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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF56782)

ON A

GLOBAL ENVIRONMENTAL FACILITY GRANT
IN THE AMOUNT OF US$ 6.0 MILLION

TO THE

GOVERNMENT OF

THE ISLAMIC REPUBLIC OF MAURITANIA

FOR A

COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

January 28, 2014

Agriculture, Rural Development and Irrigation Practice (AFTAI)
Sustainable Development Department
Country Department AFCF1
Africa Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective July 2013)

Currency Unit = Mauritanian ouguiya (MRO)
MRO 1.00 = US$ 0.00358422
US$ 1.00 = 279 MRO

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ABV	*Associations de Bassins Versant* / Watershed Management Associations
ADC	*Association de Développement Communautaire* / Community Development Association
CBRD	Community-based Rural Development Project / *Projet de Développement Rural des Communautés de Base* (PDRC)
CBWM	Community-based Watershed Management Project / *Projet d'Aménagement Communautaire des Bassins Versants* (PACBV)
CCU	Central Coordination Unit
CNERV	*Centre National d'Elevage et de Recherche Vétérinaires* / National Center for Livestock and Veterinary Research
CNRADA	*Centre National de Recherche Agronomique et de Développement Agricole* / National Center for Agronomic Research and Agricultural Development
CST	*Comité Technique et Scientifique* / Scientific and Technical Committee
ERR	Economic Rate of Return
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
GEF	Global Environment Facility
GEO	Global Environment Objective
GIS	Geographic information system
GTZ	German Organization for Technical Cooperation
ha	Hectare
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IDA	International Development Association
IRR	Internal Rate of Return
ISR	Implementation Status Report
km	Kilometer
M	Million
m	Meter
M&E	Monitoring and Evaluation
MDR	*Ministère de Développement Rural* / Ministry of Rural Development
MDRE	Ministry of Rural Development and Environment
MoE	*Ministère de l'Environnement* / Ministry of Environment
MRO	Mauritanian Ouguiya

MS	Moderately Satisfactory
MTA	Mobile Technical Assistant
MTR	Mid-term Review
NGO	Nongovernmental organization
O.P.	Operations Policy
PAD	Project Appraisal Document
PDIAIM	*Projet de Développement Intégré de l'Agriculture Irriguée en Mauritanie* / Integrated Development Project for Irrigated Agriculture in Mauritania
PDO	Project development objective
PMP	Pest Management Plan
PRAPS	*Projet régional d'appui au pastoralisme au Sahel (*Regional Sahel Pastoralism Support Project)
PRSP	Poverty Reduction Strategy Paper
QAG	Quality Assurance Group
QEA	Quality at entry
QSA	Quality of supervision
RPF	Resettlement Policy Framework
RCU	Regional Coordination Unit
S	Satisfactory
SIL	Specific Investment Loan
SLM	Sustainable Land Management
UNDP	United Nations Development Programme
US$	United States dollar

Vice President:	Makhtar Diop
Country Director:	Vera Songwe
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MAURITANIA
Community-based Watershed Management Project

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Data Sheet

A. Basic Information			
Country:	Mauritania	**Project Name:**	Community-based Watershed Management Project
Project ID:	P087670	**L/C/TF Number(s):**	TF-56782
ICR Date:	01/02/2014	**ICR Type:**	Core ICR
Lending Instrument:	SIL	**Borrower:**	GOVERNMENT OF MAURITANIA
Original Total Commitment:	US$ 6.00 M	**Disbursed Amount:**	US$ 5.64 M
Revised Amount:	US$ 5.64 M		
Environmental Category: B		**Global Focal Area: L**	
Implementing Agencies: Ministry of Rural Development and Environment (MDRE)			
Cofinanciers and Other External Partners:			

B. Key Dates				
Process	**Date**	**Process**	**Original Date**	**Revised / Actual Date(s)**
Concept Review:	11/05/2004	**Effectiveness:**	01/26/2007	01/26/2007
Appraisal:	03/03/2006	**Restructuring(s):**		08/03/2011 08/09/2012
Approval:	06/22/2006	**Mid-term Review:**	06/22/2009	
		Closing:	09/30/2011	03/31/2013

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	
Risk to Global Environment Outcome	High
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

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

C.3 Quality at Entry and Implementation Performance Indicators			
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		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Central government administration	29	29
General agriculture, fishing, and forestry sector	53	53
Other social services	5	5
Subnational government administration	13	13
Theme Code (as % of total Bank financing)		
Land administration and management	29	29
Other rural development	14	14
Rural nonfarm income generation	14	14
Rural policies and institutions	29	29
Water resource management	14	14

E. Bank Staff		
Position	**At ICR**	**At Approval**
Vice President:	Makhtar Diop	Gobind T. Nankani
Country Director:	Vera Songwe	Nils O. Tcheyan
Sector Manager:	Martien Van Nieuwkoop	Mary A. Barton-Dock
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F. Results Framework Analysis

Global Environment Objectives (GEOs) and Key Indicators (as approved)

The Global Development Objective is "to limit land degradation and to safeguard critical ecosystem functions through community-driven sustainable land management (SLM) activities that improve agrosilvopastoral management and increase vegetation cover while securing livelihoods and global environmental benefits (i.e., reduced sedimentation of waterways, improved interconnectedness and integrity of ecosystems, enhanced carbon storage rates, and increased opportunities for biodiversity conservation)."

Revised Global Environment Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications

Global Environment Objectives were not revised.

(a) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1:	Appropriate implementation of the sustainable land management (SLM) process by the 4 Watershed Associations (ABVs) in the project area.			
Value (quantitative or qualitative)	0	4		4
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET ACHIEVED: The ABVs manage and maintain intercommunal SLM investments based on local rules. As of March 2013, 5 practices were being implemented.			
Indicator 2:	Two-thirds of activities introduced generate positive income flow for the communities			
Value (quantitative or qualitative)	0	65%		64%
Date achieved	01/26/2007	06/23/2006		02/25/2013
Comments (incl. % achievement)	TARGET ACHIEVED: Based on impact evaluation study, 106 of 165 subprojects generated positive income.			
Indicator 3:	25% increase in biomass in project areas treated, indicating sustainable regeneration of grass and shrubs			
Value (quantitative or qualitative)	0	25%		31%
Date achieved	01/26/2007	06/23/2006		03/29/2013
Comments (incl. % achievement)	TARGET ACHIEVED: The Environmental Audit of March 2013 shows a 31% increase in biomass at 13 trial sites where SLM practices were used			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1:	Watershed Management Plans are developed and adopted by the selected sites: Two for the first two sites by end of Year 2 and four for all four sites by end of Year 5			
Value (quantitative or qualitative)	0	4		4
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET ACHIEVED: Two plans were available by end of Year 2 and four by Year 4. Three were validated in Year 4 (Greiguel, Beilougue Litama, Saïla), and the last one (Tengharada) was validated in November 2011 when the conflict was resolved.			
Indicator 2:	Watershed Associations have prepared and are enforcing local SLM regulations			
Value (quantitative or qualitative)	0	4		4
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET ACHIEVED: Local, legally binding agreements have been developed, validated, and are being applied in all four watersheds.			
Indicator 3:	Watershed Associations have adopted and implemented at least two improved SLM practices			
Value (quantitative or qualitative)	0	8		5
Date achieved	01/26/2007	06/23/2006		12/31/2012
Comments (incl. % achievement)	TARGET PARTIALLY ACHIEVED: 5 SLM practices were adopted in the four watersheds.			
Indicator 4:	The Central Coordination Unit has prepared a document with a strategy for financing SLM activities by end of Year 4			
Value (quantitative or qualitative)	0	1		1
Date achieved	01/26/2007	06/23/2006		04/30/2010
Comments (incl. % achievement)	TARGET ACHIEVED: Strategy available and validated by the government.			
Indicator 5:	At least eligible 20 subprojects are financed and implemented			
Value (quantitative or qualitative)	0	20		165
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET ACHIEVED: According to the socioeconomic study, 165 subprojects had been financed by the project.			

Indicator 6:	Rules for sustainable maintenance have been prepared and are implemented for at least 80% of projects lasting more than one year			
Value (quantitative or qualitative)	0	80%		80%
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET ACHIEVED: Management committees responsible for management and maintenance set up at 47 sites, and management agreements signed between ABVs and communes (9 in Beilougue, 8 in Saïla, 22 in Greiguel, and 8 in Tengharada).			
Indicator 7:	At least 80% of activities planned in annual workplans have been implemented			
Value (quantitative or qualitative)	0	80%		75%
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET PARTIALLY ACHIEVED: On average, 75% of activities in the annual work program and plans were executed. In 2012 alone, 88% of investment fund activities in the annual work program were realized.			
Indicator 8:	Safeguards have been implemented under the Environment and Social Management Framework (ESMF)			
Value (quantitative or qualitative)	N/A	Yes		Yes
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	Complied with.			
Indicator 9:	Performance indicators are regularly updated.			
Value (quantitative or qualitative)	N/A	Yes		No
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET PARTIALLY ACHIEVED: Data for some key indicators were not systematically collected after project closure. Moreover the Monitoring and evaluation (M&E) system was no longer functional (though the equipment including the data has been transferred to the Ministry of Rural Development (MDR) it has not been put into use).			
Indicator 10:	Performance reports and periodic reports on activities and indicators are produced and disseminated on time			
Value (quantitative or qualitative)	N/A	Yes		No
Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET PARTIALLY ACHIEVED: There were delays in the collection of the needed information and little analysis was done on the data that were collected.			
Indicator 11:	Beneficiaries in the watersheds and project partners are sensitized to project activities			
Value (quantitative or qualitative)	N/A	Yes		Yes

Date achieved	01/26/2007	06/23/2006		03/31/2013
Comments (incl. % achievement)	TARGET ACHIEVED: Complied with.			

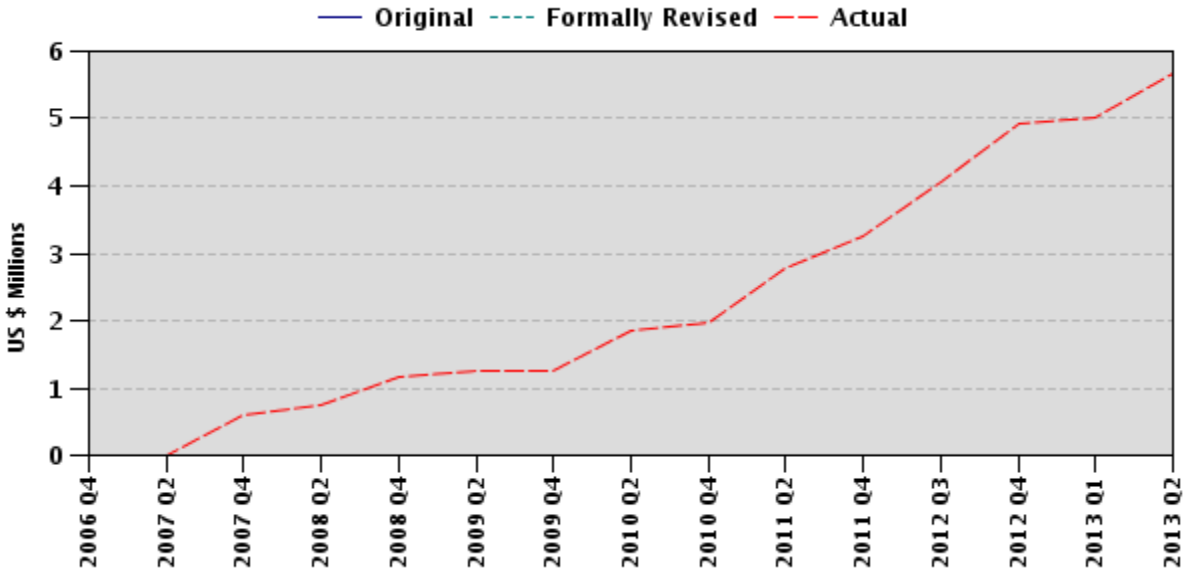
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	GEO	IP	Actual Disbursements (US$ millions)
6	05/01/2007	Moderately Satisfactory	Satisfactory	0.60
7	06/26/2007	Moderately Satisfactory	Satisfactory	0.60
8	09/25/2007	Moderately Satisfactory	Satisfactory	0.60
9	04/23/2008	Moderately Satisfactory	Satisfactory	1.16
10	12/12/2008	Moderately Satisfactory	Satisfactory	1.23
11	05/31/2009	Moderately Satisfactory	Satisfactory	1.23
12	12/25/2009	Moderately Satisfactory	Satisfactory	1.83
13	06/23/2010	Moderately Satisfactory	Satisfactory	1.97
14	04/23/2011	Moderately Satisfactory	Satisfactory	2.99
15	01/04/2012	Satisfactory	Satisfactory	3.72
16	07/16/2012	Satisfactory	Satisfactory	4.90
17	05/16/2013	Satisfactory	Satisfactory	5.64

H. Restructuring

Restructuring Date(s)	Board Approved GEO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in US$ millions	Reason for Restructuring and Key Changes Made
		GEO	IP		
08/03/2011	N	MS	S	3.50	First extension of closing date to September 2012 (with reallocations).
08/09/2012	N	S	S	4.99	Second extension of closing date to March 31, 2013 (with reallocations)

I. Disbursement Profile



1. Project Context, Global Environment Objectives, and Design

1.1 Context at Appraisal

1. At appraisal, Mauritania was a Heavily-Indebted Poor Country with a per capita gross domestic product of US$ 350 and a poverty rate of 46.3 percent. Despite continued rural–urban migration, the rural sector provided employment for about 64 percent of the labor force and remained a main source of income for the population. Rural areas also had the highest concentration of the poor (75 percent), although overall poverty has declined since 1990.

2. At the same time, the rural sector was facing (and continues to face) major environmental, economic, and infrastructure constraints that were widely recognized to impede rural growth and development. Those constraints include: (i) a fragile and degraded natural resource base; (ii) limited transport infrastructure to access markets and services; (iii) limited supply of production support services; (iv) limited local ownership of public investments; (v) limited access to investment and working capital; and (vi) inadequate land tenure and pastoral laws.

3. Land degradation was and remains a major concern in Mauritania, where agropastoral areas and oases constitute the ecosystem that supports agricultural and pastoral production; provides most of the water for cattle, small ruminants, and camels; supplies firewood and timber; and provides a habitat for fauna and flora that could not survive elsewhere. The ecosystem's integrity under continual pressure from constraints on managing natural resources sustainably. Arable land, pasture, forests, and biodiversity are all being lost because communities lack sufficient technical supervision and information; access to improved technologies is limited; natural resources are poorly managed, with few controls on their use; and population pressure is rising.

4. The Government of Mauritania had devised various strategies and policies to address these constraints. They included the Poverty Reduction Strategy Paper (PRSP, revised in 2001), the National Strategy for Decentralization and Local Governance (2002), and the National Environmental Action Plan-NEAP (2004).

5. The Community-based Watershed Management (CBWM) Project was developed by the World Bank and Global Environment Facility (GEF) in response to the government's official request for complementary support to the Community-Based Rural Development (CBRD) Project, referred to here as the "baseline project."[1]. While the CBRD Project primarily focuses on village-level investments to improve the living conditions of project-supported village communities in terms of sustainable income increase and access to basic socioeconomic services, the CBWM Project was envisioned as complementing and broadening that baseline effort by working across communities to foster sustainable land management (SLM) practices that could improve natural resource management at the watershed and landscape levels. Thus this enabled the World Bank, GEF, and Government of Mauritania to support their shared

6. The CBWM Project also contributed to the government's priorities and higher-level development objectives for poverty reduction in rural areas. Not only was the

[1] IDA Credit 3883-MAU, signed in 2004.

CBWM Project aligned with the government's priorities as expressed in the PRSP, which emphasized the need to invest in natural resource management and capacity building, but like the baseline project, the CWBM Project supported the government's program of decentralization by soliciting the active participation of regional, local, and traditional authorities in carrying out the project.

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

7. The global development objective was "to limit land degradation and to safeguard critical ecosystem functions through community-driven SLM activities that improve agrosilvopastoral management and increase vegetation cover while securing livelihoods and global environmental benefits (i.e., reduced sedimentation of waterways, improved interconnectedness and integrity of ecosystems, enhanced carbon storage rates, and increased opportunities for biodiversity conservation)."

8. The project development objective (PDO) was "to lessen the incidence of land degradation at the watershed level within the CBRD Project area by assisting rural communities to generate benefits through community-driven investments addressing land degradation and promoting SLM practices." The overall project outcome was expected to be a reduction in the incidence of land degradation as rural communities increased their use of effective SLM techniques and practices.

9. The key indicators for evaluating the achievement of the PDO were defined as follows:

(i) Appropriate implementation of the SLM process by the Watershed Associations (*Associations des Bassins Versants*, ABVs) in the project area.

(ii) Two-thirds of activities introduced by the project are generating positive income flow for the communities.

(iii) A 25 percent increase in biomass (perennial grass and shrub regeneration) in targeted areas.

1.3 Revised GEO (*as approved by original approving authority*) and Key Indicators, and reasons/justification

10. Neither the GEO nor the key indicators were revised.

1.4 Main Beneficiaries

11. The primary beneficiaries of the project were the rural populace in four watersheds:

(i) Greiguel (Wilaya[2] de l'Assaba)—some 13,218 inhabitants in 24 villages and 4 communes (rural municipalities) covering 1,780 square kilometers.

(ii) Tengharada (Wilaya de Adrar)—some 3,100 inhabitants in 19 villages and 1 commune covering 243 square kilometers.

(iii) Saïla (Wilaya de Hodh-El-Chargui)—some 5,600 inhabitants in 23 villages and 2 communes covering 439 square kilometers.

[2] A *wilaya* is an administrative region.

(iv) Beilougue Litama (Wilaya du Gorgol)—some 13,800 inhabitants in 42 villages and 5 communes covering 515 square kilometers.

12. In sum, the project would have about 36,000 direct beneficiaries residing in 108 villages over an area of approximately 3,000 square kilometers.

13. Other project beneficiaries included the institutions that were expected to support those 108 villages, including: (i) the regional and local Agricultural Services of the Ministry of Rural Development (*Ministère de Développement Rural*, MDR); (ii) the four Watershed Management Associations (*Associations des Bassins Versants,*ABVs); and (iii) the local and regional authorities (mayors and Hakims).

1.5 Original Components (*as approved*)

14. The project had three components which were aligned with the components of the baseline CBRD project. These were:

(i) **Component A: Capacity Building for Sustainable Land Management (GEF funding: US$ 1.5 million).** Activities under this component included: (i) the development of intercommunity plans for watershed management; (ii) the establishment of watershed management associations (*Associations des Bassins Versants*, ABVs) in the target areas; (iii) collaboration with national and local research institutions, extension services, and community associations to adopt a watershed management approach in developing and transferring SLM technologies; (iv) a review of policies, laws, and regulations to provide incentives to rural communities to adopt sustainable management of resources at the watershed/landscape level; and (v) exploration and identification of future sustainable operation and funding options (such as carbon markets, bio-carbon funds, and environmental tax revenues) following project closure.

(ii) **Component B: Providing Incentives for Sustainable Land Management Practices (GEF funding: US$ 3.5 million).** Through the Local Investment Fund established under the project, this component provided investment capital to village communities to adopt Watershed Management Plans—namely, sustainable resource management and conservation practices adopted by all of the communities within a watershed covered by the project.

(iii) **Component C: Project Management, Monitoring, and Evaluation (GEF funding: US$ 1.0 million).** This component funded technical assistance associated with monitoring and evaluation (M&E) and covered the incremental operating costs of additional personnel recruited to assist in managing and executing the GEF activities. It also provided funding to hire technical assistance to develop the Watershed Management Plans and the associated M&E tools.

1.6 Revised Components

15. The project's components were not revised during implementation.

1.7 Other significant changes

16. The Mid-term Review (MTR), originally planned for June 2009, was postponed to early 2011, because the 2008 political unrest resulted in a 14-month freeze on

disbursements under the Bank's Operational Policy (OP) 7.30.[3] The project was also restructured twice. The first restructuring, following the MTR, extended the closing date from September 30, 2011 to September 30, 2012, and reallocated project funds. That reallocation primarily benefitted disbursement categories II (goods) (an increase of 6.6 percent), III (consultants, services, and audit) (an increase of 25 percent), and V (grants for subprojects) (an increase of 16.6 percent).

17. The second restructuring was processed to further extend the closing date to March 31, 2013 and reallocate funds once again. The reallocation resulted in a 4 percent increase for category III (consultants, services, and audit). Each restructuring was needed to compensate for the delay incurred by the 14-month suspension of activities. Each was a level 2 restructuring approved by the Country Director.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design, and Quality at Entry

18. Project preparation lasted for about two years and made use of a US$470,000 preparation fund (US$350,000 from GEF PDF-B and US$120,000 Bank PPA) to finance preparation activities including studies, study tours, and technical assistance, among other items. The project was approved by the Board on June 22, 2006 and became effective on January 26, 2007. The preparation phase was broadly participatory, involving extensive consultations with stakeholders in two of the watersheds (Greiguel and Tengharada) eventually selected to be covered by the project. The local commitment and sense of ownership generated by the participatory preparation phase were strong and ultimately critical for the project's successful implementation. Representatives from other donor agencies that were implementing or developing programs also participated, including the German Organization for Technical Cooperation (GTZ, now GIZ), the United Nations Development Programme (UNDP), United Nations Environment Programme, and International Fund for Agricultural Development. Because the CBWM was a companion project to the CBRD, it was prepared by the same Mauritanian counterpart team.

19. The design of the project drew on experiences accumulated in Mauritania across World Bank and GEF operations, similar Bank projects in the sub-region, as well as experiences of other development partners involved in the agricultural and rural sector of Mauritania. Those experiences were particularly valuable with respect to building capacity in community associations, providing agricultural services, and managing natural resources. The preparation team also drew on lessons from the GEF Land Degradation Study (2001), particularly the following:

(i) **Projects with a people/land management focus tend to address land degradation issues more directly**; for that reason, the CBWM Project employed a demand-driven, participatory approach that emphasized local empowerment to manage land and other natural resources sustainably.

[3] OP 7.30 (Dealings with De Facto Governments) is a World Bank operations policy. A "de facto government" comes into, or remains in, power by means not provided for in the country's constitution, such as a coup d'état, revolution, usurpation, or abrogation or suspension of the constitution.

(ii) **The most effective projects appear to be those in which land degradation is an initial component of the problem and the solution.** For that reason, the CBWM Project's objective was focused on reducing land degradation through SLM and related activities.

(iii) **In biodiversity projects, rangeland environments have created the best land degradation/biodiversity synergy**. The project specifically targeted rangeland environments in selecting the sites where it would operate.

20. As stated earlier (Section 1.1), the CBWM Project was the World Bank's/GEF's response to the Government of Mauritania's official request to complement the IDA-financed CBRD Project to improve the management of natural resources and combat desertification in the project area within the context of watershed and landscape management. Since the CBWM Project was processed later than the baseline operation, it had separate legal documentation and a separate Board approval date.[4]

21. The CBWM Project was conceived as a partially blended operation. As noted, it had the same component structure as the baseline project, and its project objective and the activities under each component were aligned with those of the baseline project.[5]

22. Several criteria were used to identify the watersheds where the project would focus its efforts. First, the watershed had to be representative of the Mauritanian ecosystem.[6] Second, a development project capable of financing the basic needs of the communities had to be in place. Third, signs of degradation had to be evident. And fourth, the watershed had to be adequately populated. Ultimately, four watersheds were selected (Greiguel, Tengharada, Saïla, and Beilougue Litama—see Section 1.4). As planned, two of the watersheds (Greiguel and Tengharada) were included at the start of the project in 2006, whereas the other two (Saïla and Beilougue Litama) were added later, in 2008.

23. The CBWM Project used the same institutional setup for project implementation as the baseline IDA project, with the addition of a Scientific and Technical Committee (*Comité Scientifique et Technique*, CST). The CST was responsible for conducting a technical review of all new and innovative project activities (for example, the solar stoves, biogas, and so on); contributing to project M&E from a technical standpoint; and helping to disseminate the project's results. In addition, the project recruited four facilitators (one per watershed) to provide technical assistance to the ABVs.[7] The other institutions involved in implementing the baseline CBRD Project, including the Project Coordination Unit, were strengthened with additional staff responsible for the GEF activities under the CBWM Project.

[4] The Government of Mauritania became eligible for funding under the GEF in the mid-1990s, by signing the United Nations Convention to Combat Desertification, the Convention on Biological Diversity, and the Convention on Climate Change.

[5] Both projects (CBRD and CBWM) were a follow-up to the IDA Rainfed Natural Resource Management Project, which ended in 2003.

[6] For that reason, the areas selected included a watershed basin in an oasis system (Tengharada, in Adrar), a watershed basin in the predominantly agricultural zone (Beilougue Litama, in Gorgol), a watershed basin in the agropastoral zone (Greiguel, in Assaba), and a watershed basin in the pastoral zone (Saïla, in Hodh Chargui).

[7] Note that the ABVs are a higher-level grouping of the Community Development Associations (*Associations de Développement Communautaires*, ADCs) formed under the CBRD Project.

24. Despite the care taken in designing and preparing the project, some shortcomings became apparent. One shortcoming was related to the assumption that the Watershed Management Plans would provide the framework for carrying out the project's investment activities, but none of the plans were ready for operational use when project implementation began. This was because during preparation the idea was to use the existing two plans (for the Greiguel and Tengharada Watersheds) developed in 2005. But during start of Project implementation, it was realized that these plans were too technical and challenging for the communities to understand and/or implement and thus needed to be revised. At the same time it was also decided that while the first two plans were being revised, to go ahead with the development of the plans for the remaining two watersheds. But the search for remedy was not done quickly and it seems that at the time there was an assumption that Watershed Management Plans could be developed easily and quickly by an experienced international consulting firm; in practice, however, the assumption proved incorrect. Thus the whole process took very long, negatively impacting the effective implementation of project activities.

25. The other weakness of this phase was the very fact of assuming the project's activities contingent on the watershed management plans rather than letting the two proceed simultaneously. In other words rather than preceding the investment activities, it would have been preferable for the plans to be developed in parallel with (and guided by) the investment activities. This was eventually corrected during the MTR.

26. Another issue was that greater attention could have been given to the specific M&E requirements of this type of project. Although adequate indicators were developed for the project, they could have been more comprehensive. For example, if specific indicators had been developed for measuring changes in biodiversity, carbon sequestration, and ecosystem integrity, those impacts of the project could have been assessed.

27. Most of these issues were ultimately addressed during the course of project implementation, especially through modifications proposed by the MTR mission and subsequent implementation support missions.

28. With respect to potential risk identification, considerable efforts were made during appraisal to identify the key risks and design appropriate mitigation measures. For example, the preparation team identified the risk of potential conflict between communities; when a conflict arose during implementation in the Tengharada Watershed, the proposed mitigation measures—participatory resource management processes and the use of local laws and traditional methods of conflict resolution—proved useful. Other risks identified during preparation included risks associated with financial management in the public sector, weak implementation capacity at the local and institutional level, weak cohesion of inter-village associations and groups, and periods of prolonged drought that would negate the positive impacts of project investments. The measures formulated to mitigate those risks included strong internal financial control procedures, combined with rigorous training for project staff in the Bank's fiduciary procedures, extensive training of project beneficiaries in natural resource management, support for diversifying livelihoods, and water conservation management activities.

29. Nonetheless, just like for the baseline project, the risk of political unrest and regime change was not anticipated. This factor was crucial as during the course of the project implementation, the country experienced a second military coup in 2008 that resulted in a 14-months suspension of Bank operations under OP7.30: there was no processing of withdrawal applications and no project supervision by IDA. This resulted in a serious delay in the project's activities implementation.

2.2 Implementation

30. Although the project gained momentum slowly (after effectiveness in January 2007, and during the first two years, only a few activities were implemented on the ground), the changes introduced at the MTR and after, including, some adjustments, clarifications and precisions (particularly the two restructurings discussed in Section 1.7), enabled the project to move forward more rapidly, complete most of the planned activities, disburse most of the financial resources (the project used 94 percent of the allocated funds, including 99 percent of the investment funds), and meet most of the targets (all targets for the core indicators and most targets for the intermediate indicators) by the closing date. In addition the CBWM Project strengthened social cohesion at the village level through the newly created ABVs, expanded stakeholders' capacity to implement SLM practices, and provided an enabling environment that reinforced local ownership of natural resource management initiatives.

31. Despite the above successes, the project was also faced with challenges mainly due to the delay in implementation of its activities. Several factors contributed to the delays and the consequent slow initial disbursements but the main challenges were related to the Watershed Management Plans, the coup of August 2008, and the social conflict that erupted in the Tengharada Watershed.

32. A review of the available project documents show that little physical SLM investments in the watersheds took place initially due first to the delays in the recruitment of a specialized consulting firm to develop and finalize the Watershed Management Plans. But in addition the Bank and its Mauritanian counterparts had to come to grips with a number of conceptual issues and questions. For example, should the plans specify all investments to be undertaken in the short, medium, and long term? Or should they take the form of living documents, similar to a rolling investment plan, which outlines the broad orientation and types of investments to be undertaken, with annual investment plans attached? To what extent could specific investments proceed in a piecemeal fashion without jeopardizing the technical coherence of the overall plan?

33. These issues were only addressed and settled during the MTR in January 2011. As specified in the Aide-Memoire for the MTR, the Watershed Management Plans would be considered "visions of development of the respective watersheds over the medium and long term." The plans would be treated as important project outputs or results rather than preconditions for initiating investment activities. Specific, discrete SLM investments that had been identified as priorities by technicians in the watersheds and by the ABVs could proceed, even if the Watershed Management Plans had not been finalized, and the investments would be integrated with those plans. It was these decisions during the MTR in January 2011 that cleared the way for speedy project implementation from then on.

34. The second factor that affected Project implementation was the military coup in August 2008 that caused the Bank to put OP 7.30 into effect. As a result disbursement applications for the entire World Bank portfolio in Mauritania could not be processed and the World Bank staff in the Mauritania resident mission was put on administrative leave. OP 7.30 remained in effect until October 2009. Consequently, the Project was not supervised from February 2008 (when the mid-term review mission of the CBRD project ended) to December 2009. This in turn resulted in the delay of implementation of the project activities and the MTR of the project, initially planned for June 2009, took place only 18 months later, from January 11–21, 2011.

35. The third factor for the delay was the social conflict in the Tengharada Watershed. This watershed was one of the two watersheds selected in 2005. The watershed, which encompasses 19 villages and hamlets, established its ABV in February 2007, but the association did not function for several years due to disagreements between its members. At first the central village with the biggest population did not want to participate in the association; when it decided to participate, it wanted its representative to replace the president who had been elected by the other villages. This conflict was not resolved until the end of 2012, after repeated interventions by the administration and project personnel caused the association to realize that members would lose economic development opportunities if they did not set aside their differences and agree on a leader. Once the dispute was settled, the association managed to build several impressive structures to control water runoff within the few remaining months before the project came to a close.

2.3 Monitoring and Evaluation Design, Implementation, and Utilization

36. The CBWM Project used the same M&E system as the CBRD Project. The advantage of this was that, as stated in the ICR of the CBRD, by June 2007 the M&E system was in place, operational at the regional level, and the database set-up; it also stated that "the project Central Coordination Unit (CCU) was able, for the first time, to produce activity reports from the database".

37. The indicators for project management and the development of a communication strategy were the same for the CBWM and CBRD Projects with additional indicators included to measure the GEF-funded activities in the CBWM Project. Overall the objective of the CBWM Project and the underlying assumptions on how the project's activities would lead to the intended outcomes were stated well, and the number of core and intermediate indicators as well as the targets set out for each project year seemed reasonable and measurable. The data collection methods had also been outlined; for example, for the core indicators a scorecard system would be used to measure the performance of the ABVs, and a line transect survey complemented by a plot survey would be used to measure the impact of the SLM activities.

38. The key responsibilities related to M&E (collecting and processing data, updating performance indicators, analyzing and disseminating results) were assigned to the M&E unit of MDRE, other agencies, and consultants, with overall responsibility for coordinating M&E assigned to the joint CBRD/CBWM Project team. The GIS for the baseline was to be developed in parallel with the GIS system of the Integrated Development Project for Irrigated Agriculture (*Projet de Développement Intégré de l'Agriculture Irriguée en Mauritanie*, PDIAIM) and in collaboration with the central

mapping agency of Mauritania. The project was responsible for contracting a firm to develop the plans for the baseline study and train the technical staff.

39. In terms of staffing, at the national level the project design called for a unit head, assisted by a computer specialist and two data entry staff. At the regional level, the regional coordinator for the CBRD would also be responsible for M&E, assisted by one data entry technician and a mobile technical support team (*équipe mobile d'appui technique*) staffed by engineer-level technicians who were also responsible for supervising data collection in the field.

40. In spite of the above the M&E system had also flaws. The first one relates to the operation of the system; the M&E system did not function optimally. As pointed out in the ICR of the CBRD project though the system was up and running, concerns remained in relation to training central and regional staff in basic computer literacy, improving communication between technical personnel and the M&E unit on the best use of the data, and including data on additional appropriate and measurable indicators. Data collection was lagging, and analytical capacity at the central and regional entities was weak. Information dissemination was limited to a quarterly project report with little analysis to evaluate performance. The second limitation of the M&E, discussed in Section 2.1, was that although a good set of indicators had been identified, key data should have been collected on biodiversity, carbon sequestration, and ecosystem restoration. A third challenge for M&E was the lack of staff; due to lack of agricultural extension staff in the project area, data on two vital variables (crop yields and increases in the water table) were not systematically collected on an annual basis, and no institutional mechanisms were in place to collect those data after the project ended. As a result it was difficult to carry out a comprehensive cost-benefit analysis of some of the most economically important project investments: (a) stone weirs (overflow dams) in dry riverbeds to slow water runoff and foster infiltration during the rainy season, thus raising the water table, and (b) prime agricultural areas that are protected by metallic fences to keep animals out and to prevent conflict between agriculturalists and herders.

41. The performance of the M&E system improved over time, and by the end of the project most issues raised during implementation support missions had been addressed and corrected. However, with the closing of the project and lack of a successor project, the M&E data unfortunately are no longer easily accessible. The data, along with the equipment assigned to the CCU, were physically transferred to MDR (to the localities of the *Direction de la Vulgarisation*, Extension Department), but the M&E system has not yet been set up and put into use by the Ministry.

2.4 Safeguard and Fiduciary Compliance

Procurement

42. Procurement for the project was rated *Satisfactory*. From 2008 onwards, Annual Procurement Plans were produced regularly, and all procurement was executed efficiently, in a timely manner. The Manual for Simplified Community Procurement Procedures developed under the CBRD Project was used, and training was provided to all ABV members involved in procurement. The training was effective; the Implementation Status Reports (ISRs) for the project rated procurement as *Satisfactory* after the trained ABV members assumed responsibility for procurement. Training mainly concerned the

special procurement procedures for community-driven development projects, which enabled the trained association members to contract directly with suppliers of goods and services and evaluate their performances. During this process, the ABVs were assisted by the decentralized RCUs and by facilitators assigned to them. The facilitators were responsible for helping the associations to program acquisitions, launch procurement processes, prepare and manage contracts, and insure capacity building at the community level.

Financial Management

43. The financials management of CBWM Project was handled by the baseline CBRD Project financial management team. The performance of this team was rated *Satisfactory* by the ICR of the CBRD. The evaluation was done on the basis of several criteria. The financial management system was adequate for the project's needs. Quarterly interim financial reports and annual financial audit reports were prepared and submitted on time. All annual audit reports were unqualified. The ICR notes that disbursements were disrupted for 14 months during 2008–09 owing to the August 2008 coup and subsequent application of OP 7.30.

Safeguards

44. Both the CBRD and the CBWM Projects were classified as Category B projects and triggered the following safeguard policies: Environmental Assessment (OP 4.01), Involuntary Resettlement (OP 4.12), and Pest Management (OP 4.09). When these projects were prepared, the Government of Mauritania undertook three major studies to evaluate the adverse effects that could potentially result from project activities and determine the measures to mitigate such effects: an Environmental and Social Management Framework (ESMF), a Relocation Policy Framework (RPF), and a Pest Management Plan (PMP).

45. The CCU hired an environmental expert to ensure that the environmental aspects of both projects were managed properly. The CBWM Project required all of the subprojects it funded to complete and pass an environmental screening test. The project also strengthened the capacity of the ABVs in environmental management and social safeguards. Gender training ensured that women ABVs member's specific needs were taken into account throughout the project. Training in environmental protection policy allowed ABVs to consider mitigation measures for subprojects having undesirable impacts on the environment. An environmental audit of the CBWM Project carried out in March 2013 by an independent consultant found no major negative environmental impacts and suggested a number of specific measures to permit full compliance with all applicable environmental safeguards.

2.5 Post-completion Operation/Next Phase

46. With the ending of the CBRD Project, the CCU prepared a proposal for a second phase of the CBRD/CBWM Project, which would have scaled up the project's activities to cover 1,200 new villages and additional watersheds and completed the work initiated under the first phase in 300 of the 856 villages and the four watersheds. However, tiven the limited IDA envelope for Mauritania and the government's overall priorities, financing for a second phase was not feasible.

47. The World Bank portfolio for Mauritania currently features two new projects. The first one is under the GEF Sahel and West Africa Program (SAWAP) in support to the Great Green Wall and includes an SLM Project for Mauritania with GEF financing. The second one is the Regional Pastoralism Development Operation in the Sahel (*Projet Régional d'Appui au Pastoralisme au Sahel*, PRAPS). Both projects, still at the concept stage, could provide continuity for the institutional and technical innovations introduced under the CBRD/CBWM Projects and potentially build on the achievements and lessons learned from those efforts.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design, and Implementation

48. The global objective of the CBWM Project is still important and relevant in the Mauritanian context. It remains consistent with the PRSP (2000–15) for the rural sector and its Third Action Plan (2011–15), which aims for the rural sector to contribute 1 percent to Mauritania's overall growth through sectoral investment programs focused on improving the living conditions of rural populations and reducing poverty through pro-poor growth. Likewise, the CBWM Project remains relevant in relation to the general objective of the 2001–2015 Rural Sector Development Strategy, which is to reduce poverty.

49. The project proved particularly instrumental in providing a basis for improving governance and stakeholder participation. Even more than the CBRD, the CBWM Project was both a laboratory and school for local intercommunity development. The manner in which the ABVs were designed and implemented through the CBWM Project created a space for dialogue between these community associations and local government. Contacts between the local population and the administration's technical services have greatly increased, and trust between the two entities has been building.

3.2 Achievement of Global Environmental Objective (GEO)

50. The GEO of the CBWM Project was "to limit land degradation and to safeguard critical ecosystem functions through community-driven sustainable land management (SLM) activities that improve agrosilvopastoral management and increase vegetation cover while securing livelihoods and global environmental benefits (i.e., reduced sedimentation of waterways, improved interconnection and integrity of ecosystems, enhanced carbon storage rates, and increased opportunities for biodiversity conservation)." Progress toward the GEO was to be measured through the following outcome indicators:

(i) Appropriate implementation of the sustainable land management process by the Watershed Management Associations (ABVs) in the project area.

(ii) 2/3 of activities introduced generate positive income flow for the communities.

(iii) 25 percent biomass increase in project areas treated, indicating sustainable regeneration of grass and shrubs.

51. The project achieved all three core indicators: (i) the ABVs manage and maintain inter-communal SLM investments; (ii) about 64 percent (or 106 out of 165) subprojects generate income for the beneficiaries; and (iii) based on the assessment of 13 trial sites where SLM practices were introduced, an increase in biomass of about 31 percent was

observed. Most of the intermediate indicators were achieved as well. Table 1 summarizes the project's achievements with respect to the core and intermediate outcome indicators.

Table 1: Achievement of GEO and intermediate outcome indicators

Global Environment Objective (GEO): To limit land degradation and to safeguard critical ecosystem functions through community-driven SLM activities that improve agrosilvopastoral management and increase vegetation cover while securing livelihoods and global environmental benefits.			
Objective	**Project outcome indicator**	**Target value, end 2011**	**Values achieved, end 2012**
To lessen the incidence of land degradation at the watershed level within the targeted CBRD Project areas by assisting rural communities to generate benefits through community-driven investments addressing land degradation and promoting SLM practices.	Appropriate implementation of the SLM process by the ABVs in project areas.	4	**Achieved**. The ABVs manage and maintain inter-communal SLM investments based on local rules.
	Activities introduced generate positive income flow for the communities.	65%	**Achieved**. About 64% (106 out of 165) of the subprojects generate positive income flows for the beneficiary communities.
	25% biomass increase in project areas treated, indicating sustainable regeneration of grass and shrubs.	25%	**Achieved.** Measurements from 13 enclosed trial sites where SLM practices were put in place show a 31% increase in biomass.
Intermediate outcomes by component	**Intermediate outcome indicator**	**Target value, end 2011**	**Values achieved, end 2012**
Component A: Capacity Building for Sustainable Land Management (SLM)			
ABVs and relevant institutions have sufficient capacity to implement the SLM approach introduced.	Watershed management plans are developed and adopted by the selected sites: 2 for the first two sites by end of Year 2 and 4 for all 4 sites by end of Year 5	4	**Achieved.** 4 Watershed Management Plans were developed and validated by the beneficiaries and other stakeholders.
	ABVs have developed and applied local rules for SLM.	4	**Achieved.** local legally binding agreements have been developed, validated, and are being applied in all four watersheds
	Each ABV has adopted at least 2 improved SLM practices.	8	**Partially achieved.** 5 improved SLM techniques have been adopted in the four watersheds.
	The CCU has outlined a strategy for financing SLM activities	1	**Achieved.** The strategy has been developed and validated by the government.
Component B: :Providing Incentives for SLM			
ABVs are able to identify and implement investments identified in the Watershed	At least eligible 20 subprojects are financed and implemented.	20	**Achieved.** 165 subprojects were financed and executed.
	Sustainable maintenance rules for investments are elaborated	80%	**Achieved** Committees responsible for management

Management Plans.	and applied in at least 80% of subprojects lasting more than 1 year.		and maintenance have been established, and land use rules are being enforced.
Component C: Project Management, Monitoring, and Evaluation			
The CCU provides on time the means necessary to reach the objectives of the GEF project, using the tools and standards acceptable to GEF.	At least 80% of activities contained in the annual work programs have been implemented.	80%	**Partially Achieved.** On average, 75% of activities contained in the annual work programs were executed.
	Safeguard measures have been applied in accordance with the ESMF.	Yes	**Complied with**.
The M&E system allows indicators and project performance to be measures.	Performance monitoring indicators are regularly updated.	Yes	**Partially Achieved.** Some key indicators were not collected systematically. After the project closed, the M&E ceased to be operational.
	Performance/management chart and periodic reports on activities and indicators are produced and disseminated on time.	Yes	**Partially Achieved.** There were delays in collecting needed information and little analysis of what was collected.
The CCU has prepared and implemented an effective communication strategy.	Project partners and the beneficiary population in the watersheds are sensitized to project objectives and activities.	Yes	**Complied with.**

3.3 Efficiency

52. At appraisal, the cost-benefit analysis that was undertaken for the project was merely illustrative. This was because the economic and financial benefits arising from the project's social and environmental activities are primarily derived from capacity building and empowerment in local communities, a reduction in conflicts between herders and agriculturalists, and investments in natural resource management and SLM. This mix of economic, social, and environmental benefits is particularly difficult to quantify in monetary terms. Moreover, even for the economic activities, it is challenging to predict the types of subproject investments that will be made, because they are chosen as the project progresses, in accordance with the priorities of the local population. For that reason, an illustrative cost-benefit analysis of the income-generating activities supported under the project was carried out.

Key Assumptions and Results of the Illustrative Economic and Financial Analysis

53. The key assumptions for the economic and financial analysis were that on 5 hectares of previously uncultivated land, investing in dikes would allow the production of 800 kilograms of sorghum per hectare; investing in thresholds (stone and earth bunds) would allow the production of 500 kilograms per hectare. In both cases, the production of cowpeas or hay (on unirrigated land) could add to the value of sorghum production. The fresh produce from the vegetable gardens was assumed to fetch a relatively low price (100 to 120 MRO per kilograms).

54. The economic and financial costs were assumed to differ little except for the costs of labor and transport. The economic cost of labor was set 50 percent lower to account for unemployment and the lack of alternative jobs in the project areas, and the cost of transport included a 10 percent fuel tax.

55. The analysis found that it should not be difficult to reach the minimum 10 percent internal rate of return (IRR) and economic rate of return (ERR) on average for subprojects to conserve soil and water (dikes and thresholds). Table 2 summarizes the results.

Table 2: Results of the economic and financial analysis (US$ 000s)

Intervention	Economic		Financial			
	ERR	NPV	ADCs		Global	
			IRR	NPV	IRR	NPV
Dikes	73%	33.3	106%	34.0	48%	26.3
Tresholds	35%	8.1	60%	7.9	19%	5.0
Acacia gum trees	38%	28.9	152%	30.9	24%	24.2
Village gardens	NC	8.0	NC	5.5	502%	4.2
Irrigated African gardens	145%	37.8	>1,000%	38.7%	128%	35.7

Source: Project Appraisal Document (PAD) of CBWM Project.
Note: ADCs = Community Development Associations; ERR = economic rate of return; IRR = internal rate of return; NPV = net present value; NC = not calculated.

Key Results and Impacts of Interventions Ultimately Implemented under the Project

56. To better evaluate the project's overall results, the ICR team referred to various studies for the CBRD and CBWM Projects. On the basis of this the project's results and impacts may be summarized as follows:

i) **Incomes improved in beneficiary communities.** An analysis of the impacts of the subprojects revealed an IRR between 13 percent and 63 percent, significantly surpassing the 10 percent minimum. In fact, the IRR for dikes and thresholds surpassed 50 percent. All of the subprojects' activities helped to improve the socioeconomic welfare of the population. Women's vegetable gardens, with an IRR of 52.66 percent and ERR of 202 percent, are especially promising for diversifying sources of income and nutrition; the results reinforce the value of a gender-sensitive approach to local development.

ii) **The project had positive environmental impacts and increased the awareness of strategies to reduce pressure on natural resources.** The environmental audit found that the project's activities had no negative effects on the equilibrium of the ecosystems involved. In fact, by establishing forest reserves and increasing supplies of butane gas, the project reduced pressure on natural resources and had a positive impact on the environment.

iii) **The survey of beneficiaries found strong ownership of the investments and a commitment to maintaining them.** The survey also found that the investments

were being used properly. These behaviors strongly indicate that the investments will be sustained for sometimes beyond the project.

57. **The principal lesson is that the project's activities were profitable, enabling most subprojects to continue without new financing.** However, the need for credit is still important within and beyond the project areas. In this context—and based on the satisfaction of the ADCs)—a compelling case can be made for replicating this model in other watersheds of Mauritania, not only using the same approaches but emphasizing continued close support and capacity building for beneficiaries.

58. The details of the analysis of the results are found in Annex 3.

3.4 Justification of Overall Outcome Rating

Rating: *Moderately Satisfactory*

59. The project achieved its core outcome indicators and most of the intermediate outcome indicators. It demonstrated that dealing with land degradation at the watershed level by enabling communities to form watershed management association and generate benefits through community-driven investments in SLM practices remains highly relevant for Mauritania. This strategy is likely to be the most cost-effective means of fostering pro-poor growth and creating sustainable livelihoods in rural Mauritania outside the Senegal River Valley. Nevertheless, the project is rated only *Moderately Satisfactory*, owing to the long delays in its execution. Most investments in infrastructure under the Watershed Management Plans occurred only one or two years before the project ended, leaving insufficient time for a robust assessment of their impact or for entirely ensuring their maintenance and sustainability. Although the project successfully introduced the innovation of Watershed Management Associations (ABVs) in Mauritania, and although its results were positive, it was a pilot operation. The ultimate success and justification of the watershed management approach piloted through the project depends on whether it can be replicated more widely, and as of this writing, no follow-up is planned.

3.5 Overarching Themes, Other Outcomes, and Impacts

(a) Poverty Impacts

60. The SLM investments, executed as part of the Watershed Management Plans, are very labor intensive. All labor was provided by the beneficiaries themselves, who were paid for their work based on previously agreed norms (for example, "*x* cubic meters of stone bunds built"). This was therefore not only source for temporary local job creation that resulted in the transfer of substantial resources to beneficiaries improving their local livelihoods, but also resulted in the reversing of city migration, eliminating the communities seasonal migration to urban areas to supplement their incomes. This was particularly observed during the last two years of the project, during which activities implementation was at its peak.

(b) Gender Impact

61. Women in the communities participated actively in preparing and implementing project activities. They were also involved in the ABVs and about 200 women belonging to ABVs benefitted from training. To further support women, the project financed: (i) fencing materials and agricultural inputs for 39 women's groups to develop vegetable

gardens; (ii) 1,000 metal stoves that significantly reduced the need for fuel wood; (iii) the opening of stores selling butane gas, also to reduce the need for fuel wood; (iv) the introduction of improved clay stoves; (v) training for women to make soap from local forest products; (vi) the introduction of two solar water pumps to reduce the time and energy needed to pump water; and (vii) the introduction of solar panels to generate electricity for the offices of the ABVs, enabling local students use these offices to do their homework at night.

(c) Institutional Change/Strengthening

62. The rural institutional landscape has been enriched by the emergence of the ADCs under the CBRD Project and even more so by the emergence of the higher-level ABVs that regroup several ADCs. As stated, the idea of ABVs was very new for Mauritania, and it yielded positive results. The ABVs can foster solidarity among people living in the same watershed and create the political space for dialogue among members, among villages, and between the local and regional administrations. In this sense, the ABVs can be considered a level of local governance. The relationship between the rural population and local administration was often marred by distrust, but frequent interactions in the framework of the associations developed a spirit of cooperation and mutual respect. Representatives of ABVs have easy access to government officials and are sure that their requests for an audience will be granted. As legally recognized entities, the ABVs are development partners that can negotiate activities and contracts on behalf of the entire watershed with any other development partner.

63. By improving contact among the local and regional administrations, technical services, and rural people, the ABVs make it possible to alert the authorities to practices that are harmful to the environment (excessive logging, illegal charcoal production, setting bushfires, and so on) and gain a response. The increased awareness of environmental protection issues and community mobilization for environmental protection are important signs of growing concern over the importance of managing natural resources sustainably.

64. The project also made important contributions to strengthening several institutions at the regional level in Mauritania, especially to the two research institutes, CNRADA and CNERV.[8] Various types of training (in the project's approach, ESMF, gender issues, and the use of guidelines and diagnostic tools for the management of watersheds) were conducted for regional staff of MDR and the Ministry of Environment (MoE). This staff was directly involved in all phases of the project and played a key role in providing technical advice to ABVs. Unfortunately, during the course of the project, it became evident that the government had insufficient field staff to provide ABVs with the technical advice required to maintain their SLM investments.

(d) Other Unintended Outcomes and Impacts

65. The project helped to reduce conflicts between herders and agriculturalists in two ways. First, it fenced key cultivated areas, reducing the likelihood that animals would

[8] CNRADA is the *Centre National de Recherche Agronomique et de Développement Agricole* (National Center for Agronomic Research and Agricultural Development); CNERV is the *Centre National d'Elevage et de Recherche Vétérinaires* (National Center for Livestock and Veterinary Research).

destroy crops. Second, the ABVs constitute a new forum for anticipating social conflict and handling it consensually, based on agreed and accepted fines for damage caused by unsupervised animals.

66. A related point is that the local land use and protection agreements (*conventions locales*) developed by each ABV under the Watershed Management Plans also had a positive impact. By enabling agriculturalists and herders to respect one another's rights, preventing the indiscriminate felling of trees, and fining those who violated the rules, these local agreements have helped to reduce conflicts and motivate villagers to protect their shared resources.

67. Another positive impact is that the stone overflow dams built through the project in some areas serve as bridges during the rainy season. Communities that had once been cut off from others by the rains became more accessible.

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

68. A beneficiary survey in December 2007[9] and a self-assessment by the ADCs in September/October 2010, done within the context of the CBRD Project, included the ADCs in the four watersheds of the CBWM Project. The beneficiaries judged the project's socioeconomic impact to be satisfactory. Women in particular concurred that levels of poverty and extreme poverty were falling. The participatory approach used for the Community Development Plans and the establishment of the Watershed Management Plans permitted an accurate understanding of local issues, priority setting, and the development of sound investment plans. All stakeholders confirmed that the subprojects had a positive impact. The self-assessment of the ADCs, including those in the four watersheds, used scorecards. Of the ADCs in the watersheds, 93 percent considered themselves satisfied with the project overall.

69. During the meetings with ABVs, the ICR mission team was able to confirm that they valued the project's investments very highly. They were particularly impressed by and grateful for the overflow dams, which slowed runoff and increased infiltration during the rains. As water infiltrates, the groundwater table rises, and more water becomes available for human and animal consumption in places and in quantities never seen before. Villagers in the watersheds were also highly satisfied with the collective investment in fencing under the project, which protected crops. As noted, an ancillary benefit of the fences is that they reduce the chronic conflicts between agriculturalists and herders.

4. Assessment of Risk to Development Outcome

Rating: *High*

70. With the official closing of the CBRD Project in December 2011, the project staff of the CCU which had handled both projects was reduced to a minimum. The CBWM project continued to function with this skeleton staff. With the closing of the CBWM project on March 31, 2013, these staffs were disbanded; the latter were therefore obliged to look for other opportunities. Since there was no planned, systematic absorption of any

[9] "*Evaluation, par les Bénéficiaires, de l'Impact Social et Economique du PDRC,"* April 2008. Annex 5 contains the executive summary of that report.

of these CCU personnel into the MDR or MoE, these staffs were obliged to look for other opportunities (some have already found jobs others are still looking for new job opportunities). Consequently the institutional memory of the CBWM Project is dispersing with these individuals. On a more positive note, most of the technical field staff involved in and trained by the project in SLM techniques remain within MDR, where their knowledge can be mobilized and updated by future operations.

71. The watershed management structures built through the project can be expected to survive at least for the foreseeable future. The ABVs have defined local action plans and set up maintenance procedures and teams. The infrastructure is likely to be maintained, unless it requires major repairs that are beyond the associations' financial capacity. The economic benefits of some of these investments are high, very visible, and clearly appreciated by the villagers. The ABVs are making efforts to collect user fees from members to pay for maintenance and repairs. Whether these fees are adequate remains to be seen. Yet without a minimum of continued outside technical support to the ABVs, there is a risk that they will become dormant. Ultimately the development outcomes and especially the sustainability of the CBWM Project depend heavily on whether the government, with support from international donors, deepens the SLM practices introduced in the four watersheds and replicates them elsewhere.

5. Assessment of Bank and Borrower Performance

5.1 Bank

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

72. The World Bank's performance in ensuring quality at entry is rated *Moderately Satisfactory*. First and foremost there was a design flaw: the Watershed Management Plans should have been an output of the project and not the basis for all of its activities; this was later on corrected during the MTR. Another consideration is that, although most aspects, and especially the fiduciary ones, are very well described in the PAD. Where the appraisal document is weak is concerning the technical aspects of watershed management and the M&E system for this type of investments. The appraisal document provide little indication of the extent to which the technical requirements of watershed management plans, the M&E demands related to such an investment, and the capacity of MDR and MoE field staff were taken into account. In other words it is not clear to what extent the country's limited experience in these areas were effectively taken into account and to what extent the capacity of field staff of the MDR and the MoE had been analyzed. The documents appear to have assumed that technical expertise could easily be hired to develop the Watershed Management Plans and an appropriate M&E system, and that the government would be able to easily provide the necessary field staff to supplement project staff. A great deal of confidence was also placed in the CST—the committee that would be created to oversee the scientific and technical soundness and quality of intercommunity subprojects. Finally, the first two draft watershed management plans that were already prepared in 2005 but were found not be easily applicable in operational terms should have received more upfront attention and there should have been close and quicker follow up for the corrective measures. Although none of these assumptions and

omissions prevented the project from achieving its objective, they initially complicated its implementation and impacted in the pace of implementation of the activities.

(b) Quality of Supervision
Rating: *Moderately Satisfactory*

73. The quality of supervision is rated *Moderately Satisfactory.*. Although project supervision took place under difficult country circumstances, after 2009, successive missions succeeded in helping the project to move towards achieving its PDO. All fiduciary and safeguard aspects were monitored and implemented. The MTR in January 2011 was particularly well done, as it determined that SLM investments in the watersheds could proceed while the Watershed Management Plans were finalized.. Other instances where Bank supervision missions were proactive in extending the project's closing dates and reallocating funds to enable the project to achieve its GEO.

74. These positive developments aside, quality of supervision is nevertheless judged to be moderately satisfactory because of three reasons. First, it was uneven. The impression conveyed by the aide memoires and ISRs is that the CBWM Project—conceived as an extension of the CBRD Project and perhaps perceived as a "junior" partner—received comparatively less attention during supervision until the CBRD Project was about to close. Increased supervision at that time appears to have sped implementation of the CBWM Project, which peaked toward the end of the project's life. For that reason, insufficient time was available to test the infrastructure built for watershed management (a problem aggravated by the irregular rains) and assess the project's overall impact. For no clear reason, all of the ISRs rated the project's performance for Implementation Progress as *Satisfactory,* despite the numerous difficulties encountered during implementation.

75. A second reason to rate quality of supervision as moderately satisfactory is related to the Tengharada conflict. Given that it took a long time to resolve that conflict, measures should have been taken to reallocate resources to the other three ABVs, as recommended by Bank management in ISR No. 16 (June 2012). A reallocation would most likely have avoided more than US$ 300,000 (about 6 percent of total resources) of unused resources from being cancelled.

76. A third reason for this rating is that toward the end of the project too little attention was given to safeguarding the project's achievements and replicating them in future Bank operations. The considerable socioeconomic success of the SLM investments in the four watersheds was not adequately highlighted and brought to the attention of decision makers inside the government and the Bank.

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

77. The Bank took all actions necessary to ensure that the CBWM Project as such was a success. Yet more could have been done to use its pilot character to demonstrate the importance of SLM for common property resources in a country such as Mauritania, with its extremely serious problems of land degradation. The GEF Scientific and Technical Advisory Panel (STAP) performed only one review of the project—at appraisal. The exploration of innovative mechanisms to ensure the financial sustainability of SLM

practices was mentioned in the PAD but addressed only in the form of a national workshop, with no concrete follow-up.

5.2 Borrower

(a) Government Performance
Rating: *Moderately Satisfactory*

78. Performance of the Government is rated *moderately satisfactory*. It is true that the Government quickly met all the negotiations and effectiveness conditions as there was no delay in project effectiveness. It is also true that during political disturbances (coups, political transition) it ensured the project's continued operation and maintained project staff. However, there were also instances where its commitments were not maintained. The bureaucratic tussles between the MDR and MoE over who should be in charge of the project led to instances where the CCU was unable to take critical actions such as the establishment of the *Comité Scientifique et Technique* (CST). And given the critical role the CST was supposed to play in the implementation of the project activities, this delay had negative impact in the pace of implementation of the activities. Another instance where the government failed to maintain its commitment was the fact that it did not make available sufficient number of extension agents that would accompany the ABVs in line with the expansion of the portfolio of sub-projects. The inadequacy and instability of extension services and lack of technical advices support have been a real constraint to the implementation of advisory support and monitoring of the ABVs. And this problem prevailed for most part of project implementation despite the repetitive suggestions and recommendations during the various implementation support missions. As a result not only the ABVs did not get the adequate technical support but also project data that was supposed to be collected by these agents could not be done regularly as planned. A third reason for the moderately satisfactory rating is that just like for the baseline CBRD project there was a problem with the counterpart funding. At the end of the project counterpart mobilization was only at 27 percent (see Annex 1 (b) Financing). Finally, as discussed, the government made no effort to capitalize on the experience of the CBWM Project after it ended. The CCU was quickly disbanded. The equipment and data contained in the M&E system were not put to use, despite the considerable effort to develop the system. Even more important, although the success of these innovative pilot activities was visible, the government showed little interest in either continuing to finance the activities or scaling them up. Toward the end of 2011, for example, the Bank gave the government the option of using supplemental funds for additional financing for the CBRD/CBWM Projects and/or PDIAIM. The government chose to allocate all of those resources to PDIAIM.

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

79. The CCU's performance is rated *Satisfactory*. The CCU staff proved to be dynamic, competent, and devoted to the project's work with poor communities in remote corners of the country and under extremely challenging circumstances. The CCU's training and coaching of ADCs to set up ABVs and understand, commit to, and manage Watershed Management Plans was well done. The CCU staff also successfully coordinated activities of the ABVs with the local administration at the prefectural

(*moughataa*) level and the decentralized services of MDR and MoE. They regularly visited the ABVs, especially as critical investment activities were underway, and they followed up closely to ensure that the ABVs obtained their legal status and functioned actively and as expected. Where the CCU was less successful was in systematically and scientifically analyzing the benefits of some of its investments (measuring the impact on groundwater levels, carbon sequestration, and so on) and in implementing the communication strategy to draw the attention of the country and its policy makers to the high level of benefits from SLM. Another weakness of the CCU was that at the end of the project it failed to safeguard the project's assets (although most of the equipment was recovered eventually by MDR).

(c) Justification of Rating for Overall Borrower Performance

Rating: *Moderately Satisfactory*

80. Overall Borrower performance is rated as *Moderately Satisfactory.* What happens after a project of this nature is as important as what happens during its execution**.** The CBWM Project was highly successful in creating the ABVs, and introducing and testing SLM for common property resources in Mauritania. This type of SLM pilot project, which deals with complex environmental effects, creates social capital, and requires behavioral change across groups of villages, requires special attention to plan for the way the project ends. In this case, what is missing is a national strategy to deal with land degradation problems and to replicate the success of CBWM Project on a large scale.

6. Lessons Learned

81. **The positive impact of a project of this nature is the empowerment and ownership demonstrated as management plans are set up and local communities implement them**. The communities learned to make use of natural resource management tools, including forest law, water law, and pastoral law, which are extremely relevant for the Watershed Management Plans and their implementation. The local population demonstrated the capacity to manage their own ecosystem when the boundaries are well defined, natural resource management tools are available, and a minimum level of resources and technical expertise is provided.

82. **Important factors to consider in watershed management projects are the timing and manner of creating ABVs.** The associations should be created at the beginning of the project, rather than waiting until SLM practices are better understood and internalized by the communities, and they should be created from the bottom up rather than the top down. The sociological context must be analyzed carefully at the outset and monitored continuously, because intercommunity cooperation and the establishment of a coordinating body are crucial to success. A minimum level of consensus is required among villages to select the leaders of the ABVs. Otherwise leadership conflicts can easily paralyze collective action—as in the Tengharada Watershed.

83. **SLM practices that make additional water available, such as the overflow dams and stone bunds developed through the CBWM Project, should be accompanied by agronomic advice to make the best use of the additional water**. Once communities are organized in ABVs and open to innovation, they stand to benefit

from extension advice on increasing yields through improved seed and agronomic practices and on marketing surplus produce. Especially in the maintenance phase, close follow-up and technical and sometimes financial backstopping are critical. The local population has a considerable and continuous need for learning on an extensive range of subjects, from technical to administrative matters.

84. **This type of project should be reevaluated five to ten years after it closes.** Given the wide variation in annual rainfall in the Sahel, the economic benefits of some of the most important SLM investments can be reliably assessed only after several years have passed. This timeframe is especially important for determining the impact of changes in groundwater levels on crop yields and the availability of groundwater for human and animal consumption. Only time can tell how well the institutions created under the project (ABVs) are functioning and whether they are able and willing to maintain the infrastructure created.

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

(a) Borrower/implementing agencies

85. Annex 7 is the summary of the Borrower's ICR.

(b) Cofinanciers

N/A

(c) Other partners and stakeholders

N/A

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in US$ million equivalent)

Components	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
Capacity Building for SLM	1.5	0.531	35.4*
Providing Incentives for SLM	3.5	3.746	98.7
Project Management and M&E	1.0	1.388	127.0
Total Baseline Cost	**6.0**	**5.664**	**94.4**
Physical Contingencies	0.06		
Price Contingencies	0.21		
Total Project Costs	6.77		
Project Preparation Facility (PPF)	0.00		
Front-end fee IBRD	0.00		
Total Financing Required	**6.77**		

*Part of the capacity building activities were financed by the baseline project

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
Borrower		0.60	0.1577	26.28%
Local Communities		0.17	0.1123	66.00%
Global Environment Facility (GEF)		6.01	5.664	94.24%

(c) CBWM Project yearly level of budget execution (in MRO)

	Project implementation year							
COMPONENT	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**3/31/2013**	**TOTAL**
A- Capacity Building	64,347	15,800	0	86,087	176,770	150,604	37,618	**531,227**
B- Investments Funds	125,672	357,248	108	689,339	1,152,335	1,287,516	133,709	**3,745,927**
C- Project Management, M&E	149,180	369,507	83,258	196,206	195,626	326,994	66,937	**1,387,708**
TOTAL	**339,199**	**742,556**	**83,365**	**971,632**	**1,524,731**	**1,765,114**	**238,265**	**5,664,862**
Level of execution	**5.65%**	**12.38%**	**1.39%**	**16.19%**	**25.41%**	**29.42%**	**3.97%**	**94.41%**
Cumulative	**5.65%**	**18%**	**19%**	**36%**	**61%**	**90%**	**94%**	

Source: Ministère du Développement Rural.

Annex 2. Outputs by Component

Component A: Capacity Building for Sustainable Land Management (SLM)

1. In addition to the capacity building provided through the CBRD Project, the CBWM Project included a number of capacity-building activities. They included the development of inter-community plans for watershed management; the establishment of ABVs in target areas; collaboration with national research institutions, extension services, and community associations to adopt a watershed management approach in developing and transferring SLM technologies; a review of policies, laws, and regulations to provide incentives to rural communities to adopt sustainable management of resources at the watershed/landscape level; and exploration and identification of future sustainable operations and funding options (such as carbon markets, bio-carbon funds, and environmental tax revenues) following the project's closure.

2. The ABVs were established at different times, as shown in Table 2.1. Once the ABVs were formed, their members, the technicians working with them, and local administrators and their representatives were trained in a variety of subjects. Altogether, some 500 people (about 300 men and 200 women) participated in training sessions. The topics covered ranged from soil conservation techniques to gender issues, group management and conflict resolution, maintenance of SLM investments, and formulation of local rules for managing natural resources. In addition, more specialized training was provided to technicians and ABV members in such topics as environmental impact evaluation, accounting and auditing, and other skills. Six project staff members benefited from study tours to Burkina Faso (CILSS and PNGT), Niger (ICRISAT and AGHRYMET Regional Centre), and Tunisia (ICARDA) to learn about watershed management practices and experiences in these countries.[10]

Table 2.1: Date of creation of each ABV

Association	Date created
Greiguel	11/11/2005
Tengharada	02/02/2007
Beilougue Litama	16/07/2008
Saïla	14/07/2008

3. The CBWM Project also commissioned a number of studies:

(i) Four baseline studies for the watersheds of Greiguel and Tengharada (biophysical, land degradation, socioeconomic, and institutional aspects);

(ii) The four Watershed Management Plans, validated by the beneficiaries, the local elected officials, the technical services, and the administration;

(iii) The preparation and adoption of two local agreements concerning natural resource management;

[10] CILSS = *Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel* (Permanent Interstate Committee for Drought Control in the Sahel) PNGT = *Programme National de Gestion des Terroirs* (National Land Management Program); ICRISAT = International Crops Research Institute for the Semi-Arid-Tropics; and ICARDA = International Center for Agricultural Research in the Dry Areas.

(iv) An environmental and social guidelines;

(v) An agreement between the CBWM and the Directorate of Rural Works to look after the SLM investments financed by the project;

(vi) Manuals for project execution, M&E, and environmental and social safeguards;

(vii) Environmental impact of the project; and

(viii) Socioeconomic impact evaluation of subprojects.

4. As discussed, it took some time to prepare the Watershed Management Plans, primarily because of the difficulties entailed in finding an international consulting firm competent in this area, and secondly because execution of the contract was delayed by political unrest and the subsequent suspension of disbursements for 14 months. The management plans were available to, discussed by, and validated by the ABVs only toward the end of the project.

5. Moreover, Project activities related to the review of policies, laws, and regulations for sustainable management of resources at the watershed/landscape level and the exploration and identification of future sustainable operations and funding options (carbon markets, bio-carbon funds, environmental tax revenues, and so on) were not carried through.

Component B: Providing Incentives for Sustainable Land Management Practices

6. This component provided investment capital for communities within a watershed to work jointly to adopt sustainable resource management and conservation practices. The ABVs were responsible for the entire procurement process (ranging from identifying their needs to placing the orders), except for paying the suppliers. Payment was handled by the CCU on the basis of the agreement (*Procès-Verbal*) signed by the ABVs and supplier. During the entire process, the ABVs were assisted by the facilitators, who also assured the quality of the delivered goods on behalf of the communities. Table 2.2 summarizes the works carried out in the individual watersheds from June 2007 to February 2013.

Table 2.2: Distribution of works by watershed

Year	Greiguel	Tengharada	Saïla	Beilougue Litama
2007	Watershed Association (ABV) established	ABV established		
2008	2 areas fenced for agriculture (800 ha); 190 ha reforested; support to 5 vegetable garden perimeters for women (fencing, inputs)		ABV established	ABV established
2009	1 agricultural area protected (15 ha); support to 1 vegetable garden perimeter for women (fencing, inputs)		50 ha protected and reforested	60 ha protected and reforested
2010	8.6 km of stone bunds; 328 m earth dams; one agricultural area		10 agricultural areas protected with fences (600 ha); 3.8 km of	2 agricultural areas protected (500 ha); 6.2 km of stone bunds; 247

	protected (75 ha); support to 2 vegetable garden perimeters for women (fencing, inputs)		stone bunds; 111 m of earth dams; support to 6 vegetable garden perimeters for women	m of earth bunds; 32 half-moons (*demi-lunes*); 2,890 planting holes (*zai*); 6 improved clay stoves; support to 5 vegetable garden perimeters for women
2011	16 agricultural areas protected (800 ha); 4 areas reforested (120 ha); 6 butane gas shops opened; 20 overflow stone dams constructed; 5.8 km of stone bunds; 4.0 km earth dams; 10 improved clay stoves put in place; 23 critical points of rural roads repaired; solar panel for 1 ABV; support to 5 vegetable garden perimeters for women (fencing, inputs)		6 agricultural areas protected (600 ha); 1 area reforested (24 ha); 5 butane gas shops opened; 5.6 km of stone bunds constructed; 1.9 km of earth dams constructed; 5 water ponds cleaned; 1 critical point of a rural road repaired; 2 solar panels for 2 ABVs; support to 2 vegetable garden perimeters for women	10 agricultural areas protected (500 ha); 4 areas reforested (96 ha); 4 butane gas shops opened; 3.8 km of stone bunds constructed; 2.1 km of earth dam constructed; 697 half-moons put in place; 25 improved clay stoves built; 1 water pond cleaned; 1 solar panel for 1 ABV; support to 13 vegetable garden perimeters for women
2012	10 agricultural areas protected (800 ha); 600 improved metal stoves distributed; 2 wells equipped with solar pumps; 20 overflow stone dams constructed; 5.1 km of stone bunds constructed; 1.3 km of earth dams constructed; group of fishermen equipped with fishing equipment	8 overflow stone dams constructed; 10 ha reforested	2.8 km of stone bunds constructed; 2.1 km of earth dams constructed; 5 overflow stone dams constructed; 28 earth dams rehabilitated; 10 new earth dams constructed; 2 water ponds cleaned; 200 improved metal stoves distributed; 4 agricultural areas protected (170 ha); support to 8 vegetable garden perimeters for women	

7. The SLM practices listed in Table 2.2 made it possible to recover land that had been denuded and degraded by wind and water erosion and put it to productive use. An estimated 3,200 hectares of degraded land has been recovered (1,225 hectares for agricultural use, 450 hectares for forestry, and 1,525 hectares for pastoral purposes). Measurements of vegetative cover indicate that biomass increased by 31 percent on average. The 5,537 hectares of agricultural land protected by fencing allowed 4,430 tons of produce to be grown (average yields were 800 kilograms per hectare).

Component C: Project Management, Monitoring, and Evaluation

8. Project management, monitoring, and evaluation for the CBWM Project were the responsibility of the CCU of the CBRD Project. Use of the CCU, reinforced by the addition of staff members with specific responsibilities for GEF-funded activities under the CBWM Project, ensured synergy and consistency in the objectives and activities of the two projects. The lead environmental specialist within the CCU was responsible for facilitating, coordinating, and monitoring the project's GEF activities. This component funded technical assistance associated with M&E and the incremental operating costs of

additional personnel recruited as part of regional teams (facilitators and animators) to execute GEF activities. Qualified technical assistance, especially for developing Watershed Management Plans and implementing M&E tools, was obtained, albeit with considerable delays.

9. Annual work plans, budgets, and procurement plans were prepared on time. They were submitted and approved by the CST and cleared by the World Bank. Financial management posed no problems; expense reports submitted for reimbursement from the special account were prepared regularly and were all accepted. Annual audit reports were submitted on time and were unqualified.

10. The CBRD and the CBWM Projects used the same basic M&E system. By June 2007, this system was in place and a database had been set up. It was operational at the regional level, and the CCU was able, for the first time, to produce activity reports from the database. As pointed out in the ICR of the CBRD Project, concerns remained in relation to training central and regional staff in basic computer literacy, communication between technical staff and the M&E unit about the best use of the data, and the availability of some appropriate and measurable indicators. The M&E system was well designed but did not function optimally, at least initially. Data collection lagged, and analytical capacity at the central and regional entities was weak. Information dissemination was limited to a quarterly project report with little analysis to evaluate performance. In addition due to a lack of agricultural extension staff in the project area, regular collection of data could not be done; especially data on two vital variables (crop yields and increases in the water table) were not systematically collected on an annual basis, and no institutional mechanisms are presently in place to collect these data now that the project has ended. This lack of data complicates a comprehensive cost-benefit analysis of some of the economically most important project investments: overflow stone dams in dry riverbeds (to slow runoff during the rainy season, foster infiltration, and raise the water table) and fencing for prime agricultural areas (to keep animals out and reduce conflicts between agriculturalists and herders). Moreover, as indicated, some data that were of key interest for a project of this nature were not collected (on biodiversity, carbon sequestration, and ecosystem restoration).

11. With support and prodding from several Bank supervision missions, the M&E system improved over time, and by the end of the project, most issues had been corrected. With the closing of the project and absence of a follow-up operation, right now the data is not accessible. This is because at the end of the project the data of the M&E system as well as the equipment that were under the responsibility of the project CCU have been physically transferred to the MDR (to the localities of *the Direction de la Vulgarisation*) but the M&E system has not been yet set up and put into use.

Annex 3. Economic and Financial Analysis

1. The economic and financial benefits arising from the project's social and environmental activities are primarily derived from capacity building and empowerment in local communities, a reduction in conflicts between herders and agriculturalists, and investments in natural resource management and SLM. This mix of economic, social, and environmental benefits is particularly difficult to quantify in monetary terms. A cost-benefit analysis is challenging even for the economic activities, because the specific subproject investments were also not known beforehand as they are chosen in accordance with the priorities of the local population.

Key Assumptions

2. The key assumptions for the economic and financial analysis as carried out for this ICR were that on 5 hectares of previously uncultivated land, investing in dikes would allow the production of 800 kilograms of sorghum per hectare; investing in stone and earth bunds would allow the production of 500 kilograms per hectare. In both cases, the production of cowpeas or hay (on unirrigated land) could add to the value of sorghum production. The fresh produce from the vegetable gardens was assumed to fetch a relatively low price (100–120 MRO per kilogram). The economic and financial costs were assumed to differ little except for the costs of labor and transport. The economic cost of labor was set 50 percent lower to account for unemployment and the lack of alternative jobs in the project areas, and the cost of transport included a 10 percent fuel tax.

3. The analysis found that it should not be difficult to reach the minimum 10 percent internal rate of return (IRR) and economic rate of return (ERR) on average for subprojects to conserve soil and water (dikes and bunds). Table 3.1 summarizes the results.

Table 3.1: Results of the economic and financial analysis (US$ 000s)

Intervention	Economic		Financial			
	ERR	NPV	ADCs		Global	
			IRR	NPV	IRR	NPV
Dikes	73%	33.3	106%	34.0	48%	26.3
Bunds	35%	8.1	60%	7.9	19%	5.0
Acacia gum trees	38%	28.9	152%	30.9	24%	24.2
Village gardens	NC	8.0	NC	5.5	502%	4.2
Irrigated African gardens	145%	37.8	>1,000%	38.7%	128%	35.7

Source: Project Appraisal Document (PAD) of CBWM Project.
Note: ADCs = Community Development Associations; ERR = economic rate of return; IRR = internal rate of return; NPV = net present value; NC = not calculated.

4. With respect to the sensitivity analysis, the break-even analysis was done against the total life of the project and indicated the number of year necessary to recover the total investment, not just the ADCs' contribution. The conclusion from the sensitivity analysis

was that "based on the level of switching values and the break-even analysis, the models [that is, the interventions] display little risk."

Table 3.2: Sensitivity analysis (years to break even and switching values)

Intervention	Years to break even (total life)	Switching values (economic)		Switching values (financial) (total)	
		Investment cost	Product price (or yield)	Investment cost	Product price (or yield)
Dikes	3(10)	>100%	-72%	>100%	-57%
Bunds	4(20)	>100%	-44%	39%	-19%
Acacia gum trees	7(30)	>100%	-47%	73%	-40%
Village gardening	1(10)	60%	-55%	>100%	-29%
Irrigated African garden	2(20)	>100%	-77%	>100%	-66%

Source: Project Appraisal Document (PAD) of CBWM Project.

5. To better evaluate the project's overall results for this ICR, the team referred to various studies for the CBRD and CBWM Projects. They included *Analyse économique et financière des microprojets générateurs de revenue du PDRC* (Economic and financial evaluation of CBRD income-generating microprojects), December 2010, conducted for the CBRD Project ICR, and *Audit Environnemental du PACBV* (an analysis of the CBWM Project's environmental impact), done at the end of the CBWM Project in March 2013.

Analysis of CBWM Project

6. The CBWM Project's target area covered more than 3,200 hectares and about 45,000 people, most of them extremely poor and vulnerable. Based on the data from various reports (including those just cited), an estimated 70 percent of the population in the four watersheds benefited from the project. Note that more than 80 percent of that population is concentrated in the Beilougue Litama and Greiguel Watersheds.

7. With respect to the financial analysis, 83.6 percent of subprojects had IRRs ranging from 13 percent to 63 percent, way above the initial target of 10 percent set during appraisal. The subprojects contributed positively to improving socioeconomic conditions in the communities; for example, average IRRs were 15 percent for village shops, 63 percent for fencing agricultural fields, and 52 percent for village gardens (Table 3.3). Village gardens (with an IRR of 52.6 percent and ERR of 202 percent) and village shops (with an IRR of 21 percent) are principally owned and managed by women, offering a good means of income diversification and reinforcing the importance of the project's gender-sensitive approach to local development. The ERRs for the ADCs were above 50 percent in all areas of project intervention. Table 3.4 shows the results for the two most important natural resource management activities (dikes and bunds).

8. The results differ from one watershed to the other. This might be due to the nature of activities or the specificity of the socioeconomic characteristics of the watershed. In the arid zones such as the Tengharada and Saïla Watersheds, the types of investments

were mainly for fences and earth and stone bunds to facilitate water infiltration and replenish groundwater tables (*nappes d'eau superficielle*). The economic and financial impacts were essentially to increase yields. When surveyed, communities expressed their satisfaction with the rising levels of water in their wells, the improved productivity, and the virtual absence of agropastoral conflicts.

Table 3.3: Economic and financial analysis by type of activity

Activity	Cash flow	Actual value (net)	IRR overall (%)	ERR overall (%)
Fencing agricultural fields (*clôtures grillagées*)	75,291	159,683	63.33	70
Vegetable gardens (*jardin maraichers*)	10,710	20,959	52.00	67
Grazing reserves (*mise en défens avec* Acacia Sénégal)	76,913	16,243	15.00	16
Women's village shop (*boutiques des femmes*)	7,512	3,216	15.24	n/a

Source: Analyse économique et financière des microprojets générateurs de revenue du PDRC, December 2010.
Note: ADCs = Community Development Associations; ERR = economic rate of return; IRR = internal rate of return; NPV = net present value.

Table 3.4: Economic and financial returns to two major natural resource management activities (US$ 000s)

Intervention	Economic		Financial (average for all ADCs)	
	ERR	NPV	IRR	NPV
Dikes	47%	14.74	24%	7.86
Bunds	41%	7.61	25%	4.64

Source: Analyse économique et financière des microprojets générateurs de revenue du PDRC, December 2010.
Note: ADCs = Community Development Associations; ERR = economic rate of return; IRR = internal rate of return; NPV = net present value.

9. All watersheds achieved returns higher than the initial target of 10 percent, but some watersheds recorded returns exceeding 60 percent. For example, projects in Greiguel Watershed had a direct beneficiary population of 13,480 among a total of 17,873 inhabitants (in other words, equivalent to more than 75 percent of the population). The projects yielded 12 tons of produce and created 6,392 seasonal employment opportunities each year. Among the four categories of beneficiaries—ranging from highly vulnerable segments of the population (the elderly, female heads of household without an adult child) to households with large families—incomes ranged from 8,750 MRO per month to 175,000 MRO per month and in all cases exceeded the poverty threshold. In the Beilougue Litama Watershed, the project significantly increased monthly incomes from 10,417 to 208,333 MRO. In the humid zones, namely the Beilougue Litama and Greiguel Watersheds, yields per hectare rose from 0.5 tons per hectare to more than 1.2 tons per hectare. These communities—thanks to the new sources of income provided through the project's activities—willingly accepted to pay for maintaining the investments. The subprojects financed under the CBWM Project

subprojects responded to demands that were expressed collectively by the communities in the four watersheds. Ultimately some were not profitable because they were costly to acquire, with the exception of improved stoves (*foyers en banco*), which remain profitable as they are still in use.

Analysis by category of subprojects

10. **Village shops.** While the project contributed 50 percent of the total investment (including construction) and the cost of transportation of the initial shop inventory, the ADCs contributed half of the construction cost and part of the investment capital to stock the shop. The average rate of return for village shops was 16.22 percent, which is above the target of 10 percent set during appraisal.

11. **Vaccination structures.** The project financed the cost of materials and their transportation, and the ADCs were responsible for the labor to build the structures. This intervention was not considered an income-generating activity by the project and was thus provided at no cost to the community members other than their labor. Now, however, the communities are considering how to make the structures profitable by introducing a fee. For that reason, the economic and financial analysis included an assumed charge of 50 MRO per vaccinated animal. The analysis showed an IRR of 13 percent and an ERR of 16.5 percent, with an ERR for the ADC of 567 percent.

12. **Grazing reserves.** The project financed the procurement of the fences, installed and maintained by the ADCs, which were also responsible for planting the fields. For an area of 50 hectares, the investment cost for the material is about 4,095,000 MRO and the cost of labor is estimated at 2,964,000 MRO.

13. Another scenario envisaged the plantation of acacia gum trees at a rate of 200 seedlings per hectare and an estimated production of 300 grams per tree. The sale price of gum Arabic is estimated at 1,000 MRO per kilogram. Another possible source of income is from the sale of tree seed (*semences forestières*) harvested within the perimeter. The new trees will start production in Year 6 and continue to produce for an estimated life of 30 years.

14. The analysis showed a global IRR of 4 percent and an IRR for ADCs of 13 percent, mainly owing to the heavy initial cost of the investment compared to the net expected results. The investment could be recovered by Year 11, however (in relation to the total life of 30 years), and over that time the global IRR increases to 15 percent and ERR to 16 percent. These results may vary, of course, depending on the market price for gum Arabic and the total cost of the investment.

15. **Fencing for agricultural fields.** The project financed the cost of the fencing materials and the ADCs were responsible for the cost of the labor to build the fences. The returns were calculated based on an estimated life of 10 years for the fencing, provided that fences received regular maintenance of about 15 man-days per hectare per year. The production of sorghum in fenced fields was 600 kilograms per hectare (at an average price of 200 MRO per kilogram), and cowpea production was 200 kilograms per hectare (at an average price of 1,000 MRO per kilogram).

16. Table 3.5 summarizes the results for ADCs in Adrar and H. Elgharbi. On average, fencing had an average global IRR of 63.3 percent and ERR of 70 percent, and the ADCs had an IRR of 300 percent and ERR of 594 percent.

Table 3.5: Average returns to fencing agricultural fields

ADC	Global		ADC	
	IRR (%)	ERR (%)	IRR (%)	ERR (%)
Dimechgh (H. Elgharbi)	58	69	256	546
D'Cheira (H. Elgharbi)	89	96	458	900
Tweizegt Agassar (Adrar)	43	45	186	337
Average	**63.33**	**70**	**300**	**594**

Note: ADCs = Community Development Associations; ERR = economic rate of return; IRR = internal rate of return.

17. **Vegetable gardens.** The project financed the purchase of fencing materials and provided the initial stock of seed, phytosanitary products, and small agricultural equipment. The ADC contributed about 25 percent of the total in the form of labor and replenishment of the stock of inputs. The life of the fence is set at 10 years. The computation is based on the same value as the financial calculation, replacing the financial values by economic values if needed. Table 3.6 shows that vegetable gardens had a global IRR of 52.66 percent, and returns for the ADCs were very high, with an IRR of 202 percent and ERR of 296 percent.

Table 3.6: Average returns to vegetable gardens

ADC	Global		ADC	
	IRR (%)	ERR (%)	IRR (%)	ERR (%)
Ridha Walmouna (H. Elgharbi)	44	66	188	346
Tiguint Nkhal (Trarza)	85	93	317	369
Tigmatine (Trarza)	29	43	102	175
Averages	**52.66**	**67.33**	**202**	**296**

Note: ADCs = Community Development Associations; ERR = economic rate of return; IRR = internal rate of return.

Conclusions from the Economic and Financial Analysis

18. Despite the fact that the analysis used a sample, when the results are combined with the actual observations, we can conclude the following for all project activities.

i) **Incomes improved in beneficiary communities.** The analysis of subprojects revealed an IRR between 13 percent and 63 percent, significantly surpassing the 10 percent minimum. In fact, the IRR for dikes and thresholds surpassed 50 percent. All of the subproject activities contributed to improved socioeconomic welfare of the population. The vegetable gardens managed by the women, with an IRR of 52.66 percent and ERR of 202 percent, are especially promising for diversifying sources of income and nutrition and reinforce the value of a gender-sensitive approach to local development.

ii) **The project had positive environmental impacts and increased the awareness of strategies to reduce pressure on natural resources.** The environmental audit found that the project's activities had no negative effects on the equilibrium of the ecosystems involved. In fact, by establishing forest reserves and increasing supplies of butane gas, the project reduced pressure on natural resources and had a positive impact on the environment.

iii) **The survey of beneficiaries found strong ownership of the investments and a commitment to maintaining them.** The survey also found that the investments were being used properly. These behaviors provide a strong indication that the investments will be sustained beyond the life of the project.

iv) **The principal lesson is that the project's activities were profitable, enabling most subprojects to continue without new financing.** However, the need for credit is still important within and beyond the project areas. In this context—and based on the satisfaction of the ADCs—a compelling case can be made for replicating this model in other watersheds of Mauritania, using the same approaches and emphasizing close support and continuous capacity building for beneficiaries.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

Name	Title	Unit	Responsibility/ Specialty
Lending			
Bank staff and consultants who worked on the project (from PAD)			
Huong-Giang Lucie Tran	Operations Officer	AFTS4	Task Team Leader (TTL)
Ismael Ouedraogo	Sr. Agriculture Economist	AFTS4	TTL CBRD
Amadou Oumar Ba	Sr. Agriculture Services Specialist	AFTS4	
Yves-Coffi Prudencio	Sr. Agriculturalist	AFTS2	
El Hadj Adama Toure	Sr. Agriculture Economist	AFTS4	
Salamata Bal	Social Development Specialist	AFTS4	
Helene Bertaud	Senior Counsel	LEGAF	
Sossena Tassew	Language Program Assistant	AFTS4	
Nestor Coffi	Financial Management Specialist	AFTFM	
Moustapha Ould Bechir	Procurement Specialist	AFTPC	
Renee Desclaux	Finance Officer	LOAG2	
Yahya Ould Aly Jean	Disbursement Assistant	AFMMR	
Batouly Dieng	Team Assistant	AFMMR	
Amadou Konare	Safeguard Specialist	AFTS1	
William Critcheley	Coordinator, Resource Development Unit, CIS-Centre for International Cooperation	Consultant	
Matteo Machisio	Consultant		
Chantal Lewis	Consultant		
Franz Schorosh	Consultant	FAO	
Supervision/ICR			
Amadou Oumar Ba	Sr. Agriculture Specialist.	AFTA2	TTL CBRD
Salamata Bal	Sr. Social Development Specialist	AFTCS	TTL CBWM
Bleoue Nicaise Ehoue	Sr. Agriculture Economist	AFTA1	TTL CBRD
Taoufiq Bennouna	Sr. Natural Resources Management Specialist	MNSEE	
Bella Lelouma Diallo	Sr. Financial Management Specialist	AFTMW	
Batouly Dieng	Team Assistant	AFMMR	
Saidou Diop	Sr. Financial Management Specialist	AFTMW	
Maimouna Mbow Fam	Sr. Financial Management Specialist	AFTMW	
Marie-Claudine Fundi	Language Program Assistant	AFTA2	
Paul Jonathan Martin	Sector Leader	AFTSN	
Ismael S. Ouedraogo	Consultant	AFTA1	
Yahya Ould Aly Jean	Program Assistant	AFMMR	
Moustapha Ould El Bechir	Sr. Procurement Specialist	AFTPE	
Brahim Sall	Sr. Rural Development Specialist	AFTA1	
Daniel M. Sellen	Sector Leader	LCSSD	
El Hadj Adama Toure	Sr. Agriculture Economist	AFTA1	

Huong-Giang Lucie Tran	Consultant	AFTN2	
Martien Van Nieuwkoop	Sector Manager	AFTA1	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	US$ (including travel and consultant costs)
Lending		
FY05	8.152	27,104.50
FY06	13.292	50,713.84
FY07	6.570	15,642.35
Total:	28.04	93,460.69
Supervision/ICR		
FY08	3.585	2,580.39
FY09	3.364	2,804.86
FY10	8.778	19,979.31
FY11	7.125	12,489.78
FY12	6.075	8,299.45
FY13	7.051	12,183.19
Total:	35.978	58,336.98

Annex 5. Executive Summary of the CBRD Project Beneficiary Survey Results

A beneficiary survey for the baseline CBRD Project, "Evaluation, par les Bénéficiaires, de l'Impact Social et Economique du PDRC," was done in April 2008. The following is the executive summary of the results of that survey.

1. This final report on the evaluation study conducted with the beneficiaries concerning the social and economic impact of the project is presented in five parts, as follows: (i) the Community-Based Rural Development Project (CBRD), and in particular its objectives, components, and mid-term achievements, as well as the objectives of the present evaluation mission conducted with the beneficiaries; (ii) the methodology followed, in particular with respect to the participatory evaluation; (iii) a succinct description of the progress made by the evaluation mission; (iv) presentation and analysis of the results from the beneficiaries' evaluations; and (v) the conclusions and recommendations of the consultant who, to a large extent, adopts the suggestions and recommendations expressed by the beneficiaries encountered during the mission.

Presentation of the Community-Based Rural Development Project (CBRD)

2. The objectives of the project and its organization into three components are widely known among readers. We will therefore summarize it briefly by recalling that the project strategy is based on a participatory approach, which encourages the decentralization process in the country through the establishment of Community Development Associations (ADCs) and the development of their capabilities as well as those of the targeted rural municipalities. This approach supports local development through the establishment of community development plans via the facilitating nongovernmental organizations (NGOs) as well as the direct transfer of funds to the ADCs and the communities to enable them to implement subprojects with a socio-collective or economic impact on the population, in particular disadvantaged groups and especially women, with a view to reducing poverty.

3. Among the many achievements, we will mention only the creation of 843 ADCs (including 693 new ones) out of the 850 anticipated associations (150 of which involve resumption of the pilot project—the PGRNP[11]—and support for the official recognition of 682 of the 693 new ADCs, management training for nearly 3,000 officials from 822 ADCs, 1,638 individuals belonging to 619 ADCs dealing with gender and the environment, and 202 facilitators from NGOs and research departments responsible in particular for carrying out the participatory activities of the Community Development Plans and Community Initiative Projects.

4. With respect to the subprojects, current results are less spectacular due to the fact that this component could not in fact begin until after the ADCs had been set up. Nevertheless, according to the CCU, of the approximately 3,000 subprojects to be completed by the end of the project in 2010, the completion rate is on the order of 40 percent and the disbursements made to ADC subprojects reached nearly 3.4 billion MRO.

[11] Projet de Gestion des Ressources Naturelles en Zones Pluviales (Rainfed Natural Resource Management Project).

5. The present mission was responsible for evaluating (via the beneficiaries) the social and economic impact of the actions taken by the CBRD, identifying the principal lessons learned and the strengths and weaknesses of the CBRD, and on the basis of those analyses, proposing suitable corrective measures to be taken in response to the problems and constraints identified.

Methodology Followed by the Consultant and Mission Operation

6. Following several sessions devoted to working with the CCU, assembling and reviewing project documentation, defining the sample of ADCs and beneficiaries to be covered by the survey, and providing additional training to the field teams (consisting of two researchers, each with one assistant researcher), the consultant visited 67 ADCs distributed over the 10 wilayas (administrative regions) in the intervention zone covered by the project. As a result, he was able to visit 135 subprojects representing 21 of the 24 types of physical investments implemented by the ADCs, and he was able to interview the other stakeholders involved in carrying out the project, including regional, departmental, and municipal administrative authorities, representatives from the facilitating NGOs, officials from the regional coordination units (RCUs) and their mobile technical assistants (MTAs) responsible for activities at the ADC level, agricultural services (regional delegates, departmental inspectors, and agricultural extension agents for the ABVs, who are responsible for providing technical support to the ADCs), small local businesses responsible for carrying out the subprojects, and various prominent persons, opinion leaders, and other resource persons.

7. The impact study consisted of the beneficiaries' evaluation of the project, based on qualitative and participatory survey techniques. A key feature of this socio-anthropological approach is that it enables the populations surveyed to become actors in the analysis of their own situation. This form of interactive participation involves the exchange of information and creates positive dynamics with regard to the participants' expertise and local knowledge, which should enable the populations in question to express their own perspective.

8. Thus the evaluation methodology adopted by the consultant in the field gave preference to semi-structured meetings and interviews. In villages with a ADC, focus groups (for women, men, and mixed) were organized to collect information on participants' experiences (127 focus groups organized in 67 ADCs visited). Participation was considerable: 851 individuals, including 535 women, attended. Meanwhile, 30 household stories were gathered, which, on the basis of an average number of eight (8) members per household, accounted for approximately 240 individuals.

Results

9. The results of this evaluation enabled the consultant, in accordance with the Terms of Reference of the study, to make accurate statements about the impact of the project on the beneficiaries, identify the principal lessons learned and the strengths and weaknesses of the community experience, and on the basis of that analysis propose suitable corrective measures for the problems and constraints identified.

10. For capacity building (Component A of the project), the objectives were fully achieved in all ADCs, in large part because the activities occurred when the ADCs were

set up. The physical investments made by the ADCs are unfinished, however. Many subprojects have not been started or are still being set up. Consequently, very few beneficiaries have real experience of one year or more with operational subprojects, about which they can provide an opinion.

11. This limited experience is particularly true for subprojects involving small market gardens, rehabilitated wells, grain mills, fencing to protect cropped areas, and community stores. Although beneficiaries' appraisal of these subprojects was included in the analysis of the results, these subprojects have not been operating for more than two years, and it is therefore too early to conduct an economic and financial analysis subprojects and calculate the IRR and NPV. To be truly relevant, such an analysis must be based on actual numerical data and not on assumptions about future revenues and expenditures.

12. The results can be summarized by component as follows:

- With regard to capacity building, all beneficiaries report an undeniable positive impact arising from the creation of the ADCs and the training provided (especially in management, procurement, other procedures, and gender), as well as from the strengthened social cohesion and solidarity, especially with regard to the poorest households in the villages. This capacity building has a particular impact on the women. They are becoming aware of their roles and responsibilities with regard to community development and wish to become involved in economic and social activities, in particular through women's cooperatives, which offer management and marketing training that they appreciate. Weaknesses identified by the beneficiaries included the low representation of women in the senior management of ADCs and in the training sessions, as well as the very low literacy among ADC officials and members of the various committees formed at that level.

- The majority of ADCs reported that the impact of the activities entrusted to outside partners was clearly weaker. Extension agents responsible for agricultural services were rarely on site, and their technical skills were often disputed, in particular in relation to income-generating activities. When these personnel were placed under the supervision of the regional representative of MDRE, they complained that their travel allowances (by motorcycle) could be used only for their ADC-based projects. They also criticized the late payments for their compensation and expenses and suggested that they be covered by the project. The MTAs working with the RCUs were criticized for showing little concern for the activities of the ADCs and devoting the bulk of their time to drafting the RCU co-funding agreements with the ADCs. The RCUs themselves generally admit that this is the case and justify the situation by referring to the limited competence of the ADCs and in particular the low literacy rate.

- RCU officials consider the impact of the project to be very positive, while admitting that subprojects have been implemented slowly. Without these delays, the impact might already be more perceptible, in particular the impact on poverty reduction through the work of the ADCs. RCU officials point out the extent of their intervention zone, which covers a large number of ADCs, and their lack of equipment in terms of logistics. While congratulating themselves over the fact that they have been called upon to carry out the subprojects, local micro and small

businesses are anxious for the training and small equipment promised to them by the project. However, these subprojects should now begin as soon as possible. Finally, local elected officials appreciate the impact of the project, which is already visible in villages with ADCs compared to villages without them. They suggest a greater involvement on the part of municipalities, in particular to ensure the sustainability of the subprojects at the end of the intervention. However, they are aware that the project anticipates that support will be provided to municipalities once the nature of this support and in particular the required training, have been clearly defined with regard to 10 pilot municipalities.

- The beneficiaries unanimously appreciate the impact of the subprojects and investments (Component B) and acknowledge that they have had a social and economic impact and, in some cases, an environmental impact. The subprojects involved investments of a socio-collective nature on the one hand and investments of a largely economic nature (in particular income-generating activities) on the other. Their results and the impact on beneficiaries can be summarized as follows:

    - The impact of socio-collective investments (including irrigation schemes, measures to improve access, village hydraulic structures, fencing agricultural areas, and enclosures and cattle inoculation centers) are fully appreciated wherever such facilities are operational. The hydraulic structures are greatly appreciated, in particular by women, who now have access to clean water and note improved health among children in particular (seen in a decline in the incidence of diarrhea). Women also appreciate the time savings; rather than spending time providing drinking water, women are increasingly available to participate in cooperatives and engage in market farming, sewing, dyeing, or weaving, all of which are likely to provide them with income. The same holds true for men once the crop areas have been fenced in: Yields increase and men no longer have to spend time keeping an eye on the crops. Finally, the impact of the enclosures and inoculation centers is very much appreciated by all breeders, who say that their animals are healthier and production has increased considerably.

    - Income-generating activities are in high demand. All beneficiaries see their immediate impact (especially grain mills, community stores, the availability of horticultural equipment) on part of the community (in particular women and the poorest), if not the entire community. The only reservations expressed by the beneficiaries concerned the limited number of income-generating activities implemented and the absence of other types of income-generating activities from the project (such as grain banks and wire fencing manufacturing facilities).

13. Overall, the project's impact is largely positive and clearly visible to the beneficiaries despite certain delays, in particular with the physical investments. For the beneficiaries, these deficiencies do not mean that the project or its activities lack impact but rather that it can be improved through their suggestions and proposals to intensify and extend its activities and investments during the second half of the CBRD (2008–10).

14. Finally, using notes taken by beneficiaries during the evaluation, especially the 127 focus groups organized within the 67 ADCs, the consultant attempted to highlight beneficiaries' opinion about the degree to which three performance indicators adopted by the project were reached: (i) at the end of the project, at least 80 percent of the ADCs had a satisfactory operational capability; (ii) at least 75 percent of the ADCs were satisfactorily managing and maintaining their equipment; and (iii) 80 percent of the communities were satisfied with the agricultural services offered to them.

15. To date (at mid-term), the results of this analysis can be summarized as follows:

- Of the focus group participants, 53.8 percent deemed the organizational capability of their ADC satisfactory (the other 46.3 percent considered that this capability would be easily achieved if the project intensified and extended its management training activities for the benefit of the ADCs and invested in literacy training).
- The management and upkeep of the equipment was deemed satisfactory by 76.3 percent of participants (the remaining 42.8 percent considered that the sustainability of some technical equipment required special training for beneficiaries).
- On the other hand, 90.2 percent of participants are currently dissatisfied with the services offered by the agricultural services (only 10.8 percent are relatively satisfied, while at the same time considering that the staff of the agricultural services, and in particular the ADCs, need training focused on project activities, primarily the income-generating activities and market farming).

16. The statistical series used for calculating these overall averages as well as a graphic representation of the achievement rate for these three indicators are the subject of Annex 10 in the main report.

17. Thus the beneficiaries consulted believe that the first two indicators are easily achievable by the end of the project if the suggested changes are adopted. However, achieving the indicator relating to the provision of agricultural services will require not only significant improvements in appropriate training, in particular as regards the activities implemented by the ADCs (and especially as regards income-generating activities and market farming), but also increased motivation and availability among the staff responsible for agricultural advice. These suggestions are included in the recommendations.

Conclusions

18. The consultant arrived at the following specific conclusions:

- Overall, the objectives of the beneficiary evaluation were achieved. The beneficiaries deemed that the social and economic impact of the CBRD Project was satisfactory and relevant to the pre-project situation, with everyone, and in particular women, concurring that poverty, and especially extreme poverty, is in decline.
- The participatory approach is suitable to the context, and the ADCs are equipped with an appropriate intervention structure. They are recognized under the law and, for the most part, testify to a dynamic and motivation largely acknowledged by

the beneficiaries and confirmed by the monitoring of project performance indicators.

- The sustainability of the community subprojects and the ADCs themselves thus seems assured, even if many beneficiaries request additional capacity building, especially in the management and maintenance of investments. Beneficiaries are certain that the weaknesses they point out are due to the illiteracy often encountered among ADC officials and to the limited representation of women in positions of responsibility.
- The impact of the project via the subprojects as well as that of the socio-collective and economic investments is confirmed by all of the stakeholders. In particular, these investments have an impact on disadvantaged groups, including women in general and in particular poor women or female heads of household (through hydraulic structures, the support of their cooperatives, and community stores), small farmers relying only on their unirrigated plot (*diéri*) through the protection of their fields, and the small cattle breeders through the construction of pens and inoculation centers. This impact affects social, human, and economic capital as well as the standards of living of the beneficiaries.

19. The beneficiary evaluation thus clearly indicates that the project has had an indisputable social and economic impact. Within the remaining three years of the CBRD and prior to its closure, it may be possible to remedy the weaknesses identified and to overcome the delays noted, in particular in relation to the completion of some subprojects, provided all the stakeholders contribute effectively.

Recommendations

20. The recommendations are grouped by component and not presented in any order of priority. The most important ones relate to strengthening capabilities (Component A):

- In general, improve the flow of information (in both directions) and strengthen follow-up through more frequent visits as well as by scheduling quarterly meetings with ADC officials at the departmental level. Both recommendations must go hand-in-hand with a strengthening of the human and logistical capabilities of the RCUs.
- Strengthen training and repeat the management training already provided in order to improve the operation of ADC offices and committees and expand these to other beneficiaries beside the three or four previously trained managers. In addition, set up certified training programs dealing with other topics, including the management and maintenance of subprojects, the follow-up and evaluation of activities in the ADCs, and the management of natural resources.
- In accordance with the request made by all categories of beneficiaries, it is highly recommended that the project become involved in functional literacy training in all the ADCs where such initiatives have not already been undertaken by other stakeholders.
- It is suggested that information, education, and communication campaigns be set up to benefit all of the ADC village populations on cross-cutting themes such as

health, water and sanitation, HIV/AIDS, nutrition, and hydro-agricultural structures.

- In addition to the development-oriented training programs already carried out, it is recommended to introduce training aiming at women as well as measures that will ensure their more effective participation in the development process and their access to positions of responsibility.
- In the event that some ADCs operate under a deficit, the consultant recommends that officials be reelected and/or that some office and committee officials be replaced with a view to having dynamic and literate executives residing in the locality and ensuring better representation of women.
- Improving the services provided (both in terms of quality and quantity) by the agricultural service agents is essential and depends on solving their problems (such as delayed payments) and strengthening their technical capabilities, in particular for the purpose of guaranteeing that their interventions will be continued once the project ends.
- Appropriate training of MTAs is recommended to intensify the activities of the ADC villages. In parallel, strengthening the capabilities of the ADCs should lighten the administrative load for these ADCs and make them more amenable to enhancing these activities.
- A thorough follow-up of the facilitating NGO staff appointed to carry out the village diagnostics, planning, and Community Development Plans is essential.
- The training and equipment scheduled for the MPERs should be implemented diligently with a view to accelerating the execution of project investments via the ADCs.
- A detailed study will be a suitable approach to better identifying the sustainability of the structures implemented by the project (ADC, subprojects, activity and technical advisory activities) within the perspective of the project coming to an end.
- A further recommendation relates to defining the capacities required by municipalities to become more meaningfully involved (as provided for in 10-municipality pilot) in ensuring follow-up of ADC activities, in particular the income-generating activities, a desire expressed by the elected officials as well as their sponsor (MDAT).
- The consultant recommends that synergies with other projects and programs involved in the CBRD's intervention zone be enhanced to prevent the duplication of effort while ensuring wider impact on poverty reduction at the commune level (not limited to the ADC villages).
- Finally, it is highly recommended that project documents (including procedural and Community Development Plan manuals) intended for the ADCs be available in the local languages ADC, given that ADC officials commonly do not know French.

21. For Component B, which covers the investments and subprojects implemented by the CBRDP through the ADCs, the recommendations reflect the observations of many beneficiaries. Specifically, beneficiaries suggested that the sustainability of subprojects be ensured, their pace of development accelerated, the number of subprojects increased to enhance their impact on the entire population of ADC villages, and the subprojects, particularly the income-generating activities, be diversified to continually increase their impact on the communities, especially disadvantaged groups and households, as follows:

- Ensure sustainability by improving the diligent development of subprojects, initially by supporting the activities under Component A. For a number of projects, the creation of employment and service manuals should also be included.
- Certain types of investment, with an assured demand and impact, could be multiplied (particularly the ADCs), subject to the availability of financing and an equitable distribution between the ADCs and the wilayas in the intervention areas.
- Other types of subprojects, such as fence-making workshops, the training of additional veterinarians, and the creation of grain banks, should be implemented, provided that the types of subprojects proposed do not contradict the project strategy and that their impact is positive.
- Investments targeting environmental protection should also be increased, because only reforestation and the creation of deferred grazing or woodland areas (few and far between at the moment) have a clear environmental impact. The outlets for selling butane gas represent a means of conserving fuel wood, but the high price of butane gas compared to collected fuel wood makes such outlets difficult to develop in a rural setting that remains very poor.

22. For Component C, which essentially involves project M&E and the acceptable operation of the central and decentralized structures of the CBRD, recommendations for human resources and RCU logistics were made in the context of Component A. Notably, the beneficiaries had recommendations to make in the matter of M&E:

- These recommendations particularly concern the relatively slow pace of M&E, essentially due to weak communication (insufficient circulation of information in both directions). Communication will improve through the implementation of proposals already made in the context of Component A.
- Beneficiaries agree that the scorecard is not very appropriate to the needs of MTAs or ADCs. The consultant believes that this perception arises above all from beneficiaries' incomplete understanding and recommends that project-specific training and possibly translation of the scorecard into the national languages.
- Finally, the experience in local development of the ADCs and the project in general should be publicized regionally and nationally to benefit other projects and structures operating as part of local development projects. In the context of the new decentralization policy, the CBRD should do more to assert its competencies like other programs and projects supported by multilateral and bilateral development partners.

Annex 6. Stakeholder Workshop Report and Results

Not applicable.

Annex 7. Summary of Borrower's ICR

The Borrower's ICR for the CBWM Project, "Projet d'Amenagement Communautaire des Bassins Versants: Rapport d'Achèvement" (April 2013), is summarized here.

1. The government of the Islamic Republic of Mauritania requested and obtained GEF financing to prepare a Community-Based Watershed Management Project (CBWM) that complements the Rural Community Development Project (CBRD) financed by an IDA credit (3883-MAU). It obtained financing in the amount of US$ 6 million. Table 7.1 presents the project timeline.

Table 7.1: CBWM Project timeline

World Bank Project Approval Date	June 22, 2006
Effectiveness	January 26, 2007
Duration	5 years (2007–2011)
Effective Project Start Date	May 15, 2007
Closing Date	March 31, 2013

I. OBJECTIVES

2. **The overall objective** is to limit soil degradation and to conserve the vital functions of the ecosystems through sustainable soil management efforts at the community level. This will help improve agropastoral and silvopastoral management and increase vegetation cover while procuring the means of subsistence and ecological benefits to the local communities through the reduction of sedimentary deposits in waterways, improved interconnection and integrity of ecosystems, an increase in carbon storage rates, and new conservation and biodiversity opportunities.

3. **The development objective of the project** is to attenuate the occurrence of soil degradation at the watershed level in the CBRD area by helping local communities create incomes through local investments in remedying soil degradation and by promoting sustainable soil management practices.

4. **The overall environmental goal** of this GEF project is to introduce management practices at the local level to limit soil degradation and desertification and to conserve ecosystem functions.

5. With these objectives in mind, the following actions will be supported by the GEF alternative scenario:

- Putting in place a scientifically and technically viable watershed management method that integrates socioeconomic dynamics.
- Development of this method through the training of project participants and local investments; and dissemination of results from pilot sites on a larger scale.

6. The project consists of three components: (a) capacity building; (b) community investment funding; and (c) management, monitoring, and evaluation.

II. PROJECT SETUP

7. On behalf of the Government of Mauritania, the Ministry of Rural Development and the Environment (*Ministère du Développement Rural et de l'Environnement,* MDRE) is responsible for the implementation and supervision of the CBWM.

8. The plan's institutional framework includes:

- ***CBWM Steering Committee***: This committee is tasked with ensuring coherence and avoiding duplication. The Steering Committee is the same Steering Committee as the CBRD Steering Committee.
- ***Central Coordination Unit for the project (CCU)***: This unit will be responsible for the RCPD and the performance of the CBWM.
- ***Scientific and Technical Committee (SCT)***: The CBWM is equipped with a Scientific and Technical Committee responsible for research-related issues and the approval of scientific work.
- ***Decentralized Regional Coordination Unit (RCU)***: This decentralized structure of the RCPD is responsible for the management of the CBWM at the regional level (wilaya).
- ***Regional Development Committee (RDC)***: This committee is presided over by the regional governor (*wali*). It selects the sites within the approved watershed areas and supervises the regional program. In addition to the regional governor, the RDC includes the technical divisions and other development structures.
- ***Local public communities and supervisory role***: The State and community-based central and local technical divisions must play an important role in both the RCPD and the CBWM.
- ***ABVs*** are the principal CBWM executing agencies.

III. MAIN ACHIEVEMENTS

9. The main achievements are a function of the conceptual framework indicated at the start of the project and the agreed upon components.

Evaluation of the Results Matrix (Logframe)

10. The performance of the CBWM Project is *Satisfactory*. All three (3) key indicators of project results were attained.

Evaluation of Components

Component A: CAPACITY BUILDING

11. The goal of this component is to set up the ABVs and build their capacities as well as those of the project officers and the technical divisions charged with assisting the ABVs. An additional goal is to adopt a new culture for watershed management focused on the development and transfer of sustainable land management technologies, including local management practices.

Selection of Watershed Areas and Establishment of ABVs

12. Due to the political context (the political transition that followed the 2005 coup), a significant amount of time was devoted to the initial selection of two pilot watershed areas (Greiguel and Tengharada) in 2006 and two more (Beilougue Litama and Saïla) in 2008.

13. This selection was based on the agro-environmental context of the country, namely a watershed basin in an oasis system (Tengharada, in Adrar), a watershed basin in the predominantly agricultural zone (Beilougue Litama, in Gorgol), a watershed basin in the agropastoral zone (Greiguel, in Assaba), and a watershed basin in the pastoral zone (Saïla, in Hodh Chargui).

14. An ABV was set up in each watershed basin using a participatory process. Each association has legal status and recognition and is composed of 12 members. Depending on each case, the ABV has specialized committees, such as a communication and monitoring committee, a committee of advisors (council of elders), a purchasing committee, and an approval committee. Each association was given an activity book (as a monitoring device) in which to describe its activities. The extension agents assigned to each watershed area assist the association in maintaining this activity book.

Training

15. A total of 507 persons participated in the training—298 men (59 percent) and 209 women (41 percent), including Watershed Association members, technicians, and CBRD and CBWM team members—on a variety of themes, including water and soil conservation techniques, an Environmental and Social Management Plan (ESMP), vegetation type and index, making soap, making cereamine,[12] and improved cooking methods, and geographic information systems (GIS).

Other, more targeted training was also completed, including:

- Two training sessions for the CBWM technical manager on strategic environmental evaluation and environmental monitoring.
- Workshop for exchanging experiences among the ABVs of Beilougue Litama, Grieguel, Saïla, and Tengharada, held in Greiguel Watershed.
- Training for the CBWM accountant on internal auditing.
- Training for the Director of Administration and Finance on management techniques.
- Training for the Procurement Assistant on contract monitoring and management.
- Training for the Watershed Association monitoring committees on how to fill out the association activity books and the scorecard for the Greiguel, Beilougue Litama, and Saïla Watersheds.

16. Six project managers undertook study tours focusing on watershed management to Burkina Faso, Nigeria, and Tunisia. The institutions visited included ICARDA in Tunisia, CILSS headquarters and PGNT in Burkina Faso, and ICRISAT and

[12] A high-energy flour made from maize, beans, rice, millet, and groundnuts.

AGHRYMET in Nigeria. The site visits significantly contributed to a better understanding of the vision for watershed planning and management.

Studies and Research

17. The CBWM conducted several studies, drew up documents (including management plans and local agreements), and produced an environmental impact study, a subproject socioeconomic impact evaluation, and an environmental management guide. It should be noted that the management plans and the guide constitute an innovation in Mauritania.

18. The details of the studies are as follows:

- Four core studies: biophysical, soil degradation, socioeconomic, and institutional for the first two pilot watersheds (Greiguel and Tengharada).
- Watershed Management Plans (Saïla, Beilougue, Tengharada and Greiguel) approved by the beneficiaries, local elected officials, decentralized technical divisions, and the authorities.
- Drafting and adoption of two local agreements on the management of natural resources for two watersheds (Beilougue Litama and Greiguel) in the presence of the administrative authorities and the beneficiary communities, local elected officials, and technicians.
- The environmental and social management guide was approved in February 2011 in the presence of development partners (MDRE, MEDD, equipment and transport, UNDP, GTZ, NGOs, and so on). This guide, which constitutes the first document dealing in practical terms with the environmental and social management of rural community subprojects, was translated from French into Arabic and distributed to all partners and the ABVs of the watersheds involved;.
- Procedural and performance manuals, M&E manuals, and social and environmental safeguard polices for the CBRD were updated to conform to CBWM requirements.

Component B: COMMUNITY INVESTMENT FUND

19. This component dealt with providing village communities with investment capital through the Local Investment Fund to encourage the adoption of sustainable conservation and natural resource management practices for the watersheds across communities.

Activities Completed

20. Action plans were created through an intercommunity organization within each watershed area through work zones maintained by the ABVs together with the CBWM. The work zones were chosen based on the spatial distribution of villages within the watershed and their proximity to the other intercommunity work sites identified. The implementation of the 2011–12 action plans took into account the Watershed Association action plans during the approval process for the management plans in May 2011 for the Saïla, Greiguel, and Beilougue Litama watershed areas.

21. Table 7.2 summarizes the actions taken under those plans.

Table 7.2: Actions taken under watershed action plans

Type of activity	Actions taken
Water and soil conservation projects	Stone barriers = 47,402.22 lm Filtering dikes = 13,377.84 lm Half-moons = 747 units Bunds to control runoff = 57 units *Zaï* = 2,890 units Earthen dikes = 88 units Dam rehabilitation = 3 Critical feeder road crossing points = 24 points surveyed Pond cleaning = 6 Deferred grazing areas = 450 ha (34 sites) Protection of agricultural zones = 5,537 ha (69 agricultural zones)
Income-generating activities	Butane gas storage areas = 15 Provision of fencing and farm inputs for 39 groups of women vegetable farmers Mixed metal ovens = 1,000 parts Improved clay ovens = 41 units Equipping a group of fishermen with fishing materials and tools Providing welding equipment to protect agricultural equipment 2 solar pumps to replace 2 pedal-operated drills
Watershed Association equipment	4 solar kits for lighting Watershed Association offices

Water and soil conservation

22. The building of water and soil conservation structures—stone barriers, filtering dikes, half-moons, retardation thresholds (bunds), earthen dikes, and deferred grazing—made it possible to recover land stripped and degraded by wind erosion and water runoff. Increases in biomass were recorded for sites selected for water and soil conservation and for soil protection and restoration.

23. After three years of implementation, a tangible increase in biomass production was evident at the reforested sites. The average percentage increase in biomass at the combined sites is 31.26 percent, which shows that the initial target of the project's framework of 25 percent was met. (Note: 2008–09 was the reference year for calculating any biomass production increase.) This increase may be attributed to the combined effects of water and soil conservation structures and fencing.

24. The planning process enabled local beneficiaries, elected officials, and the various administrations and technicians involved with the project to devise appropriate methods for regenerating degraded land (deferred grazing and completion of water and soil conservation projects).

25. The agricultural areas protected by metal fences (5,537 hectares over 69 agricultural zones) responded to the major concerns of the Watershed Association members. In addition to providing food security, the agricultural enclosures constitute collective and non-tradable assets. In a land management context where disputes are common and complex, fencing is a tool for pre-emptive conflict management between livestock herders and farmers within the community.

26. **Gender.** The project financed specific activities within the ABVs to reduce rural women's vulnerability by providing financing to women's groups to undertake income-generating activities in support of proper management of natural resources, including

- Providing fencing and farm inputs for 39 groups of women vegetable farmers.
- Providing 1,000 dual-purpose metal ovens that can burn charcoal or wood more efficiently and help to conserve these resources, which are steadily being depleted in these watersheds.
- Opening stores to sell butane gas to reduce pressure on fuel wood collection and reduce the women's daily burden.
- Promoting the use of improved clay ovens (accessible to all households) to reduce the use of fuel wood.
- Training women to make soap from forest products (*Balanites aegyptiaca*) and to make cereamine (a supplemental, more nutritious food source for children and the elderly).
- Introduction of solar-powered water pumps to replace two pedal-operated pumps. These solar-powered pumps made it possible to build raised tanks and standpipes and are the pride of many women and children in the Greiguel Watershed. Pedal-pumping is now only an unhappy memory for women, who could miscarry as a result of pedaling, and for the elderly, who were unable to draw even one liter of water without the help of young people.
- Providing solar panels to light Watershed Association offices permitted nighttime meetings and enabled schoolchildren to do their homework assignments after dark.

Other Specific Activities

27. **The Lake Libher Fishermen's Association** (Greiguel) benefited from equipment, including canoes and fishing nets that improved fishing conditions on the lake, where fishermen were using tree trunks to cross the lake to fish.

28. **The Beilougue Litama Watershed Association received welding equipment** to repair frequently used agricultural implements in this mainly agricultural watershed.

29. **By raising critical feeder road crossings in the watershed area,** communities in the watersheds had greater mobility in the rainy season. This activity is particularly appreciated by the mayors of rural communities in the watershed area due to the numerous trips they must make within their jurisdiction.

Component C: PROJECT MANAGEMENT, MONITORING, AND EVALUATION

30. **Management**. Under the guidance of MDRE, project operations are centrally managed by the CCU for the project and by MDRE extension agents within the watershed areas.

31. The CCU assumes the responsibility for the technical and financial execution of the project. It prepares annual work plans and budgets for the execution of project components and annual procurement plans. These plans were submitted to and approved

by the steering committee and the Bank. The CCU gave particular attention to the investments intended for the ABVs and to monitoring and evaluating agreed upon annual programs.

32. The statements of expenses submitted for reimbursement from the special accounts and all of the Fund Withdrawal Applications (*Demande de Retraits de Fonds*, DRF) were fully approved (source: DRF). All of the actions recommended to strengthen CBWM accounting and financial management were fully completed.

33. **Monitoring and evaluation**. Periodic reports were produced on schedule, with quarterly and annual reports now available. The ABVs used their activity books to monitor their activities with the assistance of extension agents.

34. The various supervisory missions were performed and their recommendations implemented. However, it should be noted that the M&E tools for CBWM were not completely integrated in the CBRD database in the coherent fashion required.

Environmental and Social Safeguards

35. At preparation, the CBWM financed the adaptation of the CBRD safeguard framework plans (ESMP, PCR, PCGPP) to the CBWM context, to identify and mitigate any negative environmental and social effects associated with the implementation of subprojects. A screening checklist was developed, published, and used to closely examine the subprojects in terms of their social and environmental value and to manage their potential impacts so that mitigation measures can be developed if needed.

36. In addition, an environmental and social management guide was created for the preparation, development, and operational phases of the subprojects. It was widely distributed through the training sessions, especially those offered to the ABVs. This guide was approved by a workshop involving all of the development partners working in rural settings.

Communication

37. The CBWM communication component was included under CBRD and handled all awareness-raising activities for ABVs, including media broadcasts, press articles, and brochures in the national languages. Specifically, the creation and approval of land use plans and local agreements led to awareness-raising sessions with photographs reproduced in large format by the CBWM and the consulting teams. An image bank was created to make it possible to visualize the destruction of small dikes by runoff and erosion, brush fires, illegal logging, and the destructive distillation of wood and charcoal making. This image bank was used as part of awareness-raising sessions.

COMMUNITY MICROPROJECT IMPACTS

38. The CBWM hired two consultants to conduct two impact studies: an environmental impact study and an evaluation of the impact of subprojects.

Environmental Impact Study

39. This study concluded that the negative impacts of the project are not very significant. It shows that the beneficiaries have a particular interest in the project with respect to its impact on the restoration of soils and natural resources and the improvement of their quality of life.

40. The communities' perceptions of the environmental impact after project implementation can be summarized as follows:

- Yields increased, and often two harvests could be obtained per year (in Beilougue Litama and Greiguel Watersheds), which reduced the pressure on forest resources as part of the fight against poverty.
- Illnesses associated with water quality became less frequent (in Attawatiya, in the Greiguel Watershed).
- Rural exodus decreased and now there are positive prospects for development in the affected areas.
- The natural regeneration of treated and enclosed sites increased, with an abundance of once-endangered species as a result of the increased biomass in the deferred grazing areas and of anti-erosion measures.
- Wild fauna are increasingly observed.
- Agricultural itinerancy decreased due to the protected enclosed areas and the creation of bunds and dikes, which reduced runoff, allowed agricultural land to recover, and increased the area suitable for agriculture.
- The pressure on forestry resources from the collection of fuel wood decreased due to the introduction of clay and metal stoves.
- Conflicts between livestock herders and farmers eased due to the agricultural enclosures but also to the community organizations that were set up (the ABVs).
- The subprojects are beginning to generate income by increasing agricultural production, increasing sales of straw to deferred grazing areas, and increasing sales of butane gas.

41. By way of illustration, the checklists filled out by the ABVs with the assistance of the extension agents are provided as an appendix.

Evaluation of Socioeconomic Impact

42. Project activities proved effective, with positive impacts overall, principally:

- The community development approach fits in neatly with the rural social and economic configuration of the country. It is thus highly pertinent. Through the Watershed Associations, communities received support to undertake various project activities, notably in the Beilougue and Greiguel Watersheds.
- The involvement of the beneficiaries in land use planning and project implementation was significant. It reinforced the project approval process as well

as the capacity to service and maintain the infrastructure, which led in turn to the implementation of efficient management systems in certain watersheds.

- The management methods established in the Watershed Associations in Greiguel and Beilougue reinforced the sustainability of project activities.
- The impact on livelihoods and welfare of the local population is highly significant, in particular in the watershed areas with efficient management systems (Greiguel and Beilougue).
- The impact of the project on social harmony is significant. In fact, the watershed areas where livestock herders and farmers were most often in conflict have not recorded any serious conflicts since the project was set up.
- The project's approach can be scaled up, particularly its organizational and community dimensions.

IV. PRINCIPAL LESSONS LEARNED

- **Lesson 1: Improvements in organizational dynamics.** The institutional context introduced by the CBWM brought change and greater accountability to the communities with respect to sustainable natural resource management. This lesson is associated with the Watershed Associations, which are increasingly becoming the locus for social and institutional dialogue.

  At the social level, there used to be constant conflict in the communities between livestock herders and farmers. In response, the ABVs implemented a working framework for pre-emptive conflict management. In the Beilougue Litama and Greiguel Watersheds, the Maure and Fulani communities bear witness to the fact that since the implementation of the ABVs, the two groups have lived more peacefully, as they now have a context within which they can work together. As the Fulani adage puts it: "When two adults fight, they have not spoken to each other."

  At the institutional level, communities that once feared the regional prefect and technical service agents gained greater confidence in calling attention to their problems through the Watershed Association office, to which the prefect, the municipality, and the technical service agents are increasingly inclined to listen.

- **Lesson 2: Greater social cohesion**. Social cohesion is a major factor in the successful management of natural resources. Weak social cohesion caused the Tengharada Watershed to remain on the margins of CBWM investment for a long time; in fact, it took three long years of mediation to start setting up subprojects.
- **Lesson 3: Accountability**. The communities now understand that the local agreements constitute a tool for managing conflicts and development.
- **Lesson 4: Ownership**. Watershed management tools were created (including land use plans, environmental management guides, and local agreements). These constitute innovative assets in Mauritania. However, ownership by the ministries in charge of environment and rural development is modest, principally due to the low level of cross-sectoral dialogue, misalignment of planning tools, and poor

local availability of human resources. In this respect, it seems that the notion of SLM requires more time to become a development practice.

- **Lesson 5: Technical solutions**. The bunds to prevent runoff are the most appreciated technique used to restore degraded lands, since they add value in the form of water that can be used to irrigate agricultural land. The added value provided by these thresholds in terms of increased agricultural production augurs well for the maintenance—or even the extension—of this type of activity among farmers in the watersheds. With respect to deferred grazing areas and water and soil conservation processes, the increase in biomass can be used on a large scale by structures with significant financial resources, including the activities of private livestock breeders or specific projects, to restore vast pastoral areas to profitable livestock breeding, which is an essential (even indispensable) sector in Mauritania.
- **Lesson 6: Intercommunity cooperation**. The watershed institutional space often brings together several communities, mayors, legislators, and other community partners as well as the prefecture. All activities require considerable discussion time (sometimes to the detriment of taking action within the frequently tight timeframe of the agricultural calendar).
- **Lesson 7: Project duration**. The project's five-year timeframe should have been longer for such a complex watershed management pilot, given the complications arising in discussions with potential partners in setting up financing and monitoring and evaluating results. This situation was made more difficult by political upheaval. As a result, significant difficulties were encountered in the domain of M&E. A longer timeframe would allow better evaluation of the activities conducted as part of the project, such as effects of thresholds at mid-term, production of ligneous vegetation, capacity building for ABVs in implementing local agreements, and water table monitoring.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Not applicable.

Annex 9. Illustrations of Project Activities

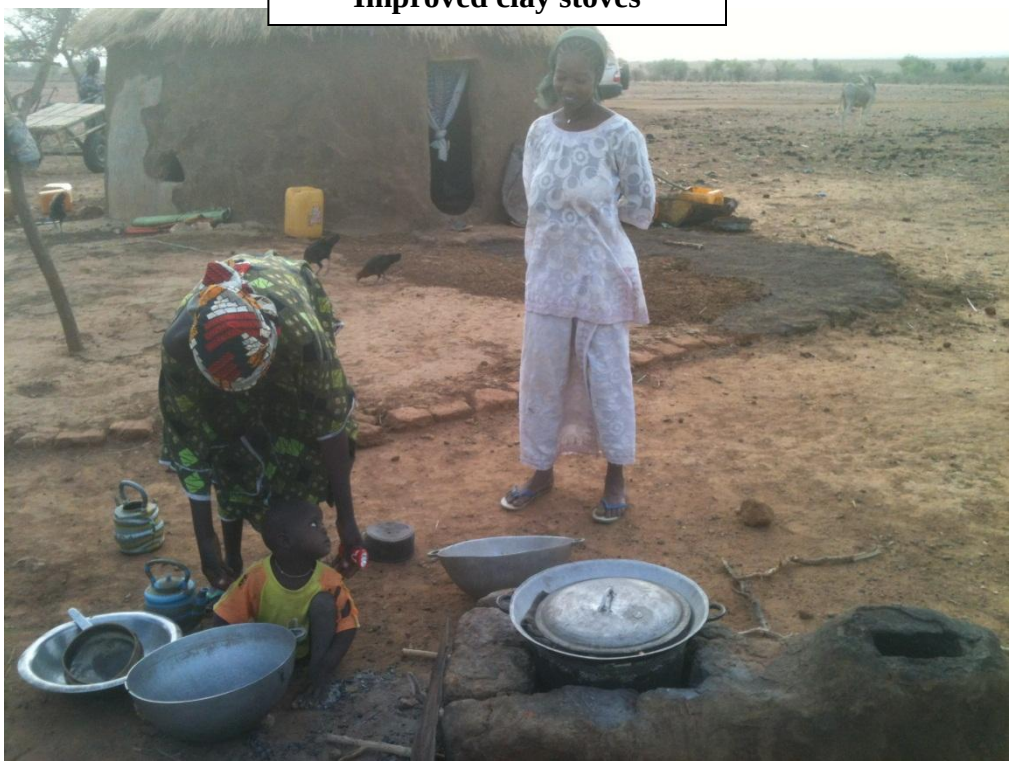
The ICR mission (July 8–12, 2013, visited two of the watersheds supported under the project: Beilougue and Greiguel. Photos taken during the mission document some of the works supported through the project.

Site de reboisement

Digue filtrante **(also used as passage during the rainy season)**

Meeting of an ABV

Improved clay stoves



Annex 10. Overall Environmental Benefits of Activities under the CBWM Project

1. As stated, the project achieved the GEO, "to limit land degradation and to safeguard critical ecosystem functions through community-driven sustainable land management (SLM) activities that improve agrosilvopastoral management and increase vegetation cover while securing livelihoods and global environmental benefits." It achieved targets for all three core indicators. ABVs now manage and maintain inter-communal SLM investments; about 64 percent (106 of 169) subprojects generate income for the beneficiaries; and based on the assessment of 13 trail sites where SLM practices were introduced, an increase in biomass of about 31 percent was observed. Most intermediate indicators were also achieved (see Table 1 in the main section of this report for details).

Activities Financed and Outcomes

2. Table 10.1 summarizes activities financed with the GEF funding.

Table 10.1: CBWM activities financed with GEF funding

Component	Activity	Outcome
A. Capacity building	• Development of the Watershed Management Plans • Establishment of Watershed Associations (ABVs) • Collaboration with national and local research institutions, extension services, and community associations • Review of policies, laws, and regulations • Exploration and identification of sustainable funding options	• 4 ABVs established. • 4 Watershed Management Plans developed. • Study tours to Burkina Faso, Nigeria, and Tunisia for selected project coordination staff, focusing on watershed management and on gaining a better understanding of the vision for watershed planning and management. • Training provided on a variety of themes, including water and soil conservation techniques, an Environmental and Social Management Plan (ESMP), vegetation type and index, soap making, making cereamine, improved cooking methods, and GIS. • Documents produced include management plans and local agreements, an environmental impact study, an evaluation of the socioeconomic impact of a subprojects, and an environmental management guide. Note that the management plans and the guide constitute an innovation in Mauritania.
B. Community investment funds	• Providing village communities with investment capital to finance activities related to conservation and natural resource management	The subprojects financed included, among others: • Water and soil conservation projects, including stone barriers,

	practices	filtering dikes, half-moons, bunds, earthen dikes, and deferred grazing. • Income-generating activities, including butane gas stores, fencing and farm inputs, improved stoves, and solar pumps. • Solar kits for lighting.
C. Project Management, Monitoring, and Evaluation	• Fund technical assistance to develop the Watershed Management Plans and associated M&E tools • Fund technical assistance associated with M&E • Recruit and fund additional personnel responsible for GEF activities	• International firm recruited to develop the Watershed Management Plans. • Central Coordination Unit reinforced with additional staff responsible for GEF activities. • M&E system developed. • Safeguard documents prepared for the baseline CBRD Project were updated for the CBWM Project. • An environmental and social guideline was developed for use in designing and implementing subprojects.

Total Project Financing

3. The actual total cost, of both CBRD and CBWM Projects, was US$ 58.9 million. With respect to the GEF financing, the actual disbursement was 94.4 percent. Table 10.2 shows total project financing (both for the baseline CBRD and the GEF CBWM Projects). As stated, counterpart funding was an issue for both projects. Table 10.2 shows that at the projects' closing, the counterpart funds received amounted to 87 percent for the CBRD Project and 27 percent for CBWM Project.

Table 10.2: Total project financing by source of financing

Source of financing		Amount at CEO endorsement	Amount at appraisal	Actual amount at project closing
IDA		45,000,000	45,000,000	44,800,000
GEF		-	6,000,001	5,664,000
Government of Mauritania	CBRD	5,700,000	5,070,000	4,400,000
	CBWM	-	600,000	160,000
Beneficiaries	CBRD	8,100,000	7,874,000	3,900,000
	CBWM	-	170,000	1,123,7788
Total		58,800,000	64,714,001	58,924,000

Overall Impact of the Project

4. The main environmental benefits of the CBWM Project consisted, among others, of the following:

- The creation of water and soil conservation devices (stone barriers, filtering dikes, half-moons, bunds, earthen dikes, and deferred grazing) allowed for the recovery of land stripped and degraded by wind erosion and water runoff.

- A tangible increase in biomass at the reforested sites resulted from the development and use of anti-erosion techniques, including water and soil conservation, soil protection and restoration, and fencing. According to the environmental impact study, "the average percentage increase in biomass at the combined sites is 31.26 percent, which shows that the initial target of the project's framework of 25 percent was met." The study also stated that "...the natural regeneration of treated and enclosed sites increased, with abundance of once-endangered species as a result of the increase in the herbaceous biomass in the deferred grazing areas and of anti-erosion measures.…" Wild fauna are now seen.
- The agricultural enclosures protected with metal fences constitute collective and non-tradable assets. They have ensured food security and are a tool for pre-emptive conflict management between livestock herders and farmers within the community. The watersheds where livestock herders and farmers were most often in conflict have not recorded any serious conflicts since the development project was set up. The enclosures and the building of bunds to prevent runoff have made it possible to recover and expand agricultural area and reduced agricultural itinerancy.
- The introduction of clay and metal stoves reduced the pressure on forest resources.
- Community subprojects are beginning to generate income through increased agricultural production, sales of straw to deferred grazing areas, and sales of butane gas.
- Yields increased, and farmers often obtained two harvests per year (Beylougué-Litama and Greiguel Watersheds), which reduced pressure on wood resources as part of the fight against poverty.
- The incidence of water-borne illness declined in Attawatiya, in the Greiguel Watershed.
- Rural exodus decreased. Now there are positive prospects for development in the affected areas.
- The involvement of the beneficiaries in the land use planning and implementation helped reinforce not only project approval but also the capacity to service and maintain the infrastructure. This in turn led to the implementation of efficient management systems in certain watershed areas.

Annex 11. Supporting Documents

1. Implementation Completion and Results Report (IDA-38830) of CBRD of June 28, 2012
2. Project Appraisal Documents for CBRD and CBWM of March 2004 and May 30, 2006 respectively
3. ISRs, World Bank
4. Mission aide-memoires, World Bank
5. *Rapport d'Achèvement, Projet d'Aménagement Communautaire des Bassins Versants*, Ministère du Développement Rural, Avril 2013
6. *Evaluation de l'Impact Socioéconomique des MPC du PACBV*, Sidi Aly Moulaye Zeine, Mars 2013
7. *Elaboration des Schémas d'Aménagement des Bassins Versants de Tengharado, Sayle, Greiguel et Beylougue*, Volume 1-5, IRAM/UCAD-conseil, Décembre 2011
8. *Audit environnemental du PACBV*, Amadou Diam Ba, Consultant, 17/03/2013
9. *Impact des MPC*, MDR-UCC, Février 2011
10. *Analyse économique et financière des microprojets générateurs de revenus du PDRC,* Rapport final, Limam Ould Abdawa, Consultant, Décembre 2010

Annex 12: CBWM Project Map