	55%
3	Modern Hives-W/P	unit	40,000	203,038	408%
4	Honey press-W/P	unit	1,400,000	9,721,300	594%
5	Protective Equipment-W/P	lot	115,000	947,130	724%
6	Family labor-W/P	person days	500	9,236	1747%

Seed Potato Production (1 ha)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Potato-W/P	kg	800	411	-49%
2	Improved Potato Seeds -W/P	kg	1,000	2,630	163%
3	Potato-WO/P	kg	300	1,297	332%
4	Fertilizer-W/P	kg	1,400	10,713	665%
5	Transport Inputs (seeds, manu	amount	310,000	2,982,779	862%
6	Organic Manure-W/P	tonne	15,000	282,278	1782%

Irrigated Rice Production (10 ha)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Rice-W/P	kg	600	514	-14%
2	Rice-WO/P	kg	600	735	22%
3	Fertilizer-W/P	kg	1,400	2,861	104%
4	Water User Rights and Mainter	kg	30	110	266%
5	Wage labor-W/P	person days	1,000	4,026	303%
7	Tools-W/P	amount	790,000	4,383,738	455%

Irrigated Vegetables (0.4 ha)

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Tomato-W/P	kg	800	254	-68%
2	Onion-W/P	kg	800	95	-88%
3	Tomato-WO/P	kg	800	1,783	123%
4	Onion-WO/P	kg	800	2,065	158%
5	Cabbage-WO/P	kg	300	1,283	328%
6	Packaging - Bag-W/P	bag	500	4,441	788%

Post Harvest Rice Shelling

Rank	Variable	Unit	Base Value BIF/Unit	Switching Value BIF/Unit	% change
1	Electricity-W/P	amount	2,000,000	93,795,546	4590%
2	Sheller-W/P	unit	10,500,000	571,800,660	5346%
3	Wage labor-W/P	person days	1,000	63,727	6273%
5	Equipment and Spare Parts-W	amount	700,000	92,495,546	13114%
6	Storage Shed-W/P	amount	3,880,000	612,340,049	15682%
7	Fencing-W/P	amount	1,659,000	610,119,049	36676%

Note: W/P = With Project situation; WO/P = Without Project Situation
BIF is shown in 2011 constant values

EFA Annex 1: Assumptions Current Analysis

				Without Project (Year 1-20)		With Project (Year 1-20)				
Sub-Project (SP)	Group	English	Unit	(2011 constant) BIF/unit	Unit/SP	(2011 constant) BIF/unit	Unit/SP	VAT rate	Start Year	Investment occurs in which year(s)?
Goat Herd (11 heads)										
	Revenue Items	Sale of Goats	head	35,000	see herd proj.	65,000	see herd pr	0%	1	
		Manure production	tonne	10,000	6	15,000	20	0%	1	
	Investment Items	Goat farm	unit	0	0	150,000	1	0%	1	Every 5 Years
		Goat Feeding Trough	unit	0	0	5,000	3	0%	1	Every 4 Years
		Goat Drinking Trough	unit	0	0	5,000	3	0%	1	Every 4 Years
		Buy Goat (female)	head	0	0	45,000	10	0%	1	Year 1
		Buy Goat (male)	head	0	0	229,600	1	18%	1	Every 5 Years
	Input Cost Items	Adult Goat Feed	kg	0	0	205	183	18%	1	
		Veterianary Care for Goat	dose	0	see herd proj.	9,150	see herd pr	0%	1	
Goat Herd (3 heads) and Seed Potato (0.1 ha)										
	Revenue Items	Sale of Goats	head	35,000	see herd proj.	65,000	see herd pr	0%	1	
		Manure production	tonne	10,000	2	15,000	5	0%	1	
		Potato	kg	300	250	800	700	0%	1	
	Investment Items	Goat farm	unit	0	0	40,909	1	0%	1	Every 5 Years
		Goat Feeding Trough	unit	0	0	5,000	1	0%	1	Every 4 Years
		Goat Drinking Trough	unit	0	0	5,000	1	0%	1	Every 4 Years
		Buy Goat (female)	head	0	0	45,000	3	0%	1	Year 1
		Buy Goat (male)	head	0	0	229,600	0	18%	1	Every 5 Years
		Collection Shed	unit	0	0	100,000	1	0%	1	Year 1
		Weighing Scales	unit	0	0	4,100	1	18%	1	Every 10 Years
	Input Cost Items	Adult Goat Feed	kg	0	0	205	50	18%	1	
		Veterianary Care for Goat	dose	0	see herd proj.	9,150	see herd pr	0%	1	
		Seed Potatoes	kg	500	200	0	0	0%	1	
		Improved Potato Seeds	kg	0	0	820	200	18%	1	
		Organic Manure	tonne	10,000	0	15,000	1	0%	1	
		Fertilizer	kg	0	0	1,148	35	18%	1	
		Dithane	kg	0	0	8,200	1	18%	1	
		Ridomil	kg	0	0	20,500	0	18%	1	
		Dursban	litre	0	0	12,300	0	18%	1	
		Packing Bags	unit	0	0	500	20	0%	1	
		Lime	kg	0	0	164	100	18%	1	Only in first 88 SP
		Transport (Potato)	tonne	8,000	0	8,000	1	0%	1	
		Tools	value	0	0	8,000	1	0%	1	
		Devliery Sheets	unit	0	0	500	1	0%	1	
		Maintenance Shed	amount	0	0	2,000	1	0%	1	
		Transport Inputs (seeds, manure...)	amount	0	0	31,000	1	0%	1	
Goat Herd (3 heads) and Cassava (0.1 ha)										
	Revenue Items	Sale of Goats	head	35,000	see herd proj.	65,000	see herd pr	0%	1	
		Manure production	tonne	10,000	2	15,000	5.5	0%	1	
		Cassava	kg	200	500	200	1,000.0	0%	1	
	Investment Items	Goat farm	unit	0	0	40,909	1.0	0%	1	Every 5 Years
		Goat Feeding Trough	unit	0	0	5,000	1.0	0%	1	Every 4 Years
		Goat Drinking Trough	unit	0	0	5,000	1.0	0%	1	Every 4 Years
		Buy Goat (female)	head	0	0	45,000	3.0	0%	1	Year 1
		Buy Goat (male)	head	0	0	229,600	0.3	18%	1	Every 5 Years
		Sprayers	unit	0	0	6,560	1.0	18%	1	Every 3 Years
	Input Cost Items	Adult Goat Feed	kg	0	0	205	49.9	18%	1	
		Veterianary Care for Goat	dose	0	see herd proj.	9,150	see herd pr	0%	1	
		Cuttings	cutting	4	1,000	0	0.0	0%	1	
		Improved Cassava Cuttings	cutting	0	0	8	1,000.0	18%	1	
		Organic Manure	tonne	0	0	15,000	0.5	0%	1	
		Fertilizer	kg	0	0	1,148	10.0	18%	1	
		Dursban	litre	0	0	12,300	0.2	18%	1	
		Packing Bags	unit	500	0.4	500	5.0	0%	1	
		Lime	kg	0	0	164	100.0	18%	1	
		Transport Inputs (cuttings, manure ..	amount	0	0	7,700	1.0	0%	1	
		Protective Equipment	amount	0	0	6,560	1.0	18%	1	
Goat Herd (3 heads) and Banana (0.1 ha)										
	Revenue Items	Sale of Goats	head	35,000	see herd proj.	65,000	see herd pr	0%	1	
		Manure production	tonne	10,000	2	15,000	5	0%	1	
		Banana	kg	250	1,000	250	2,200	0%	1	
	Investment Items	Goat farm	unit	0	0	40,909	1	0%	1	Every 5 Years
		Goat Feeding Trough	unit	0	0	5,000	1	0%	1	Every 4 Years

EFA Annex 1 – Assumptions – continued

				Without Project (Year 1-20)		With Project (Year 1-20)				
Sub-Project (SP)	Group	English	Unit	(2011 constant) BIF/unit	Unit/SP	(2011 constant) BIF/unit	Unit/SP	VAT rate	Start Year	Investment occurs in which year(s)?
		Goat Drinking Trough	unit	0	0	5,000	1	0%	1	Every 4 Years
		Buy Goat (female)	head	0	0	45,000	3	0%	1	Year 1
		Buy Goat (male)	head	0	0	229,600	0	18%	1	Every 5 Years
		Sprayers	unit	0	0	6,560	1	18%	1	Every 3 Years
	Input Cost Items	Adult Goat Feed	kg	0	0	205	50	18%	1	
		Veterianary Care for Goat	dose	0	see herd proj.	9,150	see herd pr	0%	1	
		Plants	kg	500	50	0	0	0%	1	
		Improved Banana Plants	kg	0	0	1,230	100	18%	1	
		Organic Manure	tonne	10,000	1	15,000	3	0%	1	
		Fertilizer	kg	0	0	1,148	40	18%	1	
		Pesticides	amount	0	0	2,050	1	18%	1	
		Protective Equipment	amount	0	0	6,560	1	18%	1	
Cattle Herd (10 heads)										
	Revenue Items	Sale of calves	head	250,000	4	600,000	7	0%	2	
		Milk production	litre	500	1,800	500	14,850	0%	2	
		Manure production	tonne	15,000	15	15,000	80	0%	1	
	Investment Items	Buy Heifers	head	300,000	2	950,000	10	0%	1	Year 1, 7, 14, and 17
		Stables	head	0	0	180,000	10	0%	1	Every 10 Years
		Installation Cultures Fouragères	ha	0	0	350,000	3	0%	1	Year 1
		Tools	lot	0	0	384,000	1	0%	1	Every 5 Years
	Input Cost Items	Veterinary Care	amount	0	0	1,050,000	1	0%	1	
		Concentrates	kg	0	0	287	3,650	18%	1	
		Maintenance Forage Fields	ha	0	0	100,000	3	0%	2	
		Stud Fees	amount	50,000	1	100,000	1	0%	1	
Apiculture										
	Revenue Items	Honey	kg	3,750	800	3,750	1,680	0%	1	
	Investment Items	Construction Of Hives	80 hives	0	0	700,000	1	0%	1	Year 1
		Modern Hives	unit	0	0	32,800	80	18%	1	Every 10 Years
		Protective Equipment	lot	0	0	94,300	10	18%	1	Every 5 Years
		Honey press	unit	0	0	1,148,000	1	18%	1	Every 5 Years
		Smoker	unit	0	0	49,200	2	18%	1	Every 3 Years
		Maturer	unit	0	0	205,000	1	18%	1	Every 5 Years
	Input Cost Items	Small Equipment	amount	40,000	1	80,000	1	0%	1	
Seed Potato Production (1 ha)										
	Revenue Items	Potato	kg	300	2,500	800	7,000	0%	1	
		Collection Shed	unit	0	0	1,000,000	1	0%	1	Year 1
		Weighing Scales	unit	0	0	41,000	1	18%	1	Every 10 Years
	Input Cost Items	Seed Potatoes	kg	500	2,000	0	0	0%	1	
		Improved Potato Seeds	kg	0	0	820	2,000	18%	1	
		Organic Manure	tonne	10,000	3	15,000	10	0%	1	
		Fertilizer	kg	0	0	1,148	350	18%	1	
		Dithane	kg	0	0	8,200	6	18%	1	
		Ridomil	kg	0	0	20,500	3	18%	1	
		Dursban	litre	0	0	12,300	1	18%	1	
		Packing Bags	unit	0	0	500	200	0%	1	
		Lime	kg	0	0	164	1,000	18%	1	Only in first 88 SP
		Transport (Potato)	tonne	8,000	3	8,000	7	0%	1	
		Tools	amount	0	0	80,000	1	0%	1	
		Devliery Sheets	unit	0	0	5,000	1	0%	1	
		Maintenance Shed	amount	0	0	20,000	1	0%	1	
		Transport Inputs (seeds, manure...)	amount	0	0	310,000	1	0%	1	
Irrigated Rice Production (10 ha)										
	Revenue Items	Rice	kg	600	25,000	600	45,000	0%	1	
	Investment Items	Irrigation scheme	10 ha	0	0	1,300,000	1	0%	1	Year 1
		Sprayers	unit	0	0	65,600	10	18%	1	Every 3 Years
	Input Cost Items	Rice Seed	kg	600	600	0	0	0%	1	
		Improved rice seed	kg	0	0	820	600	18%	1	
		Fertilizer	kg	1,148	500	1,148	3,000	18%	1	
		Pesticide	litre	12,300	10	12,300	10	18%	1	
		Rice Transport	tonne	8,000	25	8,000	45	0%	1	
		Packing	unit	1,000	250	1,000	450	0%	1	
		Tools	amount	331,000	1	790,000	1	0%	1	
		Water User Rights and Maintenance	kg	0	0	30	45,000	0%	1	
Irrigated Vegetables (0.4 ha)										
	Revenue Items	Tomato	kg	800	2,000	800	3,600	0%	1	
		Onion	kg	800	1,500	800	2,800	0%	1	
		Cabbage	kg	300	2,000	300	4,000	0%	1	
	Investment Items	Sprayers	unit	0	0	65,600	1	18%	1	Every 3 Years
		Water Pump	unit	0	0	348,500	2	18%	1	Every 5 Years

EFA Annex 1 – Assumptions – continued

Sub-Project (SP)	Group	English	Unit	Without Project (Year 1-20) (2011 constant) BIF/unit	Without Project (Year 1-20) Unit/SP	With Project (Year 1-20) (2011 constant) BIF/unit	With Project (Year 1-20) Unit/SP	With Project (Year 1-20) VAT rate	With Project (Year 1-20) Start Year	With Project (Year 1-20) Investment occurs in which year(s)?
	Input Cost Items	Tomato Seed	bag	700	40	1,500	40	0%	1	
		Onion Seed	bag	700	40	1,500	40	0%	1	
		Cabbage seed	bag	700	40	1,500	40	0%	1	
		Fertilizer	kg	0	0	1,148	200	18%	1	
		Pesticide / DECIS	litre	12,300	1	12,300	2	18%	1	
		Organic Manure	tonne	10,000	1	15,000	2	0%	1	
		Transport	tonne	0	0	10,000	5	0%	1	
		Packaging - Case	box	500	20	500	50	0%	1	
		Packaging - Bag	bag	500	50	500	500	0%	1	
		Tools	amount	10,000	1	20,000	1	0%	1	
Post Harvest Rice Shelling										
	Revenue Items	Shelling	tonne	0	0	30,000	1,300	0%	1	
		Rice Bran	tonne	0	0	120,000	350	0%	1	
	Investment Items	Sheller	unit	0	0	8,610,000	1	18%	1	Every 10 Years
		Electrical Installation	amount	0	0	900,000	1	0%	1	Year 1
		Storage Shed	amount	0	0	3,880,000	1	0%	1	Year 1
		Fencing	amount	0	0	1,659,000	1	0%	1	Year 1
	Input Cost Items	Electricity	amount	0	0	1,640,000	1	18%	1	
		Equipment and Spare Parts	amount	0	0	574,000	1	18%	1	
		Protective Equipment	amount	0	0	41,000	1	18%	1	
Forestry (1 ha)										
	Total Areas	Aforestation	ha		0		28,744			
	Benefit Items	Sale of timber (3-4 years)	units	0	0	1,000	300	0%	5	Years 5,6,10,11 etc.
		Sale of timber (7-8 years)	units	0	0	2,500	300	0%	7	Years 7,8,9,12,13,14 e
		Carbon sequestration - soil	t C/ha/year	0	0	24,620	1	0%	1	
		Carbon sequestration - above groun	t C/ha/year	0	0	24,620	3	0%	5	
	Investment Items	Seedlings and nursery labor	plant	0	0	60	1,600	0%	1	Year 1
		Beneficiary contribution (labor)	plant	0	0	10	1,600	0%	1	Year 1
	Input Cost Items	Maintenance costs	plant	0	0	5	1,600	0%	1	
		Operating costs	% of revenue		0%		10%	0%	1	
Agro Forestry (1 ha)										
	Total Area	Agro-aforestation	ha		0		64,782			
	Benefit Items	Carbon sequestration - soil	t C/ha/year	0	0	24,620	1	0%	1	
		Carbon sequestration - above groun	t C/ha/year	0	0	24,620	1	0%	5	
	Investment Items	Seedlings and nursery labor	plant	0	0	60	400	0%	1	Year 1
		Beneficiary contribution (labor)	plant	0	0	10	400	0%	1	Year 1
	Input Cost Items	Maintenance costs	plant	0	0	5	400	0%	1	1-3 Years after planting
Other										

		Year 1	Year 2	Year 3	Year 4	Year 5
Other Project Costs	BIF M	1,164	3,492	1,746	1,164	4,074
Other Project Costs for Forestry	BIF M	175	524	262	175	611
Other Project Costs for Agro-Forestr	BIF M	394	1,181	590	394	1,378

Original Assumptions collected in cu year		2011
Exchange Rate	1 USD = BIF	1,231

Item	Unit (BIF=FBU)	Without and With Project Wage labor	Without and With Project Family labor
Labor Unit Cost (Original PAD)	person days	1,000	500

Sub-Project (SP)	Unit	Without Project Annual Wage labor	Without Project Annual Family labor	With Project Annual Wage labor	With Project Annual Family labor
Goat Herd (11 heads)	person days/ SP	0	183	20	405
Goat Herd (3 heads) and Cassava ((person days/ SP	0	97	5	176
Goat Herd (3 heads) and Banana (0	person days/ SP	0	79	5	159
Goat Herd (3 heads) and Seed Pota	person days/ SP	0	103	5	183
Cattle Herd (10 heads)	person days/ SP	0	3,650	50	3,184
Apiculture	person days/ SP	0	100	0	500
Seed Potato Production (1 ha)	person days/ SP	0	527	0	722
Irrigated Rice Production (10 ha)	person days/ SP	2,375	1,660	4,750	1,993
Irrigated Vegetables (0.4 ha)	person days/ SP	0	420	0	590
Post Harvest Rice Shelling	person days/ SP	0	0	2,400	272

Source 1: PRASAB Team

EFA Annex 2: Assumptions Original PAD Analysis

Note: Original PAD analysis was conducted in 2003 constant currency amount

				Without Project (Year 1-20)		With Project (Year 1-20)				
Sub-Project (SP)	Group	English	Unit	(2003 constant) BIF/unit	Unit/SP	(2003 constant) BIF/unit	Unit/SP	VAT rate	Start Year	Investment occurs in which year(s)?
Goat Herd (11 heads)										
	Revenue Items	Sale of Goats	head	22,500	8	28,846	13	0%	1	
	Investment Items	Goat farm	unit	0	0	70,000	1	0%	1	Every 5 Years
		Goat Feeding Trough	unit	0	0	4,000	1	0%	1	Every 4 Years
		Goat Drinking Trough	unit	0	0	4,000	1	0%	1	Every 4 Years
		Buy Goat (female)	head	0	0	35,000	10	0%	1	Every 5 Years
		Buy Goat (male)	head	0	0	60,000	1	0%	1	Every 5 Years
	Input Cost Items	Adult Goat Feed	kg	7,500	11	7,500	11	0%	1	
		Young Goat Feed	kg	2,500	8	2,500	13	0%	1	
		Veterianary Care for Goat	dose	0	0	150	100	0%	1	
Cattle Herd (10 heads)										
	Revenue Items	Sale of calves	head	90,000	4	350,000	7	0%	2	
		Milk production	litre	250	2,000	250	18,300	0%	2	
		Manure production	tonne	3,000	15	3,000	80	0%	1	
	Investment Items	Buy Heifers	head	0	0	600,000	10	0%	1	Year 1, 7, 14, and 17
		Stables	head	0	0	1,000,000	1	0%	1	Every 10 Years
		Installation Cultures Fouragères	ha	0	0	300,000	3	0%	1	Year 1
		Tools	lot	0	0	100,000	1	0%	1	Every 5 Years
	Input Cost Items	Veterinary Care	amount	0	0	650,000	1	0%	1	
		Concentrates	kg	0	0	150	3,650	0%	1	
		Maintenance Forage Fields	ha	0	0	60,000	3	0%	2	
		Stud Fees	amount	50,000	1	100,000	1	0%	1	
Apiculture										
	Revenue Items	Honey	kg	1,000	800	1,000	2,400	0%	1	
	Investment Items	Construction Of Hives	80 hives	0	0	1,000,000	1	0%	1	Year 1
		Modern Hives	unit	0	0	30,000	80	0%	1	Every 10 Years
		Protective Equipment	lot	0	0	100,000	10	0%	1	Every 5 Years
		Honey press	unit	0	0	200,000	1	0%	1	Every 5 Years
		Smoker	unit	0	0	50,000	2	0%	1	Every 3 Years
		Maturer	unit	0	0	200,000	1	0%	1	Every 5 Years
	Input Cost Items	Small Equipment	amount	40,000	1	80,000	1	0%	1	
Seed Potato Production (1 ha)										
	Revenue Items	Potato	kg	200	2,500	280	10,000	0%	1	
	Investment Items	Potato Propagator Unit (Shed)	unit	0	0	1,000,000	1	0%	1	Every 10 Years
		Shed	unit	0	0	1,000,000	1	0%	1	Year 1
		Collection Shed	unit	0	0	3,000,000	0	0%	1	Year 1
		Access Road	km	0	0	1,500,000	0	0%	1	Year 1
		Weighing Scales	unit	0	0	100,000	0	0%	1	Every 10 Years
		Office Furniture	lot	0	0	100,000	0	0%	1	Every 10 Years
	Input Cost Items	Seed Potatoes	kg	250	1,000	0	0	0%	1	
		Improved Potato Seeds	kg	0	5	300	1,000	0%	1	
		Organic Manure	tonne	15,000	7	15,000	20	0%	1	
		Fertilizer	kg	0	0	650	350	0%	1	
		Dithane	kg	0	0	6,500	3	0%	1	
		Ridomil	kg	0	0	22,000	2	0%	1	
		Dursban	litre	9,700	1	9,700	1	0%	1	
		Packing Bags	unit	0	0	1,000	100	0%	1	
		Lime	kg	0	0	100	4,000	0%	1	Only in first 88 SP
		Transport (Potato)	tonne	0	20,000	2,000	10	0%	1	
		Tools	amount	20,000	1	30,000	1	0%	1	
		Maintenance Shed	amount	0	0	10,000	1	0%	1	
		Devliery Sheets	unit	0	0	100	58	0%	1	
		Maintenance Shed	amount	0	0	5,778	1	0%	1	
		Access Roads Maintenance	amount	0	0	57,778	1	0%	1	
		Other Supplies	amount	0	0	3,852	1	0%	1	
Irrigated Rice Production (10 ha)										
	Revenue Items	Rice	kg	205	25,000	205	50,000	0%	1	
	Investment Items	Irrigation scheme	10 ha	0	0	1,000,000	10	0%	1	Year 1
		Sprayers	unit	0	0	80,000	10	0%	1	Every 3 Years
	Input Cost Items	Rice Seed	kg	250	600	0	0	0%	1	
		Improved rice seed	kg	0	0	300	500	0%	1	
		Fertilizer	kg	650	500	650	2,500	0%	1	
		Pesticide	litre	15,000	10	15,000	20	0%	1	

EFA Annex 2– PAD Assumptions - continued

Note: Original PAD analysis was conducted in 2003 constant currency amount

				Without Project (Year 1-20)		With Project (Year 1-20)				
Sub-Project (SP)	Group	English	Unit	(2003 constant) BIF/unit	Unit/SP	(2003 constant) BIF/unit	Unit/SP	VAT rate	Start Year	Investment occurs in which year(s)?
		Organic Manure	tonne	0	0	3,000	100	0%	1	
		Rice Transport	tonne	4,000	25	4,000	50	0%	1	
		Packing	unit	1,000	250	1,000	500	0%	1	
		Tools	amount	100,000	1	200,000	1	0%	1	
		Irrigation Network Maintenance	amount	0	1,350	400,000	1	0%	1	
Irrigated Vegetables (0.4 ha)										
	Revenue Items	Tomato	kg	200	1,500	200	4,000	0%	1	
		Onion	kg	250	1,000	250	2,000	0%	1	
		Cabbage	kg	150	1,800	150	5,000	0%	1	
		Pepper	kg	200	700	200	2,000	0%	1	
	Investment Items	Sprayers	unit	0	0	100,000	1	0%	1	Every 3 Years
		Water Pump	unit	0	0	250,000	2	0%	1	Every 5 Years
		Sales point development	unit	0	0	1,000,000	1	0%	1	Year 1
		Vegatable gardening area (40 Acres	unit	0	0	400,000	1	0%	1	Year 1
	Input Cost Items	Tomato Seed	bag	300	30	300	60	0%	1	
		Onion Seed	bag	300	15	300	15	0%	1	
		Cabbage seed	bag	300	20	300	40	0%	1	
		Pepper Seed	bag	300	10	300	10	0%	1	
		Fertilizer	kg	0	0	650	480	0%	1	
		Pesticide / DECIS	litre	15,000	0	20,000	2	0%	1	
		Organic Manure	tonne	3,000	2	3,000	12	0%	1	
		Transport	tonne	1,200	5	2,000	13	0%	1	
		Packaging - Case	box	5,000	3	5,000	6	0%	1	
		Packaging - Bag	bag	1,000	100	1,000	140	0%	1	
		Tools	amount	10,000	1	20,000	1	0%	1	
Other										
				Year 1	Year 2	Year 3	Year 4	Year 5		
		Other Project Costs	BIF M	2,159	2,128	1,684	1,421	1,291		
		Original Assumptions collected in cu year				2003				
		Exchange Rate	1 USD = BIF			1,076				

		Without and With Project	
Item	Unit (BIF=FBU)	Wage labor	Family labor
Labor Unit Cost (Original PAD)	person days	500	250

		Without Project Annual		With Project Annual	
Sub-Project (SP)	Unit	Wage labor	Family labor	Wage labor	Family labor
Goat Herd (11 heads)	person days/ SP	0	180	0	180
Goat Herd (3 heads) and Cassava (	person days/ SP	0	0	0	0
Goat Herd (3 heads) and Banana (0	person days/ SP	0	0	0	0
Goat Herd (3 heads) and Seed Pota	person days/ SP	0	0	0	0
Cattle Herd (10 heads)	person days/ SP	0	730	365	365
Apiculture	person days/ SP	0	90	0	100
Seed Potato Production (1 ha)	person days/ SP	0	200	50	300
Irrigated Rice Production (10 ha)	person days/ SP	1,000	1,500	1,000	2,000
Irrigated Vegetables (0.4 ha)	person days/ SP	50	260	80	440
Post Harvest Rice Shelling	person days/ SP	0	0	0	0

Source 1: World Bank (2004). Agricultural Rehabilitation And Sustainable Land Management Project (PRASAB). Project Appraisal Document. Annex 9 - Economic and Financial Analysis w/accompanying Excel spreadsheets.

Annex 4. Bank Lending and Implementation Support/Supervision Processes
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Ousmane Seck	Sr Rural Development Specialist	AFTS3	TTL#1
Sameena Dost	Counsel	LEGAF	Team member
Michael Fowler	Sr Financial Officer	LOAG2	Team member
Christophe Crepin	Program Manager	AFTS4	Team member
Arati Belle	Environmental Economist	AFTS3	Team member
Edeltraut Gilgan-Hunt	Environmental Specialist	AFTTR	Team member
John Buursink	Sr Environmental Specialist	AFTS3	Team member
Prosper Nindorera	Procurement Specialist	AFTPC	Team member
Marie-Louise Ah-kee	Procurement Analyst	AFTS3	Team member
Korotimi Sylvie Traore	Language Program Assistant	AFTS3	Team member
Seraphine Nsabimana	Team Assistant	AFMBI	Team member
Supervision/ICR			
Aurore Simbananiye	Program Assistant	AFMBI	Team member
Bella Lelouma Diallo	Sr Financial Management Specialist	AFTFM	Team member
Cheikh A. T. Sagna	Sr Social Development Specialist	AFTCS	Team member
Bleoue Nicaise Ehoue	Senior Economist	AFTAR	TTL#2
Dominique Puthod	Operations Officer	LCSHE	Team member
Edeltraut Gilgan-Hunt	Consultant	AFTTR	Team member
Emmanuel Sinzohagera	Financial Mgt Specialist	AFTFM	Team member
Erick C.M. Fernandes	Adviser	LCSAR	Team member
Estella Malayika	Program Assistant	DECAR	Team member
Fathma Diana Jalloh	Junior Professional Associate	AFTS3 - HIS	Team member
Ilhem Salamon	Senior Energy Economist	MNSEG	Team member
Hawanty Page	Sr Program Assistant	AFTAR	ICR team
Jonas Mbwangue	Consultant	WBICC	Team member
Joseph Kizito Mubiru	Sr Financial Management Specialist	LCSFM	Team member
Josef L. Loening	Economist	AFTAR	ICR team
Korotimi Sylvie Traore	Program Assistant	MNACS	Team member
Loraine Ronchi	Sr Sector Economist	AFTAR	TTL ICR
Melance Ndikumasabo	Procurement Specialist	AFTPC	Team member
Michael P. Fowler	Senior Finance Officer	CTRDM	Team member

Mohamed Arbi Ben-Achour	Consultant	AFTEG	Team member
Otieno Ayany	Financial Management Specialist	AFTFM	Team member
Ousmane Seck	Sr Rural Development Specialist	SASDA	TTL#1
Paul-Jean Feno	Senior Environmental Specialist	AFTAR	Team member
Pin Foon K. F. Ah-Kee	Procurement Analyst	AFTAR	Team member
Prosper Nindorera	Senior Procurement Specialist	AFTPC	Team member
Soulemane Fofana	Sr Rural Development Specialist	AFTAR	Team member
Toni Ntaganda Kayonga	Consultant	AFTCS	Team member
Valens Mwumvaneza	Rural Development Specialist	AFTAR	Team member
Valerie Marie Helene Layrol	Senior Operations Officer	AFRVP	Team member
Vildan Verbeek-Demiraydin	Sr Results Management Specialist	SDNOK	Team member

(b) Staff Time and Cost: P064558 (PRASAB IDA)

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY99	0	27,271
FY03	15.43	124,038
FY04	30.01	125,749
FY05	11.78	29,002
FY04 (BB-FAO)	0	16,500
Total:	57.22	322,560
Supervision/ICR		
FY04	1	4,006
FY05	10.7	72,267
FY06	16.75	96,072
FY07	15.12	95,195
FY08	31.26	215,295
FY09	18.09	91,124
FY10	18.83	92,074
FY11	13.67	64,120
FY12	5.46	22,490
FY07 (BB-FAO)	0	16,500
FY08 (BB-FAO)	0	16,500
Total:	130.88	785,644

Staff Time and Cost: P064558 (PRASAB GEF)

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY04 (BB)	0	2
FY04 (BBGEF)	10.04	108
FY05	1.28	5
FY04 (TF052992)	0	161
FY05 (TF052992)	0	7
Total:	11.32	286,131
Supervision/ICR		
(BBGEF)FY05	8.31	50,166
FY06	17.8	60,428
FY07	11.07	47,440
FY08	13.21	59,681
FY09	13.05	49,684
FY10	10.73	45,315
FY11	0.13	23
FY12	0.94	774
FY05 (TF052992)	0	6,500
Total:	75.24	320,011

Annex 5. Beneficiary Survey Results
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

Three independent beneficiary surveys were undertaken throughout the life of the PRASAB Project:

1. **2007**: The impact of the 'agricultural kits' for returnees and internally displaced people was evaluated through a household survey covering 480 beneficiaries of the agricultural kits (and 120 control households);
2. **2009**: Upon recommendation from the MTR, in a follow-up analysis, the project impact was evaluated by surveying 162 producer organizations; and
3. **2010:** The project-end independent evaluation undertook a 260-household survey, covering more than7 percent of all sub-projects using a representative sample.

A common methodological feature of the evaluations is a mixed quantitative and qualitative approach (including field interviews with beneficiaries and extensive reviews of project documentation and reports). The main findings are as follows:

1. 2007 – Evaluation of the Agricultural Kits

The survey focuses on variables such as crop production, changes in farm output, the number of meals per day, and seed supply which it uses as indicators to measure progress towards reintegration. Other indicators include the number of returnees engaged in productive agricultural activities, expansion of cultivated areas, and participation in producer associations.

Key findings on the nature of the Project's intervention include:

- The production of beans was the most widely used kit, followed by maize;
- The average utilization rate for crops was low, at about 57 percent;[56]
- Fertilizer, pesticides, seeds, and vegetables also recorded a low, but increasing, utilization rate from 37 percent in 2005 to 50 percent in 2006; and
- Seed quality was perceived as acceptable: Some 65 percent of beneficiaries felt that the quality of seeds was 'good' or 'very good'.

The Project contributed significantly to agricultural rehabilitation, as evidenced by the following findings:

- The land area allocated to beans and corn in project areas doubled since Project-start;

[56] As per the Government's ICR and ICR interviews, this rate was expected and factored into the PRASAB volume of seed provided. That is, it is well known (from ICR interview with DPs) that beneficiaries will eat at least a part of their seeds given the food security situation in Burundi. Several mitigating approaches are therefore used by DPs, including PRASAB. Key among these is either (i) to partner with WFP who provide food aid while the Project provides seeds as a part of the kit or (ii) PRASAB provides more than enough seed to allow for some consumption.

- Over 75 percent of beneficiaries are satisfied with the composition of the agricultural kits;
- Most beneficiaries reported affording an average of two meals a day after Project intervention;
- Almost every household has a hoe in good condition, which provides opportunity for alternative employment (in public works, for example);
- Household seed production for beans exceeds 70 percent of needs; producing marketable surplus;
- Participation in associations often exceeds 10 percent; and
- Revenue generated from (seed) production surplus is reinvested in the farms.

Comparing the results of the project beneficiaries with control groups also shows a doubling in cultivated land. Despite this, respondents perceive their production level remaining flat. Control groups have similar, yet marginally lower food consumption patterns. The main difference between beneficiaries and non-beneficiaries is a lower re-investments rate of (seed) production surplus.

2. 2009 – Evaluation of Producer Associations

The qualitative evaluation of the 2009 beneficiary survey of producer organizations about project impacts finds that PRASAB, at the time of the evaluation, showed an overall significant development impact. The key results include:

- improved household food security;[57]
- increased (self-reported) household incomes;[58]
- increased capacity of associations;
- increased capacity of maintaining the sustainable production levels through SLM measures.; and
- Significantly increased Government institutional capacity

Results from the survey are extremely detailed and go beyond the measurement of the PRASAB's core PDO or IOs. Most of the indicators from the project's results framework are captured and overall, are confirmed by those measured in the final 2010 impact evaluation (see below).

3. 2010 – Final Beneficiary Survey

The beneficiary survey records overwhelmingly positive results. Most Project activities had a strong positive impact in rural areas. The evaluation suggests that one should build one these findings for future projects, as it is rare for Burundi that a development project

[57] The evaluations report that 74-100% of the associations whose members were interviewed perceive better food security associated with the project.
[58] The evaluations report that 28-100% of the associations whose members were interviewed perceive higher household incomes associated with the project.

can respond as quickly as PRASAB to the needs of the target population. Particular achievements of the project flagged by the evaluators include:

- the effective combination of production, income diversification, and SLM;
- a close alignment of the project's activities with the National Agricultural Strategy and with the PRSP adopted in September 2006 (in effect at the time of the evaluation); and
- strong empowerment through CDD-type interventions of beneficiaries as well as for war-distressed victims was important.

Particular project achievements documented in the evaluation include:

- Support of 237,292 households (in 2010, prior to final project-end figures), or approximately 1.4 million people in Burundi;
- Promotion of social cohesion, female empowerment, and local capacity building;
- Promotion of agricultural diversification;
- High economic efficiency as demonstrated by internal rates of return (IRRs) of 165 percent for forestry, 74.3 percent for irrigation; 57.3 percent for vegetables crushing units; and 42.5 percent for forestry businesses;
- Considerable overall increase in milk production and animal welfare; and
- Environment protection, in particular through 71 million seedlings and the subsequent development of an agro-forestry business for some 1,000 households.

Particular challenges of the project include:

- "Confusion" and poor support by the public sector LIAs, which could be damaging in terms of sustainability of subprojects;
- Relatively high cost of benefits provided by the LDPs whose role is important and strategic, but could have had more results oriented performance rewards;
- Deficiencies in the number of service providers and training, in particular taking into consideration growing demand in the livestock sector;
- Targeting of beneficiaries (duplications are possible due to illiteracy); and
- Continued lack of forest inventory and management plans.

Annex 6. Stakeholder Workshop Report and Results
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

N/A

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

Summary of Borrower's ICR

The Borrower's ICR is a high-quality, evidence based document. It shows an above-average level of introspection and produces a number of practical lessons. It is very thorough in its component-by-component output reporting and includes evaluative analysis on the challenges and successes of implementation. In sum the ICR reports that:

- PRASAB made significant achievements. This is despite the fact that not all sub-project applications for funding could be met due to higher than expected costs per SP. These higher costs stem primarily from an underestimation of the number of beneficiaries per applicant PO or CBO, which is in fact a positive development since evaluations show that community solidarity and social cohesion has been strengthened through PO/CBO SP application. Results in general come close to the original development objectives, and sometimes even exceed the objectives. The project's overall achievements are thus rated as satisfactory in Government ICR;
- More than 3,700 sub-projects were financed. The overall distribution of sub-projects is as follows: 37 percent for combined agriculture and livestock (mainly goats) activities, 30 percent for dairy cattle, 17 percent of the forestry sub-projects, 7 percent for seed production, 7 percent for non-farm activities, and 2 percent for cash crops;
- About 145,000 households received the rehabilitation kit for at least two growing seasons (215,516 household received overall);
- The forestry sub-projects have produced more than 70 million seedlings and replants cover about 28,744 ha. Incremental SLM activities allowed reforesting of 1,774 ha with an additional 1,413 ha land area, now protected by anti-erosion measures;
- The restocking of livestock by the Project is amplified by genetic improvements of dairy cattle (imported mainly from Uganda). The livestock sub-projects had, overall, very positive results. Manure production also contributed significantly to improving the productivity of agricultural land. However, breeders have not yet acquired full control of the driving techniques of breeding in permanent housing and still need support in organizing the collection and marketing of milk;
- As part of the project 1,573 ha irrigated net area were rehabilitated in six provinces;
- Under the capacity building component, the project provided training on various topics (modern breeding, bee keeping, financial management, SLM) for technicians and managers of the public and private LIAs. The Project also supported the publication of the "*Messager agricole*" newsletters produced in

French and Kirundi, as well as the production of radio programs to inform partners, the public, and the beneficiaries about the project's activities;

- The project equally contributed to improved capacity by providing logistical and office equipment, and by funding training and applied research activities at key Government ministries. Responsiveness of government institutions have significantly increased, with significant results in the development of strategic documents, sectoral policies, and the resumption of research activities;
- More than 246,000 participants have benefited from capacity building activities and 56 research technologies have been developed, of which about twenty are now in circulation;
- According to beneficiary surveys (see Annex 5) the project also made significant impacts by (i) improving food security and household welfare/incomes, (ii) capacity building of local producer associations, and (iii) maintaining the potential or agricultural production;
- The assessment of the beneficiaries is generally very positive, both from the implementation and benefits achievements point of view;
- These impacts have been achieved through improved productivity crops and livestock, sale of part of production, a higher production of manure and soil protection. The yields of some crops have almost doubled and milk production has increased six-fold;
- The share of marketable production is about 50 percent of total production. As a result, the project contributes significantly to the monetization of Burundi's rural society. Sales revenues are used to cover the financial needs of households (44 percent), reinvested in the sub-projects (31 percent) or accumulated/saved in various forms (25 percent). The revenue of sub-projects in the production cycle is the main source of income for about 23 percent of the beneficiaries in the category of productive subprojects.

In addition, the PRASAB was involved in the mobilization of additional funding and preparation of the proposed 'Productivity and Development of Agricultural Markets' Project (PRODEMA) with became effective in December 2010.

Key lessons internalized by the Project in their own decision making and for future operations cited in the Government ICR include:

- The participative CDD approach was the most appropriate in terms of raising capacity for productive investment among rural communities and their organizations, as well as in contributing to the social cohesion required in post-conflict Burundi;
- Attention to group formation and group coherence is an important factor in SP success;
- The need for ongoing training over and above the initial transfer of knowledge. This calls for more monitoring and mentoring on an ongoing basis for a much larger portion of the SP life;

- It is important to recruit private sector LIAs with clear performance incentives;
- Marshland rehabilitation requires extensive planning and scheduling for works; and
- There is a need for stronger baseline than the Project had to accurately reflect the achievements.

In addition to those explicitly cited as lessons in the Government ICR, the following two lessons also emerge from their auto-analysis of SP success and failure:

- The constraint imposed by limited quality planting and grandfathering materials (i.e., upstream sourcing);
- Marketing aspects require greater attention to maximize returns on SP investments (e.g., dairy).

Government Comments on Draft ICR.

English translations of French versions sent from the Borrower.

On January 20, 2012

Kindly find below comments and observations made by the representatives of the Government, during PRODEMA Steering Committee meeting dated January 19, 2012.

1. General assessment
The Government commanded the high quality of the paper, regarding its content as presented and the assessments made objectively on the basis of the following items:

- The accurate assessment of the context of project preparation, the relevance of the proposed objectives assigned and conditions of implementation;
- The analysis done to assess the achievement of the Project Development objectives, as well as global environmental objectives; and
- The performance rating of the project and of its partners.

2. on the substance
Page 42: section5.2. (a) Government performance:
The rating "moderately satisfactory" was considered too severe. Some points mentioned to disqualify a satisfactory rating are not recognized as weaknesses of the Government support, including:

-The 100% financing of the project by IDA and GEF does not result from the unwillingness of the Government to contribute to project financing. It was instead an important outcome of the negotiations. Note that during the project preparation, the Government had allocated matching funds to finance the PPF;

- Reference to the reluctance of the Government to maintain continuity in the

management of PRODEMA should not be considered since it has not significantly hindered the continuity of PRASAB's operation.

The representatives recommend upgrading the Government's rating to "satisfactory."

3. on the form
Page 6, line 5: 91% of the population lived in **rural** areas and not urban areas.

Page 16, last line: ... Capacity with planning orientations for 2004 was "negative." We suggest "**low**" rather than "negative".

Page 25, last paragraph: "very satisfactory "at start of the project and "**moderately satisfactory**" **in 2008**" and not "moderately satisfactory at closure in 2008. ". In fact, the project did not close in 2008 but in 2011.

Page 28 in the middle of the page: "Table 2 shows the levels of completion .... ".This is "**Table 3**" instead of "Table 2".

Page 33, second bullet: In 2008, the project has funded the development of the National Agricultural Strategy "SAN". SANs enabled participation in the CAADP, which in turn allowed the development of the National Agricultural Investment Program "PNIA" that PRASAB co-funded with all development partners.

4. Other recommendation
The Burundian government wishes to receive the document upon completion, preferably in both English and French.

We wish you good reception, and please receive our congratulations for the high quality work.

For the Burundian government
Salvator Nimubona

On January 24, 2012

In addition to our email of January 20, please find below another editorial comment regarding Cassava, Box #2 on document page 22.

"Tubers" are actually not planting material, but "cuttings". Cuttings are generated by cutting cassava stems; tubers are harvested for consumption after cassava stems are cut.

We wish you good reception, and please receive our congratulations for the high quality work.

For the Burundian government
Salvator Nimubona

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

European Union:

Sorry for the delay in replying: I was out of the office end of last week and wasn't able to open the first document received.
Nevertheless, I do not have many comments on the report, and must admit I have not had the time to read and analyse it in depth, although it seems to give a good and clear picture of the results obtained.
It might be interesting however to add some information about the sustainability of the actions implemented as well as about the coordination and harmonization of approaches with other DPs.

Best regards,

Stephan FOX
Chargé de Programmes "Développement Rural"
Section Développement Rural et Infrastructures
Délégation de l'Union Européenne au Burundi
Building OLD EAST,
Place de l'Indépendance BP 103 Bujumbura - BURUNDI

Annex 9. List of Supporting Documents
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

Belli, P., J. R. Anderson, H.N. Barnum, J.A. Dixon, and J.-P. Tan (1998). *Handbook on Economic Analysis of Investment Operations, Operational Core Services Network Learning and Leadership Center*. Washington, DC: World Bank.

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World Bank. 2008. *Project Paper: Additional Financing for Agricultural Rehabilitation and Sustainable Land Management Project.* Washington DC: World Bank.
World Bank. 2010. *Project Appraisal Document: Agro-pastoral Productivity and Markets Development Project (PRODEMA).* Washington DC: World Bank.

World Bank. 2008b. *Project Appraisal Document for the Rwanda Second Rural Sector Support Project (RSSP).* Washington DC: World Bank.

World Bank. 2009. *Project Appraisal Document for the Land Husbandry, Water Harvesting and Hillside Irrigation Project (LWH).* Washington DC: World Bank.

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World Bank. 2004-2011. *Agricultural Rehabilitation and Sustainable Land Management Project (PRASAB) Implementation Status Reports (ISRs).* Washington DC: World Bank.

World Bank. 2011. *Country Assistance Strategy Progress Report for the Republic of Burundi*. Washington DC: World Bank.

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Annex 10. Note on Indicators
REPUBLIC OF BURUNDI
Agricultural Rehabilitation and Sustainable Land management Project

PDO and Key Indicators

1. The PDO in the PAD is "to restore the productive capacity of rural areas through investments in production and sustainable land management and through capacity building for producer organizations and local communities. Beneficiaries would also include war-distressed returnees and internally displaced persons". This differs slightly from the wording in the approved Development Grant Agreement (DGA) which is "to contribute to the Recipient's goal of restoring the productive capacity and livelihoods of its rural population through economically and ecologically sustainable investments." Restoring rural productive capacity is the core objective for both. Also, both read as if the entire rural population/area forms part of the PDO. As discussed in the ICR, the wording of indicators and the active collaboration and partition of Burundi's geographical rural space among DPs throughout Project implementation indicate that the PDO should have read 'in project-affected areas' or similar. In assessing the Project's progress towards the PDO, it is possible to identify the restoration of productive capacity (as per DGA) and assess ecological (DGA)/SLM (PAD) aspects. The PAD wording includes beneficiaries which are linked to the PDO through the Results Chain of Figure 1.

2. It is not straightforward to identify the original Key Indicators for PRASAB, as these differ in three different parts of the official Project documentation. First, from the main text of the PAD, Key Indicators are listed as:

i. number of subprojects and smallholder families benefiting from the productive investments;
ii. number of startup kits distributed to distressed people (returning refugees and internally displaced persons) returning to agriculture;
iii. percentage of producer organizations making profitable investments with the Project's help;
iv. increase in yields of major food crops from productivity improvements;
v. number of hectares of rehabilitated land and agricultural land protected against degradation;
vi. proportion of requests for help with sustainable land management; and
vii. change in the use of wetlands in project areas from under production to not under production.

3. Second, in the results framework (RF) of the PAD (Annex 3), the "PDO Outcome Indicators" are:

i. At least 75 percent of the benefitting POs and LCs continue to function for the benefit of their members and follow the norms of good environmental and sustainable land management; and
ii. At least 80 percent of returning refugees and displaced families having received Project-financed kits have returned to normal agricultural life.

4. Third, while a number of related ‘outcomes’ and ‘outputs’ are stipulated in the approved DGA, these differ again from both the ‘key indicators’ and ‘PDO Outcome Indicators’ listed in the PAD (as above). The DGA indicators are instead drawn from the Project’s (intermediate) results indicators by component, spelt out in the PAD’s RF.

5. After an initial attempt to track the seven “key indicators” found in the PAD text, the Project teams (Bank and Government) quickly realized the intractability of these (see also footnote 60). The ISRs retained the most measureable and relevant indicators on returnees and SLM and added productivity measures and beneficiary revenue early on. All others were dropped. With annual variations in the precise wording, these four could be seen to be fairly consistently tracked as key indicators throughout the life of the Project in the Bank ISRs (see Table 9).

Table 9 Tracking Project Indicators Across ISRs

Year / ISR Sequence	Key Indicators	Notes
2004 (ISR sequence 1)	No indicators reporting.	
2005 (ISR sequence 2)	1. No. of hectares covered by SLM practices and agricultural ecosystems protected and restored; 2. Percentage of the Depression Areas (East Zone) where improved vegetation cover (windbreaks) and water harvesting techniques have been introduced; 3. Percentage of beneficiaries who continues to operate in accordance with the Project objective and follow sustainable land and environmental management practices; 4. Percentage of returning refugees and displaced families have been received project financed kits who have returned to normal agricultural life; 5. No. of micro-watersheds in the implementation area of the Project where SLM practices have been established in the course of the project implementation and have stabilized sediment deposition; 6. Percentage of mountainous land in Project implementation area have been covered by the erosion control measures and sustainable agricultural practices in lower areas; 7. The Environmental Monitoring Plan is prepared and implemented satisfactorily.	From this second ISR, only indicator (1) and (4) are part of the Key Indicator set found in the PAD text (see above); and (ISR indicator (3) resembles one of the two key indicators found in the PAD Results framework (Annex 3) which reads: "percent of the benefitting [producer organizations] POs and [local communities] LCs continue to function for the benefit of their members and follow the norms of good environmental and sustainable land management", so that the ISR counts beneficiaries and the PAD indicator counts their organizations
2005 (ISR sequence 3)	1. Productivity increase of main agricultural and livestock products in project area: a) Beans b) Groundnut c) Soya d) Maize	By the next mission, the Project team has improved the reporting by including 3 of the original key indicators from the PAD text (those on yield, returnees and number of ha under SLM). Note: - the formulation (wording) of these three is different than in the PAD, but the changes make the indicators more measurable --an extra indicator on beneficiary revenues has been added

Year / ISR Sequence	Key Indicators	Notes
	e) Irrig rice f) Potatoes g) Cassava h) Sweet potatoes i) Coffee j) Tea k) milk 2. Increase in beneficiaries' revenue; 3. No. of returnees and displaced persons having returned to agricultural production; 4. No. of hectares where sustainable land management practices have been implemented successfully and agricultural ecosystems are being protected and restored.	- one of the indicators (on returnees) is also found in the PAD results framework (Annex 3)
2006 (ISR sequence 4)	1. Productivity increase of main agricultural and livestock products in project area: a) Beans b) Groundnut c) Soya d) Maize e) Irrig rice f) Potatoes g) Cassava h) Sweet potatoes i) Coffee j) Tea k) milk 2. Increase in beneficiaries' revenue 3. No. of returnees and displaced persons having returned to agricultural production; 4. No of hectares where sustainable land management practices have	Consistency: In the following ISR, the Project sticks to the sub set of indicators selected in ISR-3 and continues to do so until ISR-7 The ISR sequence from ISR 3 to ISR 7 represent a change in the key indicators early on in the project from the original specification in the PAD. The ICR view is that this was done to improve the relevance and measurability of the indicators. The Project could have restructured to alter the RF to reflect this earlier than 2008 although the correction occurred *de facto.*

Year / ISR Sequence	Key Indicators	Notes
	been implemented successfully and agricultural ecosystems are being protected and restored.	
2006 (ISR sequence 5)	1. Productivity increase of main agricultural and livestock products in project area: a) Beans b) Groundnut c) Soya d) Maize e) Irrig rice f) Potatoes g) Cassava h) Sweet potatoes i) Coffee j) Tea k) milk 2. Increase in beneficiaries' revenue. 3. No. of returnees and displaced persons having returned to agricultural production; 4. No of hectares where sustainable land management practices have been implemented successfully and agricultural ecosystems are being protected and restored.	Consistent
2007 (ISR sequence 6)	1. Productivity increase of main agricultural and livestock products in project area: a) Beans b) Groundnut c) Soya d) Maize e) Irrig rice f) Potatoes g) Cassava h) Sweet potatoes i) Coffee j) Tea	Consistent

Year / ISR Sequence	Key Indicators	Notes
	k) milk 2. Increase in beneficiaries' revenue. 3. No. of returnees and displaced persons having been effectively reinserted in their communities; 4. No of hectares where sustainable land management practices have been implemented successfully and agricultural ecosystems are being protected and restored.	
2007 (ISR sequence 7)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Poultry c) Sweet potatoes' seeds production d) Cassava e) Rice 2. Increase in beneficiaries' revenue; 3. No. of returnees and displaced persons having been effectively reinserted in their communities; 4. Area of selected watershed under SLM practices.	Change: -the number of products selected for yield measurements is narrowed substantially to key commodities emerging from CDD process -the indicator for returnees changes to reinsertion into their communities from an earlier (PAD) emphasis on return to agriculture -the wording on SLM is simplified and rendered more measurable ("area of selected watershed under SLM practices" vs. " No of hectares where SLM practices have been implemented successfully and agricultural ecosystems are being protected and restored")
2008 (ISR sequence 8)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Poultry c) Sweet potatoes' seeds production d) Rice 2. Increase in beneficiaries' revenue; 3. No. of returnees and displaced persons having been effectively reinserted in their communities;	Change: -the number of products whose yields are tracked are further simplified to four -two more indicators are adopted, neither of which figure in the original PAD as key (or intermediate) indicators - the indicator on agro-ecological packages tends towards a GEO indicator found in the original DGA (but not PAD) concerning: "Agro-sylvan-pastoral production systems have been implemented in at least 10% of cultivated land in the Central Plateau of the territory of the Recipient" , although the extraordinary specificity of the original formulation has been dropped

Year / ISR Sequence	Key Indicators	Notes
	4. Area of selected watershed where appropriately SLM practices are adopted; 5. Area where agro-ecological packages have been adopted; 6. Area of farm plots where improved agricultural practices are adopted.	
2008 (ISR sequence 9)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Irrig rice c) Cassava d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively reinserted in their communities; 4. Area of selected watershed where appropriate SLM practices are adopted; 5. Area where agro-ecological packages have been adopted; 6. Area of farm plots where improved agricultural practices are adopted.	Change: -the products whose yields are being tracked are changed. These 4 are selected from the longer list of (9) products approved in the 2008 Additional Financing restructuring package. From that approved list, the Project selected a sub set -The other indicators remain consistent with the ISR immediately preceding -This set remains unchanged until ISR-10
2009 (ISR sequence 10)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Irrig rice c) Cassava d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively	Consistent

Year / ISR Sequence	Key Indicators	Notes
	reinserted in their communities; 4. Area of selected watershed where appropriately SLM practices are adopted; 5. Area where agro-ecological packages have been adopted; 6. Area of farm plots where improved agricultural practices are adopted.	
2009 (ISR sequence 11)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Irrig rice c) Cassava d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively reinserted in their communities.	Change -The Project simplifies the reporting further to the same subset of four product yields in ISR-9 and only two others . -Putting the changing products and differing wording aside, these three indicators are those that have been most consistently tracked since ISR-3 through the life of the Project and remain consistent to Project end
2010 (ISR sequence 12)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Rice c) Cassava d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively reinserted in their communities.	Consistent
2010 (ISR sequence 13)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Irrig rice c) Cassava	Consistent

Year / ISR Sequence	Key Indicators	Notes
	d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively reinserted in their communities.	
2011 (ISR sequence 14)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Irrig rice c) Cassava d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively reinserted in their communities.	Consistent
2011 (ISR sequence 15)	1. Productivity increase of main agricultural and livestock products in project area: a) Milk b) Rice c) Cassava d) Onion 2. Increase in beneficiaries' net profit; 3. No. of returnees and displaced persons having been effectively reinserted in their communities.	Consistent

6. The 2008 additional financing package formalized these modifications, demoting the SLM hectares to an intermediate indicator, although the Bank team continued to report it as a key indicator until ISR-11 (see Table 9). The indicators approved in 2008 survived to Project-end reasonably intact, with the exception of dropping all coffee specificity and some vegetables in the productivity list. Section F of the Datasheet spells out the revised indicators approved in 2008. Once again, however, these differ slightly in wording from the Project's Key Indicators listed in the 2008 legal agreement listed below. Notably, indicator on budget allocation for agriculture is an IO in the approved restructuring package and listed as a key outcome indicator in the legal agreement:

i. Productivity increase in the Project area of: (A) first grade coffee; (B) irrigated rice; (C) onions, tomatoes and cabbages; (D) cassava; (E) palm oil; and (F) milk;
ii. Increase in number of returnees and internally displaced persons reintegrated in their communities;
iii. Number of ha of watershed under sustainable land management practices rehabilitated; and
iv. Increase in budgetary allocations to the agricultural sector.

GEO and Key Indicators

7. Appendix 1[59] of Annex 3 of the PAD states that : "The GEF operational program will address the causes of land degradation by accelerating locally driven sustainable land management practices, contributing to maintenance of critical ecosystem functions and structures (including maintaining agro-ecosystems, stabilizing sediment storage and release in water bodies), and improving carbon sequestration through increase in vegetation cover." It is also only from this Appendix to the Annex 1 that "Key Indicators" can be found for the GEO, although there are several SLM indicators in different parts of the PAD, RF and DGA. The GEO "key indicators" listed in the appendix to PAD Annex 3 are:

i. Preservation or restoration of the structure and functional integrity of ecosystems as measured by a set of applicable SLM indicators (including soil erosion, siltation, change in vegetative cover, monitoring of encroachment/production in fragile lands and key biodiversity in representative sites);
ii. Institutional and human resource capacity is strengthened to improve sustainable land management planning and implementation;
iii. Policy and regulatory framework is strengthened to facilitate wider adoption of sustainable land management practices; and
iv. Greater awareness of SLM activities and issues among producers.

8. These key indicators do not appear in the Project's RF, although they are informed by SLM indicators in the RF (indicators on area (ha) of watersheds under SLM, see below). Some of the results indicators in the original and revised results framework

[59] The Appendix to Annex 1 of the PAD is the Project Design Summary table required in Bank PADs prior to 2004. The Project went to Board at the transition point between the old Project Design Summary and the new Results Framework.

do also inform on institutional capacity and policy and regulatory framework for SLM (see ICR Datasheet Section F).

9. Second, the original DGA for the Project lists the following Project-end 'Outcomes' for "land degradation activities", but as the whole Project addresses SLM, it is unclear that these are specifically intended as Key Indicators for the GEO. They are listed here for completion, but do not figure in either the original or revised results framework:

i. Erosion control measures are in place in mountainous land in the Project implementation area, and sustainable agricultural practices are in place in lower areas in at least 10 percent of farmland in the Western Escarpment Zone of the territory of the Recipient;
ii. Pasture management and erosion control through reforestation have improved in at least 10 percent of pastureland in the Congo - Nile Divide Zone of the territory of the Recipient;
iii. Agro-sylvan-pastoral production systems have been implemented in at least 10 percent of cultivated land in the Central Plateau of the territory of the Recipient; and
iv. Improved vegetation cover (windbreaks) and water harvesting techniques have been introduced in at least 10 percent of the Depression Areas (East Zone) of the territory of the Recipient.

10. Paradoxically, there are so many indicators cited in different parts of the Project documentation that the task and quality control teams may have felt that the PDO and GEO were well covered. [60] In actual fact, the more streamlined set were actually monitored through to Project end, with some amplification on basic capital stock replenishment, are ultimately sufficient and informative on the PDO.

[60] For example, the Key Indicators stated in the PAD text (see Annex 10) overlap (e.g. PAD Key Indicators (v) and (vi) overlap without adding information); and one PAD Key Indicator is completely disconnected from the stated activities and approach of the Project (PAD Key Indicator (vii) on transformation of marshlands from production to protection). The PAD RF outcome indicators (Annex 3) are better and are used to help with the assessment of outcomes.

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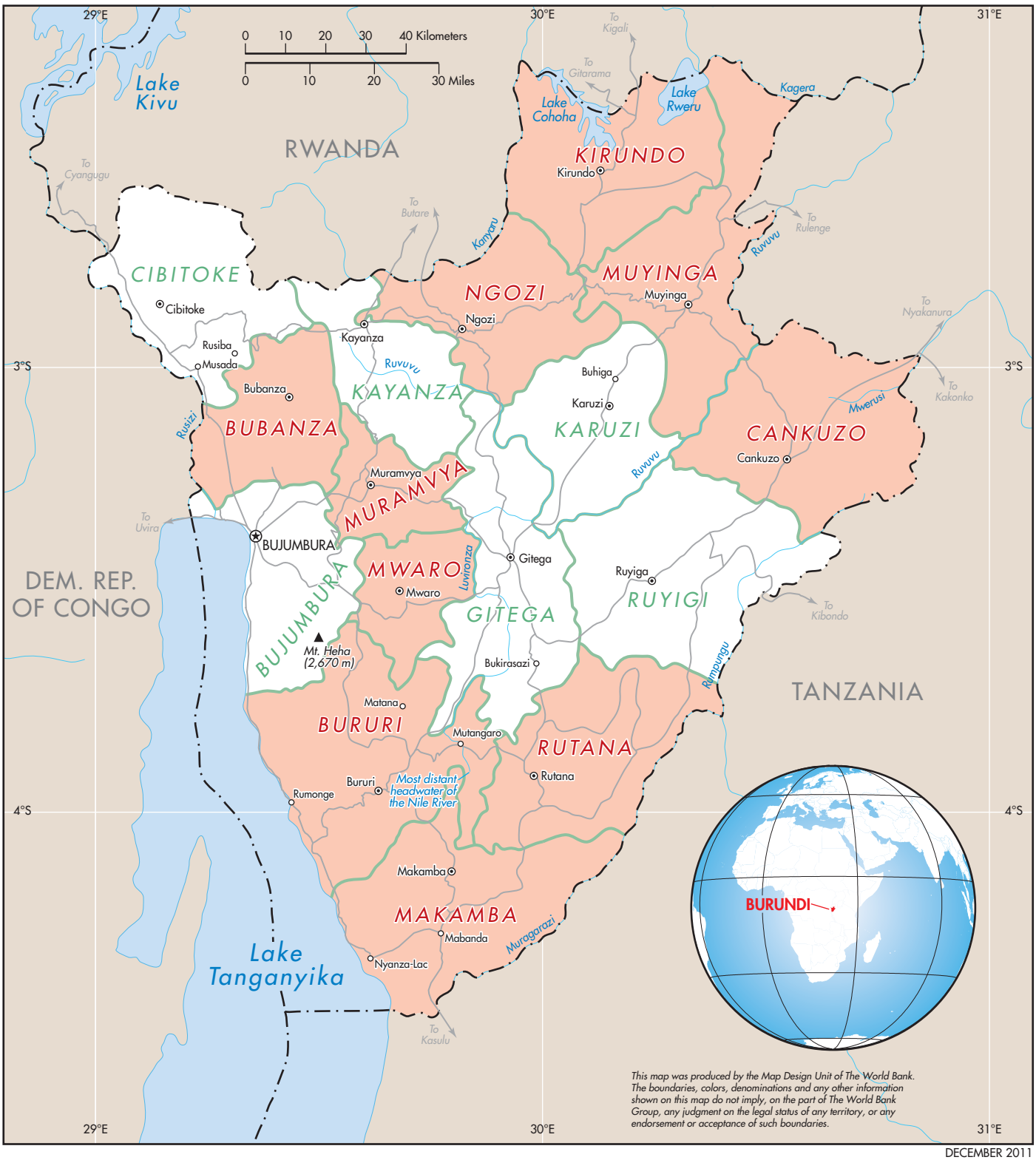
AGRICULTURAL REHABILITATION AND SUSTAINABLE LAND MANAGEMENT PROJECT



DECEMBER 2011