REPUBLIC OF SENEGAL

UNITED NATIONS DEVELOPMENT PROGRAMME

GLOBAL ENVIRONMENTAL FACILITY

Conservation of Biodiversity through Participatory Rehabilitation of Degraded Land in Arid and Semi-Arid Cross-Border Zones of Mauritania and Senegal

FINAL PROJECT EVALUATION

MISSION REPORT

Composition of the evaluation team

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LIST OF ABBREVIATIONS

PDARM	Agricultural Development Project in Matam Region (Projet de Développement agricole dans la Région de Matam)
APGEF	Assessment Project for Global Environment Facility Secretariat (Mission d'évaluation du Secrétariat du Fonds pour l'Environnement Mondial)
AWP	Annual Work Plan (Plan de Travail Annuel)
BL	Budget line (Ligne budgétaire)
CBR	Cross-border Biosphere Reserve (Réserve Transfrontière de la Biosphère)
CRDP	Community Resource Development Project (Projet de Développement des Ressources Communautaires)
AC	Community structure (from now on, Association/Cooperative) (Structure communautaire) (désormais association/coopérative)
CSE	Ecological Monitoring Centre for Natural Resource Management (Centre de Suivi Ecologique pour la gestion des ressources naturelles)
FAC	Field Audit Centre (Site de contrôle au Sol)
FEV	Final evaluation (Mission d'évaluation finale)
CILSSS-Italy	CILSS- Italy Fund for the fight against desertification to reduce poverty in the Sahel (Fonds Italie-CILSS de lutte contre la désertification pour la réduction de la pauvreté au Sahel)
GBU	Gaston Berger University, Saint-Louis (Université Gaston Berger, Saint – Louis)
GIS	Geographical Information System (Système d'information

	géographique)
GLC	Decentralized management of natural resources in Guidimakha and in the Hodh el Gharbi / GTZ (Gestion décentralisée des ressources naturelles au Guidimakha et dans le Hodh el Gharbi / GTZ)
GTZ	German technical cooperation (Coopération technique allemande)
IGA	Income Generating Activities (Activités Génératrices de Revenus)
IMMAC	Integrated Management Programme for Marine and Coastal Resources (Programme de Gestion Intégrée des Ressources marines et côtières)
ISNEPAD	Interim Secretariat for NEPAD's Environmental Component (Secrétariat Intérimaire du Volet Environnement du NEPAD)
IVC	Inter-Village committee (from now on, association/cooperative) (Comité inter villageois) (désormais association/coopérative)
LA	Local Authorities (Collectivités Locales)
LAC	Local Advisory Committee (Comité Local Consultatif)
MO	Mauritanian Ouguiya [currency] (Ouguiya Mauritanien)
MTR	Mid Term Review (Mission d'Evaluation à mi-parcours du projet)
NFP	Non Forestry Products (Produits forestiers non ligneux)
NGO	Non Governmental Organisation (Organisation Non Gouvernementale)
NPU	National Project Unit / Biodiversity (Unité Nationale du Projet / Biodiversité)
OMVS	Organisation for the Development of the Senegal River (Organisation pour la Mise en Valeur du Fleuve Sénégal)
Prodoc	Project Document (Document de projet)
PGIES	Integrated Ecosystem Management Project in Senegal (Projet de Gestion Intégrée des Ecosystèmes du Sénégal)
PSC	Project Steering Committee (Project Board of Directors) (Comité de Pilotage du Projet) (Directoire du Projet)
RAC	Regional Advisory Committee (Comité Régional Consultatif)
RC	Rural Council (Conseil Rural)
RCU	Regional Coordination Unit / Biodiversity (Unité de Coordination Régionale / Biodiversité)
SMF/GEF	Small and Medium sized Funds/Global Environment Facility (Petits et Moyens Fonds/Fonds pour l'Environnement Mondial)
SPBD	Support Project for Breeding Development (Projet d'Appui au Développement d'Elevage)
SPPR	Support Project for Poverty Reduction (Projet d'appui à la Réduction de la Pauvreté)
UNDP/GEF	United Nations Development Programme/Global Environment Facility (Programme des Nations Unies pour le Développement/ Fonds pour l'Environnement Mondial)
UNEP/GEF	United Nations Environment Programme/Global Environment Facility (Programme des Nations Unies pour l'Environnement/Fonds pour l'Environnement Mondial)
UNOPS	United Nations Office for Project Services (Bureau des Nations Unies des Services d'appui aux Projets)

EXECUTIVE SUMMARY

Project framework

The Project's objective is to develop and implement participatory and replicable systems of natural resource management and takes place in 16 sites representative of the four ecosystems common to Senegal and Mauritania. Initially, the main focus of the Project was to investigate the fundamental causes of biodiversity loss in selected ecosystems. The Project worked on improving rehabilitation techniques of terrestrial ecosystems, particularly those likely to generate income through the sound exploitation of natural resources.

Originally planned to be carried out over a five year period (2001 – 2005), the Project became operational in January 2001. In 2003 a re-design was carried out to correct the distortion between the Project document and its logical framework. This shift was completed through the revision of the logical framework and the readjustment of the Operations Plan, as well as by extending the duration of the Project until December 2008.

In 2007 a proposed strategy of consolidation / reproducibility of Project outcomes was developed by the project team. The team drew on the conclusions and recommendations of the study commissioned in July/August 2007, which involved the definition of an exit strategy for the Project based on effective management of the initiated activities by local communities.

Project Evaluation Themes

The Final Evaluation of the Project was anticipated to serve as a vehicle of change for UNDP and GEF programming as well as for Mauritania and Senegal, in regards to the improvement of their policies. The present exercise plays a vital role in strengthening accountability and institutional learning. The evaluation objectives encompass five themes:

1. Evaluating the relevance, performance and success of the Project in achieving its proposed objectives ;
2. Identifying the early signs of the potential impact(s) of and the sustainability of results, including their contribution to the capacity building of local beneficiary organizations and the achievement of global environmental objectives;
3. Identifying / documenting lessons learned and making recommendations to improve the design and implementation of other UNDP / GEF projects;
4. Increasing organizational learning by focusing on development work;
5. Allowing for informed decision making and improving the development and implementation of policies in host countries.

Findings

<u>Local populations' ownership of promoted techniques and practices</u>

A key achievement of the Project was to entrust the management of sites to community organizations, which was made possible by registering common property with formally recognized usufruct rights, thereby enabling local populations to carry out area range management. This institutional transformation has empowered beneficiaries not only because they have acquired management rights, but also due to the fact that potential economic gains are now possible.

To rehabilitate the ecosystems, the Project geared itself towards promoting a number of selected techniques. The following criteria were paramount in this process: (i) adapting the technique to the characteristics of the areas of intervention; (ii) ease of application of the technique in the field; (iii) ability to produce proven and positive effects; and (iv) ownership prospects for beneficiaries. This capacity development strategy was context-specific and created a favourable climate which allowed the new technical practices to flourish among the communities in the sites.

The current practice of arranging and implementing plans based on local rules is the main pillar supporting systems for the sustainable management of natural resources. Current practice shows that local populations can engage in negotiations on how to access resources and achieve compromises that are acceptable to all users. Problems do arise, however, when it comes to applying the decreed rules. Often, transhumant groups look for subterfuges to circumvent the rules or to evade the constraints arising from compliance with these rules. The challenge here is to develop an operational integration of these transhumant groups on the sites.

Issues in Institutional and Economic Sustainability

Field visits have revealed differences in terms of community organizations' perceptions concerning the sustainability of ongoing actions. There is a group of sites in which the Inter Village Associations and Cooperatives are working to install mechanisms to ensure the continuation of a number of activities without donor support. This was evinced by the regional workshop held in Nguigalakh (Rao district, Saint Louis; October 2009), when leaders of community structures appealed to the Mauritania and Senegal governments to find the funding needed to implement the consolidation of activities. In fact, in order to raise awareness amongst policy makers in both countries, leaders of Inter Village Associations and Cooperatives have requested official hearings with the Prime Minister of Senegal and the President of Mauritania.

In conclusion, there are concerns about the varying degrees of institutional and economic sustainability manifested by the different Cooperatives and Inter-Village Associations in the project zone. In the mission's opinion, the Cooperatives and IVAs have achieved institutional sustainability stemming from their legally recognized status, as well as their acquisition of the right to manage and exploit all of the resources within the sites. As in other cases in the developing world, whenever the owner-operator modality is introduced, it makes the play of economic incentives in the process of introducing new practices possible. This is because the potential benefits will accrue on the owner-operators, i.e. the Cooperatives and IVAs. These changes in tenure rights enable institutional sustainability, which is essential for sustainable human development. The communities, Cooperative and IVAs, have been empowered by this institutional transformation brought about by virtue of the Project.

Gains accomplished in institutional sustainability have been compromised by the incipient economic sustainability among Cooperatives and IVAs. Wittingly or unwittingly, the capacity transfer to exploit the economic potential of income generating activities was miscalculated. There was a sound strategy to exploit the value-added from the flora and fauna, natural resources and ecotourism. Yet all evidence points to shortfalls in the direction of knowledge transfer to exploit the economic potential of the proposed value-chain. This was due to an absence of functional capacities central to the exploitation of income generating activities. Project management consistently enabled knowledge transfer in order to rehabilitate

ecosystems. Yet they exhibited limited disposition to motivate the communities, Cooperatives and IVAs with information and expertise for the effective accomplishment of economic sustainability. Project management consistently engaged stakeholders, yet showed reluctance to implement and monitor policies and strategies for economic sustainability –despite the availability of resources for this purpose.

A framework that allowed for economic growth to take place in the context of the proposed value chain central to this process was pivotal. There must be [1] markets for products or services, [2] new techniques or methods for the way outputs are produced, [3] local availability of supplies and equipment, [4] adequate economic incentives, as reflected in remunerative price relationships, and [5] low-cost and efficient transportation (necessary because natural resource products are spread out all over the Project zone). The first three factors provide owner-operators with the opportunity to increase outputs or services for economic growth. The other two factors are linked to the perceived incentives of the owner-operator and the availability of infrastructure. The owner-operator will have to consider the margin between costs and returns, that is, his net income must increase if he is to provide his family with a rising level of living. This is where financial viability comes into play under the framework of economic growth. In fact, the proposed value-chains would have created the first spurt of economic growth, had they reached the high-value markets at the right time and price.

Current income generating activities conducted by IVAs and Cooperatives are geared primarily towards meeting the subsistence needs of the family unit. There is little or no market-oriented production planning, nor are markets and commercialization strategies considered. The value-chains, some of which command high-value prices in the market, were not exploited. In the absence of monitoring studies, it is rational to infer that [1] there is little value added being generated, so the potential for income growth is diminished; [2] from those figures available, it may be inferred that approximately only 6% of the targeted population in the Project zone has increased food availability for the family unit. Consequently, the economic viability of income generating activities needs strengthening so as to consolidate the accomplishments in institutional sustainability.

Monitoring and Evaluation Actions

Experience has established that if you do not measure results, you cannot tell success from failure. If you cannot recognize success, you cannot learn from it. If you cannot recognize failure, you cannot correct it. It is therefore difficult to overemphasize the importance of M&E, especially in a GEF project where it is fundamental to understand the structure and function of a social structure in evolution in the context of biodiversity issues and problems, so as to register modifications and learn from feedback.

Early supervision reports [June 2002] stressed the imperative need to conduct a baseline analysis. By 2009 the bio-physical monitoring was pending, as the analysis of carbon sequestration and greenhouse emissions remained unaccomplished—despite the fact that the database is complete. As for the socio economic monitoring, nothing of significance has been carried out. Project management informally indicated that these studies were costly. This is a dubious argument as there is national expertise and UNDP country offices have worked out reasonable fees for consultants. In the end, if the intention was to save resources—which were budgeted for these studies—it has been realized at too great a cost to be worthwhile. This is

because it is not possible [1] to quantitatively ascertain the Project's achievements, or [2] to ascertain the Project's contribution to the population's livelihoods, which is the overall purpose of sustainable human development; and, in turn, [3] ecosystem rehabilitation is only partially sustainable.

Lessons Learned

[L1] The paramount lesson learned is that the effort of rehabilitating ecosystems by local actors can only be conceived within a logic of strengthening their land rights, of constructing sustainable community organizations and of enhancing income. This approach requires working in the short-term to promote environmental rehabilitation initiatives supported by income generating activities to satisfy immediate livelihood needs and to strengthen mechanisms for ensuring the quality of the involvement of beneficiaries in decision making in the long-term.

[L2] The main achievements of the Project (i.e. to start up an organizational dynamic within the sites and to develop a mechanism to access credit organized within the framework of sound natural resource management based on the promotion of environmental rehabilitation) are rather time consuming and labour intensive because the process of engaging local stakeholders is participatory and of a voluntary nature. This fact is often misunderstood by central managers.

[L3] Community organizations that have achieved the greatest progress in terms of internal development are those that have drawn the maximum benefits from the support provided by the Project, or that have enjoyed an enabling environment (previous organizational skills, experience with a dynamic farming organization, experience with institutional collaboration with governmental decentralized technical departments and NGO stakeholders). The implementation of the strategy to strengthen Cooperatives and Inter-Village Associations was slower on sites that lacked organizational management frameworks before Project intervention or that possessed a limited tradition of cooperation between villages located on a single site. In the latter case, though the management organizations of the community were informed about the impending Project completion, they have yet to hold consultations on project phase-out prospects.

[L4] The rehabilitation of ecosystems has been one central task of Project management, therefore the skills and capacities available were primarily related to natural sciences. The strategy to exploit the value-added from the flora and fauna, and the processing of natural resources (including handicrafts and ecotourism) for income generating activities is sound. The knowledge needed to implement this strategy is related to the social sciences, in particular those disciplines associated with agricultural and rural development. All of the combined evidence indicates an absence of management capacity to bridge the natural and the social sciences in order to implement the strategy. Project management had to exercise leadership in learning to adapt to the changing needs not only of the environment but also of the society, i.e. income generating capacity.

[L5] The process of attaining overall ecosystem sustainability is complex. The effective application of rehabilitation techniques and practices are not sufficient on their own to ensure sustainability. It is necessary to sequence [1] changes in tenure rights to empower institutional sustainability—essential for sustainable human development; and [2] to enable an economic growth framework to induce economic sustainability. These necessary and sufficient

conditions should bring about overall sustainability for the ecosystem. In this process, capacity development plays a pivotal role. Management leadership must ensure the diffusion of knowledge and expertise at both levels: [1] techniques for rehabilitation and the maintenance of ecosystems; and [2] the sound exploitation of natural resources to enable sustainable livelihoods for the communities.

[L6] One implication of the ecosystem rehabilitation perspective is the clear interdependence between knowledge of the natural and social sciences as they relate to fostering sustainable livelihood systems—based on sound natural resource exploitation which is often linked with agricultural and rural development. The lesson learned from this Project is that management must generate knowledge and implementing capacity so that ecosystem rehabilitation becomes wholly sustainable. To this end, the capacity development approach requires a transformational leadership in management; that is, a leader capable of identifying the changes needed in mindsets and attitudes such that a vision is created to guide needed changes. This must be executed with the participation of the communities and the commitment of relevant stakeholders.

[L7] Greater efforts are required from UNOPS to become proactive within its own mandate, such that its enhanced performance can contribute positively to the sustainability of ecosystems. There are management issues among UNOPS, UNDP and Project management, which are intertwined with audit matters beyond the scope of an evaluation exercise. UNOPS and Project management have indicated their intention to review these matters within the context of an audit. This state of affairs has had a negative influence on the generation of development results.

Recommendations for the Governments of Senegal and Mauritania and donors

From an organizational perspective, it would be best to continue to work in order to consolidate two complementary directions: (i) strengthening the capacity building and institutional sustainability of community organizations so that they can fulfill their mission of strengthening and expanding the achievements of the project, and (ii) configuring a strategy to tackle technical and financial requirements to exploit the value-added from the flora and fauna and the processing of natural resources including handicrafts and ecotourism—so as to ensure the economic viability of income generation activities.

[R1] Consider the effective implementation of the 2008-2010Consolidation Strategy, whose lines of action have not yet been fully operationalized. Although funds were available to carry out this strategy, a flawed disbursement by the executing agency militated against its execution. In this context, operations should focus on:

1. the consolidation of mutual savings schemes through a confederation;
2. the revitalization of consultation frameworks developed at national and regional levels ; and
3. strengthening the institutional and financial capacity of community structures.
4. To this end, the Mission suggests developing an action plan for strengthening the capacity of IVA and Cooperatives so they can take economic advantage of the value-chains proposed by the Project. Insofar as the IVA and Cooperatives are at varying stages of evolution and are characterized by their unequal capability to implement their objectives, the type of institutional support must be decided based on the developmental levels of each of them, i.e. identifying strengths, potentials, constraints and needs perceived as priorities.

[R2] The Project has concentrated its efforts on ameliorating technical and management capacities. In future efforts, the intervention strategy should consider incorporating the improvement of the strategic and business capacities of the community organizations' leaders, i.e. to develop skills in the analysis of rural business opportunities including commercialization procedures, financial proposal and resource mobilization, proposal preparation for rural investment opportunities, and monitoring of activity execution.
These capacity strengthening activities should target four categories of actors: [1] leaders who perform functions at different levels of community organizations, [2] elected officials of local administrations, [3] vulnerable groups from the sites, [4] decentralized technical services tasked with scale-up and replication of the project achievements.

[R3] Consider preparing a project document to formulate a consolidating phase for the consideration of development partners at large. This exercise should be prospective in order to optimize the existing synergies between the initiatives of biodiversity conservation and those of climate change adaptation within the framework of the cross-border transhumance issue, a common concern for Mauritania and Senegal. Such an approach offers significant advantages, in that it allows:
(i) sustaining the effectiveness of ecosystem conservation activities that are likely to have beneficial effects on the climate change adaptation on the same or different scales ; and
(ii) Mobilizing financial resources by leveraging concerns related to climate change and biodiversity conservation. In addition to GEF and carbon credits, the source of funding must be diversified to take into account private and public [national and international] sources.
(iii) All monitoring studies should be completed at the earliest possible date, as it is not possible to ascertain with rigor the degree of progress in key outcomes associated with carbon sequestration and greenhouse gas emissions. This is even more so in terms of the socio-economic baseline information, as this information is essential in determining income improvements among the primary beneficiaries. In this connexion, CSE should continue analysing the dynamic growth of the ecosystem with the use of radar images. There may be images in the archives that are useful for understanding trends in bushfire frequency—this holds considerable pertinence for the analysis of greenhouse emissions.

Table 1: Performance Level of Outcomes

Level of outcomes/Niveau de résultat	**Évaluation 2009/10 (FEV)**
Objective: Replicable, participatory systems for the rehabilitation and sustainable management of degraded lands in the Senegal River transboundary area are developed and applied in view of preserving/con serving biological diversity and for diminishing climate change *Objectif :* *Des systèmes participatifs et transposables développés et appliqués pour la réhabilitation et la gestion durable des écosystèmes et des terres dégradées dans la zone transfrontalière du fleuve Sénégal en vue de la préservation / conservation de la diversité biologique et de la diminution des changements climatiques*	
Outcome 1: Biodiversity preservation is improved and carbon is more effectively sequestered because of the restoration of ecosystems and degraded lands through sustainable management	S

Résultat 1 *La préservation de la diversité biologique est améliorée et le piégeage de carbone est plus effectif grâce à la restauration des écosystèmes et des terres dégradées à travers leur gestion durable.*	
Outcome 2: Pressures on range and forest resources are reduced because of adoption of measures to increase supply and reduce demand. *Résultat 2* *La pression sur les ressources pastorales et forestières est réduite grâce à l'adoption de mesures pour augmenter l'offre et réduire la demande*	S
Outcome 3: Greenhouse gas emissions are reduced and ecosystems are conserved through control of bush fires. *Résultat 3:* *L'émission de gaz à effet de serre est réduite et les écosystèmes sont conservés par la lutte contre les feux de brousse.*	S
Outcome 4: Replicable community- based natural resource management systems generate alternative revenues for local populations *Résultat 4:* *Des systèmes reproductibles de gestion communautaires des ressources naturelles génèrent des revenus alternatifs pour les populations locales.*	S
Outcome 5: Local, national and regional capacities for sustainable management of natural resources / ecosystems are reinforced *Résultat 5:* *Les capacités locales, nationales et régionales sont renforcées en vue d'une gestion durable des des ressources naturelles/ écosystèmes.*	S
Overall evaluation assessment / Évaluation globale du projet	**S**

REPORT

1. INTRODUCTION

1.1 Project context and objectives

The project zone of the Senegal-Mauritania Biodiversity Project covers 60,000 square kilometers of the cross-border strip which forms the Senegal River Valley. The Project's direct beneficiaries are estimated to be the 80, 000 people residing in 248 rural villages located in Senegal and Mauritania (Table 2).

Table 2. List of Sites in Senegal and Mauritania
Source: www.projetbiodiversite.org

N°	Site name	Country	Number of villages	Area (ha)
1	Arr	MAU	10	14,056
2	Boghé	MAU	14	4,506
3	El khatt	MAU	13	14,847
4	Lexeiba2	MAU	15	26,609
5	Mbalal	MAU	14	11,215
6	Néré Walo (Djerbivol)	MAU	5	914
7	Ngouye (Gourel Bayo)	MAU	8	1,798
8	Widim	MAU	5	1,240
9	Aouré	SEN	19	45,264
10	Diarra	SEN	12	9,670
11	Gabou	SEN	38	34,380
12	Gandon	SEN	15	9,620
13	Lambago	SEN	7	43,900
14	Mbane (Mar)	SEN	23	35,938
15	Ndiael	SEN	32	46,523
16	Syer	SEN	18	27,876
	TOTAL		248	328,356

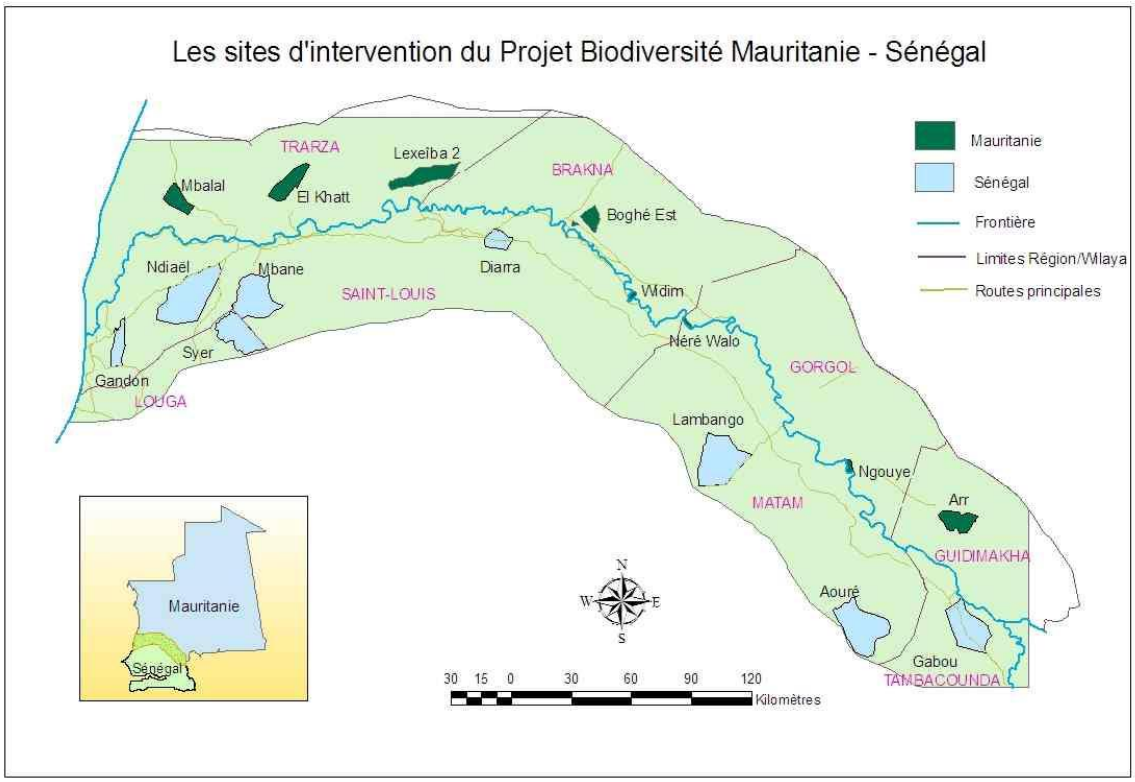

Figure 1. The Project Zone and Sites
Source: www.projetbiodiversite.org

The project, whose objective is to develop and implement participatory and reproducible systems of natural resource management, takes place in 16 sites representative of the four ecosystems (Fig. 1). Prior to its redesign, the Project's main focus was to ascertain the fundamental causes of the loss of biodiversity in selected ecosystems. Subsequently, the Project worked on refining rehabilitation techniques of natural ecosystems, particularly those likely to generate income through the exploitation of natural resources.

To achieve the overall objectives of the project, five outcomes were anticipated:

1. The biodiversity conservation is enhanced and carbon sequestration is more effective, due to the restoration of ecosystems and degraded land through sustainable management;
2. The pressure on pasture and forest resources is reduced through the adoption of policies that increase supply and reduce demand;
3. Greenhouse gas emissions are reduced and ecosystems are preserved through forest fire management ;
4. Reproducible systems for community management of natural resources generate alternative incomes for local people;
5. Local, national and regional capacities for the sustainable management of natural resources / ecosystems are strengthened.

To encourage the dynamics of land rehabilitation and degraded ecosystems of the river valley - which provides immediate benefits at a national level to both neighboring countries, and long-term benefits at the world level - the Project has given priority to native species and to natural regeneration. It has encouraged the implementation of two activities: (i) measures for the restoration, conservation and sustainable management of ecosystems and biodiversity; and (ii) measures for institutional strengthening, for focusing on developing cross-border cooperation, and for finding suitable collaborative and harmonized solutions to meet the common challenges of the valley.

The Project's implementation strategy is participatory and integrated and aims to ensure enhanced management of natural resources, while actively involving various relevant stakeholders at all stages (diagnosis, planning, implementation, monitoring and evaluation activities). This strategy builds on the policies of decentralization already underway in Mauritania and Senegal, which entrusts the management of natural resources to local communities.

Originally planned for a period of five years (2001 – 2005), the Project became operational in January 2001. A redesign was carried out in 2003 to correct the distortion between the Project document and its logical framework. This shift was completed through the review of the logical framework and the readjustment of the Operations Plan, as well as the extension of the Project to December 2008.

In 2007, a proposed Strategy for the Consolidation/Reproducibility of project outcomes was developed by the project team, who drew on the conclusions and recommendations of the study commissioned in July/August 2007, which involved the definition of an exit strategy for the Project based on the effective management of the initiated activities by local communities.

1.2 Evaluation Areas

The present Final Evaluation (FEV) should serve as a vehicle of change for UNDP and GEF programming, as well as for Mauritania and Senegal in regards to the improvement of their policies. This type of exercise plays a very important role in strengthening accountability and institutional learning. The terms of reference are in Annex 1.[1] The evaluation's objectives include five areas:

- Assess the relevance, performance and success of the Project in achieving its main objective ;
- Identify the early signs of the potential impact and sustainability of results, including the contribution to capacity building of local beneficiary organizations and achieving global environmental objectives ;
- Identify / document lessons learned and make recommendations to improve the design and implementation of other UNDP / GEF projects ;
- Increase organizational learning by focusing on development work ;
- Enable informed decisions in regards to the preparation and enhancement of the development and implementation of policies in host countries.

[1] This report was drafted originally in French. Only Annex 1 and 7 are in English. The remainders are in French.

As an integral part of the project cycle, the FEV analyzed the Project's achievements in comparison with its initial objectives. It took into account the effectiveness, efficiency, relevance, impact, and sustainability of the project. It also identified factors that facilitated or impeded the achievement of the project's objectives. The evaluation focused on performance issues, project design, strategy for operationalizing of activities, reporting, monitoring and evaluation, relationships with partners and the effective use of financial inputs.

In addition to measuring the progress made in implementing the Project, the FEV proposed a set of practical recommendations for the consolidation of project results by the governments of the countries involved and by key stakeholders. It has also drawn lessons learnt, with a view towards clarifying the definition of the future direction of biodiversity management strategies in the border areas of Mauritania and Senegal.

The main elements included in the scope of the evaluation are:

- An analysis of the project's contribution to global environmental objectives and to the achievement of its specific objective (contributions measured by indicators of outcomes / impacts and outputs / activities);
- Assessment of project achievements according to GEF criteria for reviewing projects[2] that focus on: (i) the approach of implementation, (ii) country ownership / motivation, (iii) participation of stakeholders, (iv) viability (v) methods of reproducibility, (vi) financial planning, (vii) cost-effectiveness, and (viii) monitoring and evaluation;
- Analysis of results and key lessons, including examples of good practice (technical, political, managerial, etc...) for future Projects in the country, region and the GEF. Lessons can cover the following aspects: (i) the strengthening of country ownership in biodiversity conservation; (ii) the commitment of local people and their institutions, of local, national and regional authorities and of other key partners to promote initiatives in biodiversity conservation , (iii) strengthening the participation of stakeholders in the diagnostic process, planning, implementation, monitoring and evaluation of activities, and (iv) the transfer of knowledge acquired through the Project for the sustainable management of natural resources;
- The definition of future prospects in terms of mechanisms for the sustainability of the initiatives developed.
- Analysis of the quality of ecological and socio-economic data outputs by the Project and the definition of a sustainable mechanism for the publication, use and protection of the integrity of the data;
- Assessment of mobilizing co- financing for the purpose of implementing the Project.
- Assessment of the degree of consideration of gender differences in project development and the implementation of its operations and in its management;
- Assessing the contribution of the activities of the Project towards the achievement of the MDGs, with particular emphasis on the areas of biodiversity, gender and poverty reduction.

1.3 Methodological approach

[2] Each final assessment must include ratings on the following two aspects: (i) viability and (ii) the results and achievement of the Project objective on environment and development. As an option, the assessors can provide ratings for three of the criteria included in the final assessment: (iii) the method of implementation, (ii) participation of stakeholders / public involvement, and (iii) monitoring and evaluation.

From a methodological standpoint, the mission has adopted three complementary approaches: (i) the use of documentation on the activities of the project (annual reports, reports of consultation missions, minutes of meetings of steering committees, etc.) (ii) holding working sessions between central government officials and donors in Dakar and Nouakchott, and (iii) conducting field investigations. . Annex 6 contains a detailed exposition of the evaluation's methodology and approach. The summary of field visits is in Annex 5. Project implementation issues are outlined in Annex 7.

To gather perceptions in the field from the population in regards to the Project's results, the mission intended to use the Most Significant Change (MSC) technique. The Project zone encompasses a population that speaks 3 national languages [Hassanya, Pulaar, Wolof], however not all mission members mastered all the 3 languages; therefore, the application of the MSC technique became problematic because it became necessary to prepare schedules in each language. As time was limited, it was decided that each consultant, in accordance with his language capabilities, and with the help of translators, would interview the population using the broad conceptual framework of MSC.

The stakeholders involved in the evaluation are the following:

- Local communities, including their organizations (associations, cooperatives etc..), as well as women's groups and nomadic herders;
- The Ministry of Environment (Mauritania);
- The Ministry of Environment and the Protection of Nature, Small Water Bodies and Artificial Lakes (Senegal);
- The Centre for Ecological Monitoring in Dakar, Senegal
- The Embassy of the Netherlands, Dakar ;
- GTZ in Nouakchott ;
- Service providers, including local NGOs involved in the implementation of the Project;
- Project Coordination Units (regional and national) ;
- The Regional Inspectorate of Water and Forests ;
- The UNOPS office in Dakar ;
- The UNDP Country Offices in Dakar Nouakchott ;
- The Regional Coordination Unit of the UNDP/GEF in Dakar ;
- The National Livestock Association (GNAP–Mauritania) ;
- The Livestock Centre, Saint–Louis.

The inspection sites were chosen in consultation with the project management and took into account the objectives of the evaluation, as reflected in 4 criteria: 1- ecological representative ness, 2- specificity of social and organizational characteristics, 3- ease of accessibility, as time was limited, and 4- sites with significant outcomes in process as well as those with limited results. In total, six sites (three sites in each country) were visited.

Discussions with villagers were supplemented by interviews with locally elected officials, representatives of the regional administration (sub-prefect in Senegal and Hakem in Mauritania), and senior officers of technical services and projects working in both countries, in order to understand their visions and to know their assessment of the results and impact of the Project, as well as prospects for sustainability of achievements.

2. PROJECT CONCEPTUAL FRAMEWORK AND CONTEXT

2.1 Characteristics of the intervention areas

Over the past forty years, the Senegal River basin, located in the dry tropical Sudano-Sahelian zone, has experienced significant degradation of its ecosystems, as has the whole of the Sudano-Sahelian strip of the African continent. These damages are the result of natural and anthropogenic factors as well as a significant and progressive decrease in rainfall, which has resulted in the river basin suffering from intense animal and human population pressures.

The region has a semi-arid, Sahelian climate with rainfall ranging between 300 mm per year in the south and 150 mm in the north. However, for the last forty years, there has been a gradual drift of isohyets south. As a result, the 100 mm isohyets have descended more than 100 km from north to south.

Following the construction of the Diama and Manantali dams, irrigation has intensified and hydro schemes have been expanded significantly into the river valley. However the development of these facilities has not always been accompanied by measures to mitigate the impacts of climate change. There is evidence that agricultural practices developed by the local populations do not incorporate techniques that allow for adaptation to these climatic changes. It has now become indispensable to take into account the impact of climate change and to move towards an adaptive management that promotes modifications in agricultural practices that enhance the adaptability of rural populations to climate risks and their impact on food security.

The current situation is characterized by a gradual and widespread degradation of soil and of ecosystems, which has resulted in a loss of biodiversity. The main factors causing this deterioration are:

- A persistent drought that has set in over the last thirty years, notably in the 1970s and 1980s;
- The indiscriminate use of land and forests, resulting from inappropriate land tenure regimes, crop systems unsuited to the current context, and indiscriminate felling for the purpose of supplying urban demand for charcoal;
- Frequent grassland and bushfires in sensitive ecosystems ;
- Major changes in the hydrological balance of the valley, following the deterioration of rainfall and the construction of dams;
- Major irrigation developments, with a lack of environmental protection ;
- Rapid population growth, about 3% per year ;
- Sedentarisation of nomadic populations.

The desire to meet the challenges inherent in this situation led officials of countries bordering the Senegal River to create an instrument for subregional cooperation in 1972, which aimed for better control of the river's waters: the Organization for the Development of the Senegal River (OMVS). This organization has promoted the regulation of river water by building dams. However, the constituent countries have failed to adopt and implement adequate measures to address continued land degradation and loss of biodiversity.

2.2 Origins of the initiative, formulation process and Project redesign

The project Conservation of Biodiversity Through Participatory Rehabilitation of Degraded Land in Arid and Semi-Arid Cross-Border Zones of Mauritania and Senegal is an early project that began when the Land Degradation window did not exist as a distinct funding window. Although the Project was slated to address land degradation issues, it was approved under the biodiversity window as it exhibited several elements related to conservation. This Project promotes the conservation of biodiversity worldwide in four key ecosystems in a highly sensitive semi-arid milieu which is intersected by the international waters of the Senegal River. It is therefore attempting to restore the equilibrium of ecosystems, focusing on the global conservation of biodiversity, by addressing the causes of land degradation.

The conclusions from the Consultative Group for Science and Technology (STAP) workshop in Dakar, Senegal in September 1996 constitute the initial framework for the proposed project. At this meeting, the panel highlighted the close relationship between land degradation, biodiversity, carbon sequestration and the protection of international waters. Later, in May 1997, the GEF Council adopted a document entitled "*Follow-up to the STAP workshop on land degradation*," which emphasizes the importance of these interrelationships.

Following the 1996 workshop, the Government of Senegal submitted a request to the GEF for assistance in formulating a program to fight land degradation in accordance with GEF objectives to promote the conservation of biodiversity, improved methods of carbon sequestration, and the protection of international waters. Given the cross-border nature of such action, the Mauritanian government proposed to join the project, which complements previous efforts that both governments have made in the fight against desertification and land degradation[3]. Thus, the Project has been designed to meet the concerns of both countries, while promoting the development of regional cooperation.

The Mauritanian and Senegalese governments, as well as the UNDP, are the implementing agencies. UNEP took the role of technical advisory agency. As was typical in the early days of the GEF, in particular for regional projects, UNOPS was assigned the role of executing agency. The Kingdom of the Netherlands and the Federal Republic of Germany mobilized the financing.

The implementation of activities is overseen by a board of directors, or the Project Steering Committee (PSC), which comprises government representatives from both countries as well as UNDP, UNEP, elected officials and civil society (NGOs, farmers and pastoralist). The PSC is tasked with defining the general guidelines for the Project and is advised by a Technical Advisory Committee (TAC) consisting of senior experts in the field of project operations.

The coordination of project activities is ensured by a Regional Coordination Unit (RCU) based in St. Louis. In each country, a National Project Unit (NUP) has been put in place, which is responsible for the implementation of operational activities. The NUP in Senegal is based in St. Louis and that of Mauritania in Rosso.

The operational activities of the Project are carried out by the beneficiary populations, who are grouped into Inter Village Associations (IVA) and Cooperatives. This is in line with the

[3] In Senegal, this concerns in particular the agricultural adjustment program, the program of action for the fight against desertification and the forestry action plan. In Mauritania, it is the multisectoral plan for the fight against desertification and the program of integrated development of irrigated agriculture.

decentralization policies adopted by the governments of both countries in recent years. Thus, the implementation of activities is supported mainly by local people and their organizational structures, with the support of technical services and, where necessary, service providers, in accordance with the principles of subsidiarity and complementarity.

Scheduled to last five years (2001-2005), the project became operational in January 2001. In June 2002, officials of the RCU found some inconsistencies in the Project design and proposed to remedy them. This proposal was the reason why the redesign was approved by the Steering Committee held in April 2003. This review helped to correct the situation by further integrating concerns related to the conservation of biodiversity in systems of natural resource management. The reformulation implied a revision of the Project's logical framework [4], as well as a redefinition of the impact indicators. The Project's Operation Plan was also revised in 2004 in order to take into account the extended duration of operations (extended until December 2008). This readjustment of the Operation Plan and the revised logical framework were approved by the Tripartite Review in March 2004. The Project reached its cruising speed between 2005-2008.

The recommendations of this meeting, as well as the Project Steering Committee's recommendations in April 2007 enabled the project team to define a Consolidation and Reproducibility Strategy and Long Term Prospects (2008-2010) . This strategy aimed at ensuring support for all relevant activities related to the sustainable management of natural resources and biodiversity conservation by local people organized into viable structures. The meetings of the Steering Committee and the Tripartite Project Review held on 14 and July 15, 2008 in Nouakchott (Mauritania) stressed the need to implement this consolidation strategy.

The Annual Work Plan 2008 (AWP) Project stems from the consolidation and reproduction strategy of achievements and takes into account the recommendations of the PSC and the Tripartite of July 2008. The AWP focuses on:

- Improving the process in terms of operationalizing organizational structures, and instituting capacity building in planning and management (i.e. the design and enforcement of natural resource management rules);
- The setting up of methods to assess the process;
- The assessment of the results of applied techniques ;
- Accumulating and documenting knowledge and experiences.

The institutional framework adopted takes into account the requirements of the cross-border activities that need to be undertaken. While each country has freedom of action in its own territory, it is important to have a "Federal" structure capable of ensuring the coordination of actions carried out on both banks of the Senegal River. This is all the more necessary because the decentralized administrative structures, legislative frameworks and regulations on the management of natural resources (forestry code and pastoral code, for example) are not quite identical in both countries.

2.3 Analysis of the Project organization and design

[3] The logical framework incorporates lessons learned from the first three years of operations and recommendations of assessment missions by the APGEF, as well as the mid-term Project review.

The Project is designed to meet urgent cross-border needs pertaining to rehabilitating an environment that is severely degraded due to acute droughts, desertification and the overexploitation of natural resources. The cross-border design of the Project is relevant in that in an environment marked by a morpho-climatic unit, soil and biodiversity degradation transcends human political (artificial) borders.

The first project document focuses on the need to identify the « root causes of losses related to biodiversity resulting from soil degradation in the five main ecosystems spanning 60,000 sqkm ». This objective is now directly related to a more comprehensive objective which is aimed at restoring the ecosystems. In fact, while it is essential to perfectly understand the situation for efficient action, such understanding alone cannot reverse the environmental degradation trend.

The logical framework of the first project document does not exactly match the developments in the text. In fact, the long-term objective (ecosystem restoration) is virtually similar to the (operational) short and medium-term objectives such as (i) developing participatory management methods, (ii) expanding reproducible participatory systems for the sustainable management of the ecosystems, (iii) reducing pressure on forest resources; and (iv) generating new sources of income. There was no linkage between poverty alleviation and ecosystem restoration, however.

To clarify this relative confusion which led to trials and errors in the first years of the project's implementation, the Mid Term Evaluation recommended that objectives be clarified by ranking goals and objectives by order of priority. In addition, the expected impacts have been better defined, with at least one indicator developed for each objective.

The new logical framework defines the objectively verifiable indicators. By improving the outlining of the goals it has refocused the project, with fewer sites and instead more areas that are larger and more representative of the various ecosystems in the project focus zone. The objectives set in the framework are relevant and meet the expectations of the people and decision-makers. The linkage between poverty alleviation and ecosystem restoration is clear and sound.

The intervention strategy is based on the "learning by doing" approach, which is appropriate and effective. The modus operandi of development projects for four decades has revealed the peoples' lack of interest is due to the fact that they were not empowered during the design and implementation processes. The Project has avoided this pitfall. Peoples' participation through cooperatives and inter-village associations, particularly their effective empowerment in the implementation of activities, has led to unprecedented growth in biodiversity conservation in the project zone.

The implementation strategy has even contributed to speeding up the process of adopting decrees enforcing the Mauritanian Forest Code, which confers more natural resource management responsibilities on local communities. The training of local populations by the technical services should ensure the quality of activities carried out as part of the ecosystem restoration.

On another level, collaboration and synergies were developed with other ongoing projects, i.e. in the domain of ecosystem rehabilitation with the Integrated Management in Four Ecosystems Project (PGIES); for charcoal making and the use of *Typha angustifolia* with

PERACOD/GTZ in collaboration with the Mauritania and Senegal (PREDAS); Small projects of the Mauritania-Senegal chapter of the Global Environment Facility (GEF) to develop income-generating activities on the Project sites; the OMVS Environment Observatory; the Delta Cross-border Biosphere Reserve and ICRAF-Sahel.

The sites were selected based on the following criteria:

a) The ecosystems must be representative;
b) The species must be varied and comprise rare or endangered species;
c) The area to be protected must be rather large;
d) There must be good potential to develop income-generating activities based on the sustainable management of natural resources exploitation;
e) The community must have cohesion and willingness to get involved in the ecosystem rehabilitation actions;
f) The site must be accessible.

The 16 selected sites (eight per country) are sufficiently representative of the ecosystems in the intervention areas. Sylvo-pastoral systems are predominant on all sites. However, the river basin is also targeted and comprises a flood-prone area with severely degraded ecosystems.

One of the major concerns of the two governments, together with farmers and pastoralist in the river valley, is linked to transhumance, which is the main source of inter- and intra-community conflicts. Accordingly, the goal of prioritizing cross-border rehabilitation and the management of pastoral ecosystems is in line with the priorities and expectations of government authorities.

Performance Criteria		**Mark**
Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".	
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.	**S**
Marginally Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.	
Marginally Unsatisfactory (MU)	Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.	
Unsatisfactory (U)	Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.	
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.	

3. IMPLEMENTATION STRATEGY

3.1 Characteristics of the implementation strategy

The strategy developed to implement the project is based on the active participation of the various stakeholders in each stage of the design, implementation, monitoring and evaluation.[5] This option for a participatory approach is clearly mentioned in the Prodoc, which insists on the fact that « the implementation shall be essentially conducted by rural populations and NGOs, with the support of government officers and technicians. A participatory monitoring-evaluation system shall be set up to ensure the effective participation of local communities and NGOs, as well as their involvement in the decision-making process ».

Negotiation and consensus-building are crucial in natural resource management. The Project has built ties with local communities with the purpose to create and/or strengthen organizational structures capable of taking care of and ensuring the social viability of ecosystem rehabilitation through a participatory approach. It has also emphasized participatory and inclusive planning approaches that help reflect the needs of all social groups. The introduction of participatory mechanisms set up through organizational structures have helped ensure the effective participation of women in the decision-making process on certain sites, as well as their access to the economic benefits stemming from the improved management of resources.

3.2 Structure of the implementation strategy

One key element of the Project's implementation strategy is the "learning by doing" approach, which means resorting to skilled nearby operators (decentralized technical services and service providers). This option has enable the empowerment of the experience and expertise of these institutions and actors in various sectors related to: (i) preparing action plans and local rules governing land use and management; (ii) preparing action plans to promote income-generating activities based on the rational exploitation of natural resources; (iii) organizing participatory control and evaluation systems to assess the impact of the operations carried out. This capacity development strategy was context-specific and created a favourable climate which allowed the new technical practices to flourish among the communities in the sites.[6]

As a way of ensuring the operationalization of activities, the Project has adopted a flexible approach for continuous feedback with the purpose of drawing lessons learnt. In this context, all 23 recommendations made by the mid-term review mission have been implemented. The Project has also acted upon the conclusions and recommendations generated by the ordinary meetings of the Project tripartite review and CPP.

As mentioned in the previous chapter, the discrepancy noted between the project document and its logical framework led to the project being redesigned in April 2003, based on the review of the initial logical framework. Hence, two major events have marked the Project's evolution: (i) the 2003 reformulation of the project after a first phase of trials and errors; (ii) the preparation of a strategy to consolidate the 2008-2010 achievements.

[5] Appendix 8 contains a detailed analysis of the Project implementation.

[6] The capacity development concepts used throughout this report are based on: UNDP. Capacity development: a UNDP premier. Bureau for development policy. New York, 2009, 62 pages

3.3 Project Execution Issues

One key concern of the MTR exercise was to enhance efficiency of the procurement procedures of goods and services. Nearly half of the MTR recommendations were oriented towards modifying administrative and project management procedures. Though most recommendations have been implemented, delays in the disbursement of funds have not improved. This constitutes a crucial challenge for UNOPS as the executing agency.

In 2003, in order to facilitate the monitoring of accounts and enable proper operation at the local level, a system of Imprest Account was put in place. Three accounts were opened with a fund level of US$ 50, 000 for each national unit and US$ 15, 000 for each regional coordination unit. Payments could be made by check (with a countersignature) or by physical presentation at the cash for any amount less than US$50. This procedure appeared to have worked from 2003 to 2008.

At the beginning of 2009, the Imprest Accounts as well as bank accounts were closed. No specific explanation was apparently provided. The Availability System was ushered. It never became operational because it was unsuitable to the bi-national and decentralized characteristic of the Project. In October 2009, it was proposed that a petty cash system of US$ 2, 000 be created with a limit of any individual expenditure that should not exceed US$ 100 for UCR and UNEP/SEN. For disbursement greater than US$ 100, it had to be sent to UNOPS/Dakar. Thus, the disbursement procedure regressed to the conditions before the establishment of the Imprest Account. It is not surprising that these procedures have slowed down project implementation. The negative impact is illustrated by the fact that activity execution stopped during the period January – June 2009. In this manner, disbursement procedures have become a moderately serious challenge for UNOPS.

Evaluators ordinarily do not delve into the administration and financial matters. This is the domain of auditors. Audit examines, assesses and reports the extent to which financial and general administrative management conforms to predetermined standards.[7] However, if disbursement procedures clearly influence the generation of development results, as is the current case, then a FEV can raise concerns accordingly.

In this context, there are issues raised by UNDP concerning the performance of UNOPS. Although these issues are of administrative nature, they have interfered in the generation of development results.

1- It is alleged that UNOPS intervention in institutional arrangements have led to the removal of expert posts. Supposedly there were agreements already concluded to hire experts for the UCR. These contracts were made using the criteria of UNDP/Dakar as these posts corresponded to national experts. UNOPS did not honour this agreement neither the commission rates involved. As rebuttal UNOPS has indicated to the mission that the UNOPS management will deal with these matters directly with an auditor rather than in the present context.

2- It is alleged that UNOPS failed to organize the Annual Tripartite meeting in 2009. These meetings are essential to document the performance of project. UNOPS claims that efforts

[7] United Nations, Joint Inspection Unit (JIU), Glossary of Evaluation Terms (JIU/REP/78/5). Cited in: UNDP 1997, op cit, Ch 3.

were made to organize the Tripartite Review in December 2009. But most of the relevant national authorities were engaged to participate in the Copenhagen meeting. And at their return the year-end holidays became a problem. This is why it was decided to be postponed for 2010.

3- It is alleged that in 2009, UNOPS had undue difficulties to estimate the balance of the total account. For this reason, GEF approval for the use of funds arrived on April 20009. As consequence, project management had to modify the contracts of all staff. When arrangement began for preparing the FEV, it was with the understanding that there would be another balance of the total account for 2009. In fact, from January to June 2009 the Project did not carry out any activity for lack of funds, thus precious time was lost.

Due to these aforementioned issues, it was also decided to postpone the Project's audit until after the signature of the agreement for extension in 2010.

The mission did not have access to direct evidence on any of these matters. It must also be stated that these matters did not constitute the core of the mission's activities, as the evaluation areas focused on the assessment of development results [cf. section 1.2]. In the mission's opinion, these issues merit an audit review from the management and the financial standpoints.

The mission met with the UNOPS regional manager and expressed its concerns about the project budget's flawed disbursement. It was underscored that this state of affairs was negatively affecting the achievement of development results. The mission urged UNOPS senior management to seek technical and administrative options to address this issue. There are divisions within UNOPS that run natural resource management projects smoothly. The regional manager indicated that this matter was of priority.

The lesson learned here is that greater efforts are required from UNOPS to become proactive within its own mandate such that its enhanced performance can contribute positively to the sustainability of ecosystems. There are management issues among UNOPS, UNDP and Project management, which are intertwined with audit matters beyond the scope of an evaluation exercise. UNOPS and Project management have indicated their intention to review these matters within the context of an audit. This state of affairs has had a negative influence on the generation of development results.

UNEP has provided technical supervision from 2002 to 2008. Due to UNEP's internal decision, it disengaged itself from its role as of December 2008. Though incomplete, it has provided the mission with a set of supervision reports. These reports contain information on capacity development issues, among others—which are relevant with respect to the Project's sustainability issues.[8] Each of these brief supervision reports, some based on site visits, were widely circulated among all stakeholders.

In the context of the evaluation themes, the early supervision reports [2002 - 2005] summarize prevailing issues. Several key findings have emerged.

[8] United Nations Environmental Programme (UNEP). Mission Report. RAF/98/G31 Biological diversity conservation through participatory rehabilitation of the degraded lands of the arid and semi-arid transboundary areas of Mauritania and Senegal. Reports dated on : 15/06/02 to 28/06/02; 12/02/05 to 19/02/05; 12/11/05 to 20/11/05; 21/02/06 to 27/02/06; 25/06/06 to 03/07/06; 14/04/07 to 29/04/07. They are henceforth referred as UNEP Supervision reports.

1- The impressive level of local community participation in selected sites is clearly registered—as well as the necessity to show greater concern for women's needs.
2- The imperative need to launch work on establishing [a] biophysical baseline information and [b] alternative income generating activities with particular reference to the use of traditional knowledge in the integration of livestock-agricultural production and non forest products (gum Arabica, fruits and medicinal plants) has been underscored.
3- There is a need to strengthen the technical repertoire of RCU and NPU in order to deliver the technical knowledge required to ensure the sustainability of ecosystem restoration. The importance of developing a long term strategic vision identifying problems and prospects is adequately underlined.
4- What has also emerged from the supervision reports is the pivotal role played by UNEP in the redesign of the Project and outlining the long term strategy.
5- Last but not least, the supervision reports consistently point out the necessity of implementing the recommendations from technical reports, rather than continuing to commission reports.

In brief, these are key findings from UNEP's technical supervision. These and other findings will be discussed as they arise in the remainder of the report.

Regarding the financial situation of the project [Table 3], most available resources have already been used. As of November 2009, there is a balance of about 353 000 US$ in the project account.

Table 3. Co-Financing

Co-financing	GEF [$US]		Government of Mauritania [$US]		Government of Sénégal [$US]		Autres (Holland & GTZ) [$US]		Total Financing [$US]		Total Disbursement [$US]	
	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
Grant	8 390 360	803 7360	1 090 000	1 090 000	1 090 000	1 090 000	1 650 165	1 650 165	12 220 525	12 220 525	12 220 525	11 867 516
Credits												
Loans												
Equity												
In-kind												
Other types												
Total	8 390 360	803 736	1 090 000	1 090 000	1 090 000	1 090 000	1 650 165	1 650 165	12 220 525	12 220 525	12 220 525	11 867 516

Source: UNDP/Atlas, November 2009. The information made available did not indicate if UNOP's fees have been deducted.

3.4 The ecosystem conservation model

To ensure the sustainability framework of the activities initiated, the Project has identified a number of challenges that need to be met at various levels:

- Social sustainability and improved environmental governance;
- Technological sustainability based on the promotion of simple, reproducible and accessible techniques and technologies;
- To increase functional linkages between ecological and economic sustainability;
- Institutional sustainability;
- Political sustainability (strengthening friendship and cooperation between the two countries involved with the project).

The document on Implementing the Consolidation Strategy to Strengthen the Cooperation between Mauritania and Senegal initiated by the Project highlights the need to build on the following innovative aspects:

- Sustainable management as a strategy for biodiversity conservation;
- The forest management of the Sahelian species with a harvesting system based on the regeneration of the species' communities.
- The implementation of the participatory approach;
- The use of techniques within the local communities capabilities;
- The definition and distribution of roles between government agencies, civil society and communities;
- The management of pastures through herd management.

To consolidate achievements and establish the conditions for their sustainability, the Project has opted to focus its efforts during 2008–2010 on four intervention areas which can foster significant developments in the dynamics of the ownership of outcomes by the rural populations and their partners (state bodies, local governments, service providers, etc.). These areas are as follows:

- Refining procedures to secure planning and management structures (i.e. the application of rules and regulations for the management of natural resources.) ;
- Implementing mechanisms to evaluate the procedures applied in the field;
- Evaluating the outcomes from technical tests;
- Accumulating and documenting experiences.

It is worth noting that the above Strategy to Consolidate the Project's achievements has been made operational only partially, due to the delayed disbursement and the change of disbursement procedures to finance Project activities (see section 3.3). This situation has slowed down the performance of the Project in terms of results ownership and the perspective of sustainability. In addition to this challenge, the analysis of the Project's implementation strategy reveals the need to make a number of readjustments by:

- Strengthening the synergy with existing natural resource management projects and programs in both countries, particularly with OMVS, which is the sub-regional cooperation instrument in charge of the Senegal River Basin. This organization could even diffuse the Project's experiences to the other member states. In fact,

strengthening this synergy would enable the other projects and programs to consider and improve Project achievements;

- Enhancing the information system for communities, local authorities, as well as national and international decision- and policy-makers to ensure an adequate reproducibility of the experience.

Performance Criteria		**Mark**
Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".	
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.	**S**
Marginally Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.	
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Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.	

4. PROJECT OUTCOMES

4.1 Objectives and expected outcomes

The overall objective of the Project as defined in the logical framework reviewed in March 2004 is to contribute to enhanced biodiversity conservation through the rehabilitation and management of degraded soils and ecosystems along the Senegal River valley, as well as increased carbon sequestration. This overall goal is pursued through a specific objective designed to develop and implement participatory and adaptable systems for the rehabilitation and sustainable management of ecosystems and degraded soils on the cross-border area along the Senegal River, with the long term goal of conserving biodiversity and mitigating climate change.

To launch the dynamic process of rehabilitating degraded soils and ecosystems in the Senegal River valley, the Project stresses the regeneration of vegetation by prioritizing local species and natural regeneration. Under this notion, the Project seeks to promote two types of activities:

- Measures to foster the regeneration, conservation and sustainable management of biodiversity ecosystems;
- Measures of institutional strengthening aimed at supporting the development of cross-border cooperation with a view of finding appropriate and concerted solutions to the shared challenges of the Senegal River valley.

The results needed to reach the Project's goal center on five strategic principles:

1) The conservation of the biodiversity is enhanced and carbon is more efficiently sequestrated;
2) Pressure on pastoral and forestry resources is reduced;
3) Greenhouse gas emissions are reduced and ecosystems are protected owing to the management of forest fires ;
4) Alternative incomes are generated through replicable management systems;
5) Stakeholders capabilities are strengthened at all levels. .

4.2 Analysis of Project outcomes

4.2.1 Description of the physical and institutional achievements within the context of the objectives

The five-year project (2001-2005) began in January 2001. During the first three years, the inconsistencies between the project document and its logical framework delayed the implementation of certain activities. These years were essentially dedicated to supporting initiatives that aimed at recovering degraded soils through reforestation and conservation works. In this context, the Project was operating on 80 sites spanning a total of 2,500 hectares[9]. As early as June 2002, the Project managers noted that the discrepancy between the project document and its logical framework was leading [1] to prioritizing soil degradation as an entry point; and [2] focusing on smaller sites (between 20 and 50 ha). This was a short-term approach could not lead to impact throughout the Senegal River valley.

The reformulation of objectives helped to redress this situation by integrating concerns about biodiversity conservation into natural resource management systems. It allowed not only for the design of impact indicators, but also for the reconsideration of the size of the project area. [10] Thus the number of sites selected by the Project was reduced to eight per country and the area of each site was considerably extended (between 1,000 and 45,000 ha per site). Field activities were vigorously launched as of 2004, with key results, accomplished during the 2004-2008 period, centering on:

- The organizational development of community-based infrastructure in charge of natural resource management;
- Developing and implementing pilot systems to manage forest areas, pastures and wetlands;
- Reducing pressure on natural resources (banning charcoal production, unregulated felling, and uncontrolled clearing, etc.);
- Controlling bushfires and cutting down greenhouse gas emission;
- Developing community-based systems to manage natural resources, capable of

[9] Projet Biodiversité Mauritanie–Sénégal. Présentation du Projet, octobre 2005.
[10] The Project Operational Plan was revised to extend the intervention timeframe to December 2008.

generating alternative incomes;

- Strengthening local, national and sub-regional capacities for natural resource management capacities.

4.2.2 Analysis of the relevance, efficiency and results from each type of action (technical and environmental results, identification of innovations)

4.2.2.1 Action 1: Supporting the organization of beneficiaries and the strengthening of organizational structures

The Project has strengthen its assistance to the beneficiaries by supporting the organization of communities situated around the sites so it can provide training opportunities and appropriate technical support/advice necessary for the communities to take on the ownership of infrastructure achievements and income-generating activities. This approach was aimed so as to take into account several demands related to:

- The need to ensure a real involvement of beneficiaries in the selection and operational implementation of the activities so that they can gradually take over management ;
- The need to strengthen the institutional and financial viability of cooperatives and Inter-Village Associations in order to prepare for project phase-out;
- The need to build the capacities of organizational structures so they can represent the interests of communities and provide these communities with quality services.

Currently, each Project site has an organizational structure federating all neighboring villages. In some cases, the structure has taken over from and revived previous organizations (e.g. the Diarra and Ndiael sites). In other cases, the Project has supported the creation of new structures because there was no organizational framework in existence on the sites under consideration.

The concern with an equal representation of the various villages around the site has been taken into account in the process of creating governing and decision-making organizations for Cooperatives and Inter-Village Associations. Regarding gender issues, the Mission has noted that efforts have been undertaken by all the community organizations to ensure that women are represented in governing organizations and credit committees. It is worth stressing, however, that the level of gender consideration varies from one area to another. Certain sites have adopted gender parity in credit committees while others have opted for a symbolic representation (one woman out of five credit committee officers)[11].

All the functioning organizations are legally recognized and manage the Project works on clearly demarcated sites[12]. All the sites are being managed based on concession agreements. In other words, community organizations hold the rights to manage the existing sites and the resources within them (usufruct and exploitation rights of resources on behalf of third parties).

The actions carried out by Cooperatives and Inter-Village Associations center on:

• Preparing management plans for the sites, with the support of the Project;
• Preparing annual work plans;

[11] This is the Boghe site where women are also lowly represented in the Cooperative board (3 out 14 positions).
[12] The sites were delineated using land markers, placards and tree paintings.

• Defining local rules for natural resource management;
• Mobilizing populations for the implementation of the planned activities;
• Mobilizing internal financial resources (membership fees, dues and taxes levied on natural resource exploitation);
• Negotiating partnerships to support the execution of activities on sites.

Field visits have revealed that cooperatives and Inter-Village Associations have reached different levels of maturity with uneven capacities to take charge of their members' concerns. Therefore, the types of forthcoming institutional support must be framed in the context of the maturity level of each association and cooperative (identifying strengths, opportunities, weaknesses and priority needs).

The community organizations that have achieved the greatest progress in terms of internal development are those that have drawn the maximum benefits from the support provided by the Project, or that have enjoyed an enabling environment (previous organizational skills, experience with a dynamic farming organization, experience with institutional collaboration with governmental decentralized technical departments and NGO stakeholders). The implementation of the strategy to strengthen Cooperatives and Inter-Village Associations was slower on sites that lacked organizational management frameworks before Project intervention or that possessed a limited tradition of cooperation between villages located on a single site. In the latter case, though the management organizations of the community were informed about the impending Project completion, they have yet to hold consultations on project phase-out prospects.

There are concerns about the varying degrees of institutional and financial viability manifested by Cooperatives and Inter-Village Associations. Despite their possession of a legally recognized status and their acquisition of rights to manage and exploit the resources within the sites, they need to boldly face several challenges to reach economic sustainability. Some of these issues are intertwined, and they are as follows.

• Improving organizational capacities associated with community-based organizations so that they can promote themselves and create conditions needed for their economic sustainability. Cooperatives and IVAs should jointly discuss ways to improve the operation of their statutory organizations, i.e. by holding meetings, monitoring the implementation of recommendations, and using reporting mechanisms. Ultimately, it is vital to find ways to strengthen their capacity to generate financial resources, either in the form of savings or capital investments;
• Acquiring skills and resources to pursue the actions proposed by the Project after project phase-out. Alphabetization and numeracy are especially critical, in particular for women;
• Strengthening cooperative and Inter-Village capacities to plan their activities and negotiate partnerships with specific segments of the global market.

4.2.2.2 Action 2: Rehabilitation of the ecosystems

The Senegal River Valley, which is the centre of major economic, social and environmental stakes, experienced - in recent decades - major ecological disruptions, whose effects were often worsened by inappropriate farming practices. These changes have accelerated environmental degradation, which leads to (i) degraded vegetation cover (sparse and poorly ligneous growth), (ii) reduction of forests and grazing areas, (iii) increased soil salinity and deterioration of soils by nutrient loss, and (iv) vanishing or fragile habitat to support avian and

terrestrial fauna.

To contribute to redressing these negative trends, the Project has structured its actions of restoring the ecosystems around two themes: (i) the management of forest reserves; and (ii) the community based management of grass lands.
On every site, the communities have worked out simple management plans with the assistance of the Project and the relevant technical services. This document is fundamentally a land development plan prepared with the support of consultants or specialized organizations.

The land management plan aims to assist communities foster a participatory and sustainable management approach towards forest reserves and pastoral areas located on their sites. This plan is based on identifying key features within specific zones (wetlands, depressions, tabular zones, etc.). Subsequently, the communities agree on the priorities related to rehabilitation and conservation operations planned for each zone based on the potentials and constraints identified. [13] The identification of priority actions facilitates planning activities for implementation while specifying responsible actors and the resources to be mobilised.

The contract agreement and implementation management plan establishes a system of joint management of the forest reserves between Inter-Village Associations and Cooperatives, the technical service and rural communities (in the specific case of Senegal). For example, on the Mbane (Senegal) site, the rural community and the forest department are committed to providing technical and financial support for the implementation of the land management plan[14]. In turn, the Inter-Village Association has agreed to share the benefits from the management of the site with these institutions, in line with an agreed upon distribution.

The land management development plan is a complex document intended not only to enhance the management of the site inventory, but also to accurately define the intervention prospects and their possible impact. It contains several key elements:

• Inventorying of existing natural resources;
• Analysing the causes of degradation and threats;
• Identifying the evolutionary trends in natural resource management systems.
• Defining the objectives of the land management development plan;
• Specifying the activities and implementation approach;
• Identifying the supporting measures;
• Stating the implementation procedures.

The main activities carried out within the framework of the participatory and sustainable management of forest reserves are:

• Direct seeding in ploughed soil to increase the density of the vegetation cover and facilitate the regeneration of local species;
• Improved natural regeneration, which aims to increase the density of the ligneous population, through the use of measures of bushfire control;

[12] The management plan is a working tool that lists the work to be carried out on site, details its nature and sets a timetable for implementation, with emphasis on the evaluation of areas to be treated and their location.

[14] The stakeholders have committed to consider the management plan as a landmark framework for the working out of annual operational action plans and micro–projects to be presented to potential partners.

• Opening fire-breaks to protect the vegetation cover and to minimize the economic loss of forest and pastoral resources that could be destroyed by fire;
• Enforcing local management rules (similar to what is known in other areas as "local arrangements").

From the mission's standpoint, the enforcement of local management rules for natural resource management is a cardinal innovation introduced by the Project. It is worth stressing that in a context of the cohabitation of different groups competing for access and control of shared natural resources, the potential of conflicts increases to the extent that traditional regulatory mechanisms are weak.

The local rules intend to provide a sound exploitation of wildlife resources on the sites, and have been developed by the Inter-Villages Associations and Cooperatives. These rules complete and strengthen the regulations in force (Forest Code, Hunting Code, Environment Code, Fishing code, etc.). Project managers and the communities that have drawn up these rules in order to meet three main goals:

1) Establishing a regulatory tool to define the conditions for accessing natural resources and the mechanisms for ensuring the enforcement of the enacted rules;
2) Functioning as a participatory learning framework jointly designed by actors with varying interests (farmers, pastoralist, transhumant herders, forest operators, etc.).
3) Useful tool for the operational implementation of the management plan whose ultimate purpose is to ensure the sustainable management of natural resources.

Beyond the specific features of the sites, the local rules are underpinned by basic common principles that state the various elements related to natural resource exploitation, namely: (i) the rights of the Inter-Village Associations and Cooperatives; (ii) its duties, and (iii) the penalties in the case of contravention. These principles emphasize the following measures:

• Priority rights for the access to natural resources are given to the village committees' members who can thereby carry out income generating activities (collecting dead wood, straw, wild fruits and other non forest products);
• Usufruct rights on the exploitation of natural resources (mainly pasture and water resources) are given to the village committees' members residing within the site borders. These rights are extended to other village's inhabitants and transhumants.

The users on the sites shall comply with the provisions stated in the local rules and management plans, particularly those pertaining to the banning of the following:

• Camping on the site with herds;
• Undertaking charcoal production;
• Drilling wells;
• Hunting;

Given the regional demographic pressure, i.e. 3% growth per year, these measures are stop-gaps. To meet the demographic pressure it will be necessary to develop livelihood opportunities with a significant value added component, as discussed in section 4.2.2.1.

To support the actions related to ecosystem protection and rehabilitation, the Project has granted subsidies to the various sites. These grants are based on an assessment of the

resources necessary to carry out the work according to the Inter Village Association's and Cooperatives' action plans approved by the Project. The mission interviewed direct beneficiaries concerning the most common expenditures in the process of the implementation of environment regeneration. These are: [1] the building of fire-breaks, and [2] the purchase of ligneous seeds.

Table 4: Estimated Rehabilitation Costs of the Diarra and Boghe sites[15] (in U.S. $)[16]

Sites	1st year	2nd year	3rd year	4th year
Diarra	15 801 (2002)	24 830 (2003)	6 772 (2004)	2 573 (2008)
Boghé	13 307 (2006)	5 885 (2007)	4 069 (2008)	2 500 (2009)

Source: Mission estimates

Table 4 shows estimated rehabilitation costs estimated by the mission on two sites. No systematic cost comparison was available for all sites. However, after years of implementing the land management plans, the costs of rehabilitating forest reserves appear to have significantly dropped, due to the combined effect of the following factors :

• The progressive reduction of areas with denuded soils, which were the object of sylvicultural actions;
• The fact that preventive measures for bushfire control imply the manual maintenance of the existing fire-breaks.
• The arrest of financial retribution to villagers mobilized by the Inter-Village Associations and Cooperatives for the maintenance of fire-breaks.

In accordance with local rules, the residents of villages bordering on the sites have priority rights to the exploitation of forest resources. For example, on the Diarra site, the Inter-Village Association requires the payment of US$2.25 to obtain an operating license to exploit non forest products. This license is valid for three months (the length of the exploitation season[17]) and the harvest is authorised throughout the forest reserve.[18]. On the Mbalak site (Mauritania), the inhabitants of coastal villages have priority rights to exploit the gum, which requires a flat payment of US$1.92. The operator can then harvest the gum in an area previously delimited by a cooperative.
This disparity of measures used in the sites is due to the fact that some Inter-Village Associations and Cooperatives did not benefit from the exchange visits organised by the Project to enable a framework for dialogue and regular sharing of information. The idea was to facilitate exchange on successful experiences and lessons learned so as to ensure an effective enforcement of local rules. The mission believes that if such a shared cooperation framework would have been conducted, this would have enabled synergies based on the sharing of experiences and consensus leading to guiding principles that could have resulted in the enforcement of local rules. However, dialogue frameworks were set up both at the national and regional levels in 2007 and 2009 respectively.

[15] The Diarra site covers an area of 9 970 ha including a listed forest of 2 500 ha. The Boghé site covers an area of 10 130 ha including a listed forest of 300 ha.
[16] We have used the exchange rates of November 2009: 1 US$ = 260 UM and 1 US$ = 443 F CFA.
[17] The stock of non-timber forest products is limited at the start of the season because the ripening of berries and pods is insufficient at this time. Stock levels grow in the middle of the season, before falling towards the end of the 3rd month.
[18] Following the provisions of the Forestry Code of Senegal, the community structures are not allowed to levy fines for offenses committed on the sites where their management rights have yet to be granted.

With regards to the assessment of environmental results, it is worth stressing that a baseline framework was set up after the Project redesign to measure the changes undertaken and to demonstrate the added value of the field interventions. The biophysical analysis was carried out by the Ecological Monitoring Centre (CSE) and outlined evolutionary trends over the period of 1983-2003, and has set up a baseline situation whereby the impact of the Project's interventions and future trends can be assessed. The CSE has also set up a Geographic Information System (GIS) and trained the Project's staff and technical officers to use GIS for the achievement of ecological monitoring on the sites.[19]

The current assessment of ecological evolutionary trends is limited to the 2004-2008 period. The absence of analysis prevents the determination of the relative increase in the quantity of carbon sequestrated on the 160, 000 ha of the Project zone. There are inventories for 2006 and 2008 that contain data on the ligneous and herbaceous biomass located on sites; this information is available on the Project website.

Regarding greenhouse gas emissions, analysis is needed to measure the reduction of greenhouse gas. However, it has been observed during visits to the Senegalese and Mauritanian sites that bushfire control committees are better equipped and have proved more efficient in regards to the maintenance of firebreaks. Indeed, in 2008 only four (4) fire outbreak cases, spread out over a total area of 2 010 ha, affected the Syer (10 ha) and Aouré sites, (2000 ha) representing 0.61% of the 328 356 ha covered by the project sites.[20]

The mission in the field has observed that the regeneration of the ligneous population and grass land is visible to the naked eye. In terms of the vegetation cover, there is a clear difference between the sites and those areas without project intervention. The primary beneficiaries interviewed by the mission indicated that this fact is related to: (i) the arrest of charcoal production, (ii) the ban on felling trees, and (iii) the enforcement of measures for natural resource regeneration.

Although analysis of the ecological evolutionary trends has begun, it has to continue to establish the dynamic growth of the ecosystem. Indeed, early UNEP supervision reports [June 2002] stressed the imperative need to conduct baseline analysis for biophysical monitoring. After 6 years the bio-physical monitoring is pending, as the analysis of carbon sequestration and greenhouse emissions remained unaccomplished—despite the fact that the database is complete and expertise (CSE) is available at the national level.

The mission inquired why CSE did not continue this effort. Project management informally indicated that these studies were costly. This is a dubious argument, as UNDP country offices have worked out reasonable fees for national consultants. In the end, if the intention was to save resources—which were budgeted for these studies—it has been realized at too great a cost to be worthwhile. This is because at the end of the project-life, it is not possible to ascertain quantitatively two of the Project's outcomes that are of strategic importance (cf.: sec 1.1):

- The conservation of biodiversity is enhanced and carbon is more efficiently sequestrated;
- Greenhouse gas emissions are reduced and ecosystems are protected owing to the management of forest fires ;

[19] The Project and UNEP placed considerable effort in launching the biophysical baseline based on GIS. Cf. UNEP Supervision Report, November 2005

[20] CF : Annex 8, p 4

However, as indicated, owing to the 2006 and 2008 inventories, the Project has data on the ligneous and herbaceous biomass of the sites. Table 5 illustrates the potential of carbon sequestration based on the available biomass data.

Table 5. Estimated Carbon Sequestration in Two Sites

Site	2006	2008
Gabou [Senegal]	0.16 T/ha	1.28 T/ha
Ngouye [Mauritania]	0.59 T/ha	1.30 T/ha

Source: Mission's Estimates with the Project and CSE support

As there is a sunk cost and UNEP's technical supervision reports had no reservations, CSE should continue this task with the use of radar images. There may be images in the archives that would be useful when it comes to understanding trends of bushfire frequency; this holds considerable importance for the analysis of greenhouse emissions.

The Project team prepared a synoptic table to show the progress for each objective and its expected result as of December 31st, 2008. This table also provides information on the behaviour of impact indicators related to the biophysical interventions on the sites.

The mission inspected the biophysical interventions on the 6 selected sites (cf.: sec 1.3). As approximately one day per site was budgeted, time was restricted. The mission arrived at each site with meetings already scheduled with local administration officials (protocolar visits to Sous-préfet and Hakem), technical services and cooperative and IVA members—with priority given to the latter group since they had to stop their livelihood activities in order to interact with the mission. Although the mission had the opportunity to observe colonies of geese, ducks and white swans, there was no time to attempt to estimate their numbers. The buffalo sighted was not available on the sites visited. Similarly, we observed re-growth of ligneous density, growth in tree cover rates, sustainable management of reserved pastures, reserved fodder areas, etc., however there was no time to estimate their area. The mission had several discussions with beneficiaries concerning local management rules, but it was not possible to exhaustively review all of the management rules on all of the sites visited. In short, every item in the Project's progress reports was considered and observed during the site inspections. Frequencies reported were not cross checked due to time restrictions.

Table 6: Rehabilitation and Sustainable Management of Degraded Lands

Source: Biodiversity Project. Progress Report 2008, St. Louis**.**

Objectives and results of the project	***Impact indicators***	***Baseline Situation***	***Expected Situation at the end of the project***	***Situation on 31 December 2008 Observations***
Objective: Replicable participatory systems for the rehabilitation and sustainable management of degraded lands in the Senegal River transboundary area are developed and applied in view of preserving/conserving biological diversity and for diminishing climate change	1. Increase of the density of stems of woody regeneration on managed sites	In 2003 the regeneration is 234.88 young stems/ha (less than 3 cm in circumference) for the sixteen project sites.	40 per cent increase	In 2008, the woody re-growth was 515 young stems/ha on average which represented an increase of 119 % compared to the reference situation and 17 % compared to 2006. Supervision and evaluation missions have been carried out by the project team.
	2. Increase of the number of animal and plant species (mammals, birds, reptiles and amphibians) observed in each of the managed site	In 2003 the number of animal species observed in each of the managed sites is 6.67 on average.	Three units increase in relation to the reference situation	The on-going reconstitution of the natural habitats and ecosystems covered by the project allowed the reappearance of wild fauna species already observed since 2005 such as Gazelle (site of Syer and Aoure) anteater (Site of Mbane), big bustard (sites of Arr, Boghe, Mbalal and Lambango), small red monkey (sites of Boghe), Green monkey (Diarra), hyena (Mbalal) and turtle (Site of Widim). Duck colonies (Plectropterus gambensis, Sarkidiornis melanota). White pelicans (Pelicanus onocrotalus) have also been seen in the sites of Widim, Ndiael and Syer.

Objectives and results of the project	*Impact indicators*	*Baseline Situation*	*Expected Situation at the end of the project*	*Situation on 31 December 2008* *Observations*
		In 2003 in the sixteen control sites at ground level ("SCS") the average number of tree species is 7.44.		Buffaloes were reported by the populations during the 2008 rainy season. Reportedly, these animals come from the Niokolo Koba Park following a corridor via the Gabou and Aoure sites. Colonies of geese or spur-winged geese (*Plectropterus gambensis*) from The Gambia, comb ducks (*Sarkidiornis melanota*) and white pelicans (*Pelecanus onocrotalus*) have been spotted on the Widim, Ndiael, and Syer sites, as well as little grebes (*Tachybaptus ruficollis* ; palearctic species, site of Ngouiye) and white swans (*Ciconia ciconia* ; site of Arr). Scores of bird nests (turtledoves, pigeons, weaverbirds) are visible on almost all of the sites. In 2008, the average number of woody species was 8, which represented an increase of 14 % compared to the reference situation. There are 11 herbaceous species per site on average like the reference situation.
	3. Increase of the average quantity per hectare of carbon sequestered in the	The project has no baseline data to estimate the carbon fixation rate.	8 % increase in the average quantity of carbon sequestration per ha in the 160,000 ha	The quantity of carbon sequestered has not been measured because of the lack of suitable methodology. However, with the inventory carried out in 2006, the project has data on the woody and herbaceous biomass of the project sites. These data can

Objectives and results of the project	*Impact indicators*	*Baseline Situation*	*Expected Situation at the end of the project*	*Situation on 31 December 2008* *Observations*
	160,000 has of managed sites		developed	be used later on to calculate the quantity of carbon sequestrated
	4. In comparison with non-managed control sites, increase of the percent of soil covered by low vegetation	The tree recover rate is 10.23 in 2003. Herbaceous coverage is 65%	15 % increase in relation to the reference situation.	In 2008 the tree recover rate calculated from the average circumference of the tree crowns was 12% representing an increase of 20% compared to the reference situation. The herbaceous coverage is 79%, an increase of 21 %.
<u>Outcome 1:</u> Biodiversity conservation is improved and carbon is more effectively sequestered because of the restoration of ecosystems and degraded lands through sustainable management	5. Pilot sustainable natural resource management systems are developed for the four ecosystems of the project zone.	No systems in place in the beginning of the project	Those systems are 100 % functional	The tests techniques results showed an increase in herbaceous and woody resources, except the planting which was characterized by a very low plant survival rate. The tested techniques results reveal a positive impact on the herbaceous biomass. Only after two or three years following the techniques implementation can the impact on the woody production be evaluated. Hence, the most promising techniques are the following: natural regeneration (assisted), direct sowing, animal traction ploughing with or without seeds. These results are in conformity with the assessment of the populations in charge of the sites management. Local management rules have been drawn up and validated by the populations in the 16 sites. Those rules have also been approved

Objectives and results of the project	*Impact indicators*	*Baseline Situation*	*Expected Situation at the end of the project*	*Situation on 31 December 2008* *Observations*
				by the authorities in six sites At this stage, the application of penalties is not effective on all of the sites. However, some rules have already been applied[21]. Wild fruit picking, collecting dead wood, straw mowing area allowed and controlled by both the technical services and the associations/cooperatives.
	6. Community structures are effectively or legally empowered for natural resource management (with representation of women and transhumants) are empowered	At project start, no communities within the project sites were legally empowered. In 2003 (baseline) zero communities had already been legally empowered.	The 16 community management bodies are reassured.	The concession for the site management is effective for all the 16 sites.

[21] Those rules are the following: banning of indiscriminate cutting and charcoal making. Prohibition of camping within the sites. Proscribing the creation of new fields in the sites. Interdiction of grazing/pasture for three months during the rainy season (biological rest). Banning the use of small mesh nets to avoid catching young fish.

Objectives and results of the project	*Impact indicators*	*Baseline Situation*	*Expected Situation at the end of the project*	*Situation on 31 December 2008* *Observations*
	7. Increase of the number of hectares under sustainable range management	Zero hectare under sustainable range management in 2003.	The under sustainable management area is ha 160,000.	The area covered by systems of sustainable pasture management (delimitation and "mise en défens") was 160,000 hectares in 2007. Referring to local rules and management plans, the whole area of the sites is considered as protected due to generalized controlled access to natural resources. Within some sites; we can find plots which are under a particular protection aiming a precise and specific goal (fodder reserves, biodiversity reserves, and test sites for regeneration). These plots cover 52, 050 ha. In order to reduce erosion on heavy soils, grasses such as *Vetiveria nigritana* (Ngouye site) and *Sporobolus ioclados* (Syer site) have been picked out and multiplied by the population in 2008. The continuation of this activity shows that the populations are motivated for the socio-economic interests of these herbaceous (mats, straw, hats...). In 2008, all the 16 management plans have been worked out and implemented.
	8. Increase of the number of hectares of natural forest that is managed under community	Zero hectare of natural forest is managed according to community management plans in 2003.	13,000 ha under community management plans	The forest area under sustainable management (delimitation and "mise en défens") covered 18,880 ha in 2007 and concerned the sites of Diarra (classified forest), Gandon (Rao forest), Lambango (sylvo pastoral reserve), Nere walo and Ngouye (classified forest). For wet areas, the Ndiael management plan (concerning the

Objectives and results of the project	*Impact indicators*	*Baseline Situation*	*Expected Situation at the end of the project*	*Situation on 31 December 2008* *Observations*
	management plans			wildelife reserve covering 46,550 ha) and the Widim one (1.240 ha) remain unchanged compared to the situation in 2006 (Widim plan was validated by the populations and the Ndiael one approved by the competent authorities).
Outcome 2: Pressures on range and forest resources are reduced because of adoption of measures to increase supply and reduce demand.	9. Increase of the financially profitable alternative investments as a function of the dissemination of positive study results.	No financially profitable alternative investments in project sites in the beginning of the project.	Increase by 30% by EOP	Private investors have been identified to promote irrigated plantations. Some associations backed by the project are interessed in the activity. Nevertheless, all the interested investors expect subsidies from the project. This is not in conformity with the project approach.
Outcome 3: Greenhouse gas emissions are reduced and ecosystems are conserved through control of bush fires.	10. Decrease of the surface area covered by bush fires at managed sites	No reference situation related to bush fires is indicated in the CSE documents. The baseline situation (2003) will be elaborated by the project in collaboration with concerned technical services.	The percentage of burnt areas is brought down to 50 %	The maintenance of fire breaks and the equipment of the committees fighting against bush fires are still efficient. In 2008, only 4 bushfire cases covering 2, 010 ha have affected the site of Syer (10 ha), and Aouré (2000 ha), representing 0,60% of the 334, 176 ha covered by the project sites.

The data in Table 6 confirms the population's positive response in regards to the environmental effects of the Project. In the mission's opinion, conclusions drawn at this stage should take into account: 1- the time used for Project redesign, and 2- the fact that the actions anticipated in the 2008-2010 Strategy for Consolidation were only partially executed due to a flawed disbursement procedure.

It would have been interesting to have data that would allow an analysis of the vegetation's comparative dynamics in different sites belonging to the same ecosystem. This would have helped to better understand the complexity of the environmental interactions involving various factors (edaphic, pluviometric, etc.)[22].

Using the available data, it is possible to draw some conclusions on the dynamics of the ligneous populations. To that effect, additional tasks have been carried out to determine: (i) the statistical evolution by category of size (density of trees, bushes and seedlings) and (ii) the quantitative variables of the basal areas, the crowns areas, the foliar mass and the timber mass. Thus, based on this research the ligneous population can be classified into four groups: (i) common and abundant species; (ii) common and less abundant species; (iii) localized but abundant species; and (iv) localized and rare species. This collected data has made it possible to trace the evolution of the production of ligneous and grass biomass in the ground control sites on a yearly basis.

In terms of conducting the ecosystem rehabilitation efforts, one of the major challenges has been the effective enforcement of the local rules on natural resource management. On several sites visited by the mission, the leaders of the community organizations said they had difficulties interpreting the land management plans into a code of conduct understood as voluntary commitment made by the actors to abide by certain principles and standards while conducting their activities.

The options chosen as part of the process to define the local rules are pertinent. These options include the setting up of organizations devoted to the establishment and clarification of the access rules to natural resources and the enforcement of the enacted rules. The offices of the Inter-Village Association/Cooperatives, who are tasked with defining the rules governing access to natural resources, are involved so as to take into account the interests of all users of the sites and to benefit from social and political legitimacy. The village committees are mandated to work as closely as possible with the users.

The effectiveness of the common enacted rules depends on the quality of the authority system with whom these rules are associated. In other words, complying with the rules largely depends on the legitimacy of the authority system and of the local officials (the legitimacy of customary procedures, the social legitimacy embodied by the emerging leaders, and the political legitimacy embodied by the administration and the local communities).

In addition to the management of the forest reserve, the rehabilitation of the ecosystems relies on range management. Following the adoption of different management tools (local rules, land management development plan), the total area of the sites is now a controlled area, with regulated access to the natural resources. Within some of the sites, there are plots specially protected in order to meet specific objectives (fodder reserves, biodiversity reserves, and test plots for regeneration).

[22]In the context of accumulating evidence about the Project's achievements, the Project has evaluated the results obtained in the sites at the end of 2008, and has compared this data with the results of the previous evaluations (2004 an 2006).

During the rainy season of 2007, the Project has supported the setting up of a trial zone for range management in 300 ha (about 10 per cent of the total area of the Syer site in Senegal). This experience has facilitated the reappearance of the *Dactyloctenium aegyptium*, a grass species highly appetized by many herds. The 2008 inventory revealed that the average grass productivity was higher in the trial plots than in the demonstration plots (181 kg of MS/ha, against 105 kg).

These results indicate sound results from organizing range management, based on a system of rotating plots under exploitation. However, one can ask whether the present experience is more likely to succeed than the previous ones that tried to promote the same rotation system (these demonstration projects were initiated in the 1990s). The evaluation of these early experiences has underlined constraints observed at different levels: (i) insufficient analysis of the complexity of the range management system; (ii) absence of a legitimate authority inspiring confidence and respect in all users; and (iii) difficulties in introducing sound techniques into a social reality, characterised by a widespread absence of surveillance practices of cattle herds on home ranges.

The execution of the management plans and the local rules for the management of natural resource has resulted in: (i) prohibiting the setting up of camps inside the sites; (ii) prohibiting grazing for a three-month period during the rainy season (biological rest); and (iii) the obligation of every user within the site to participate in bushfire control. These tools are meant to put an end to the process of overuse of the pasture lands due to the absence of officially sanctioned rules. However this evolution is a source of concern because pastoral transhumance is characterized by the mobility of herds. This a key strategic adaptation used to cope with the seasonal variations of natural resources and the weather vagaries.

Interviews conducted in the field indicate that for range management to work properly there needs to be a consensus based on previously agreed upon rules that have been accepted as legitimate by all users, including transhumant herders. The latter are generally reluctant to accept regulations defined outside of their social structure.

In sum, it has been concluded that range management initiatives are still in their early stages. However, concrete changes are already emerging, ranging from the case where access to pastoral resources relies on the traditional principle of reciprocity (site of El Khat), to the case where those who benefit from the sites intend to impose a grazing fee (sites of Mbalal and Boghe). [23]

4.2.2.2 Action 3: Control of bushfires

On the project sites, bushfires can cause the destruction of the herbaceous biomass, which feeds the herds. Bushfires are also harmful to perennials, which have important ecological and pastoral functions. To reduce the ecological and economic impact of bushfires, the Project supports the setting up of fire-breaks, which are vegetation-free strips (in herbaceous or ligneous populations). These strips are set-up perpendicular to the direction of the prevailing winds, in an attempt to prevent the spread of fire. The choice of technique used depends on various factors linked to:

[23] An interviewee met in Mblalal said: "*Each transhumant herder is required to pay for the use of the pastures. If he accepts to pay the required tax, the money is collected, but if he refuses to pay for the grass, then there is no problem"*. In Boghe, the price of the fee is $0.23 per bovine and $0.07 per small ruminant.

- The total area to be protected must be dimensioned to determine the necessary fire-breaks.
- The density and nature of the vegetation cover;
- The capacity to mobilise the needed resources (human, equipment, and financial).

In an effort to ensure the sustainability of bushfire control after project phase-out, the Project has chosen the manual/animal draught power technique, which is affordable to the populations. This technique uses sledges drawn by animals (branches, pneumatics, etc.) and has already been used and tested on most of the sites, for the opening and/or maintenance of fire-breaks. The cost of this operation is estimated at $14.2/km, representing $870/year for a 60 km network [24]. It must be noted that the cost base is determined from available farm labour on site. Wage rates vary from area to area according to the season.

On the other sites, it was necessary to install mechanized fire-breaks. Such procedures use equipment such as tractors, graders, bulldozers, etc., and entail costs of about $28.5/km (without depreciation) and $36.7/km (including a depreciation fee).[25] This technique seems to be more effective, especially when installing wide networks of orbital fire-breaks or when working in areas with a certain density of vegetation or a low population density.

It is worth noting that on the Mbalal site, one of the Cooperative members has designed a tool for installing fire-breaks, by modifying ploughing implements. The prototype has been improved several times to increase its performance. The tool is pulled by three donkeys and can cover an area of up to 4 linear kilometres per day, while a team of 10 workers can barely cover one linear kilometre per day. Once the final prototype is achieved, it deserves to be promoted in those areas where the population density is low throughout the sub region.

Partnership building is another important aspect to be taken into account when promoting the installation of fire-breaks. For example, on the Ndiael site, the Inter-Village Association's leaders have mobilized additional support from the Cross-border Biosphere Reserve (RBT), which facilitated the installation of 150 km of orbital fire-breaks in 2009. The Inter-Village Association of the Syer site has also built a partnership with the Rural Council, which funded the installation of fire-breaks to the tune of $2, 257 during the 2007 campaign.

On the whole, 2,000 km of fire-breaks have been installed and approximately 900 km of fire-breaks are maintained annually on 12 of the project sites[26] by the Inter-Village Associations/Cooperatives. The Project has supported these development works by allocating each site a lump sum grant, as part of the "subsidy agreement" signed between the Inter-Village Associations/Cooperatives and the UNOPS to help boost active bushfire control (equipments for committees, training, etc.). If we consider the various types of fire-breaks that have been installed, the Project has subsidized US$23.6/km. The technique of manual/animal draught power to install fire-breaks is seemingly a good alternative, which is all the more interesting since the resources to bankroll the fire-breaks using public funds are running low.

[24] Biodiversity Project Mauritania–Senegal 2008 - Manual firebreak data sheet, with the passage of animal.

[25] PAPF, 2007 "Defensive organisation against destructive bushfires from the east", PowerPoint slides, 2007

[26] The biodiversity project Mauritania-Senegal 2008. Technical note from the firewall manual with regards to animal crossings: it is necessary to state that the firewalls have not been developed in four sites because of the latter's environmental characteristics (wet land, rocky terrain, etc.)

In the future, it would be advisable to enhance the synergy between the efforts of the Project in installing fire-breaks and the national systems of bushfire control.

As a supplement to the installation of fire-breaks, bushfire control emphasizes mainstreaming the relevant information and raising awareness in the communities, especially in young people and transhumant herders. In order to enhance bushfire control capacities, the Project has supported the creation of village committees, which have received adequate equipment. On each of the sites, these committees function as a network and have put in place an early warning system, based on the use of mobile phones to drum up community support when a bushfire is reported.

The lack of baseline data about the bushfires on the Project area has made it difficult to measure the progress achieved in terms of reducing the burnt surface areas. The data available indicates the number of bushfire cases and the total affected areas on all of the sites. As indicated, in 2008, there were only four cases of bushfires, covering a total area of 2,010 ha on the sites of Syer (10 ha) and Aoure (2,000 ha), and representing 0.61 per cent of the total area comprising all of the sites covered by the Project.

4.2.2.4 Action 4: Promoting the Income-Generating Activities (IGA) linked to sound Natural Resource Management (NRM)

The promotion of community Income Generating Activities (IGAs), based on the sustainable exploitation of natural resources, is an essential component of the various actions initiated on the sites. This option relates to the Project's concern in terms of the reconciling of two major issues towards the contribution to global environmental goals, while responding to the local people's needs and expectations. Such an approach can induce the effects of leveraging expected results in the areas of rehabilitation /conservation of biological diversity, carbon sequestration, and the improvement of people's income and living conditions. After providing grants to help local people initiate natural resource rehabilitation/management activities, the Project has defined and validated a strategy to provide credit, before linking sound NRM with the promotion of the IGAs[27].

A regional study commissioned by the Project has proposed a typology of value-chains for IGAs that could be developed and integrated into sound natural resource management systems. These value-chains belong to three categories:

a) Those based on the rational exploitation and the value-added of flora and fauna (fruits, fodder, wood, local fauna, fisheries, etc.);
b) Those articulated around the processing of natural resources, for greater value-added (dry fish, jujube cakes, handicrafts, etc.);
c) Those dealing with the provision of services related to the sustainable management of natural resources, such as eco-tourism.

The support provided by the Project is centred on initiating and developing plans to promote the self-financing of IGAs /NRN on the different sites. To launch this component, close collaborative relations were required between the Project, the community organization in charge of the management of the sites, and a microfinance institution. In an attempt to establish a sustainable credit system, the Project team and the leaders of the community

[27] Biodiversity Project Mauritania–Senegal: Implementation strategy of the income-generating activities

associations have decided to change the IGA grant (in the form of repayable loans) into a "credit fund for the conservation of biodiversity." It has also been agreed upon that the revenues generated by the IGAs loans should be re-invested into natural resource management activities. According to the Project framework, the credit committees established in the different villages should be gradually transformed into Inter-Village savings and credit unions for biodiversity conservation.

Support for community organizations for the management of the credit funds has been contracted out to credit specialists. This option has the advantage of reducing the costs of the risks inherent in the direct management of credit funds by community organizations. This type of management requires professionalism, so the follow up is flexible and substantive. In addition, the direct involvement of the Project could encourage some beneficiaries to default their financial obligations of reimbursing funds to the lending institution.

Consequently, specialised organizations have been called upon to support the process of establishing a micro credit system with particular emphasis on strengthening capacity building in procedures related to : (i) granting credits; (ii) calibrating loan disbursement procedures; (iii) setting up a system for the follow-up of loan recovery; and (iv) preparing regular progress reports on the project's financial implementation. More specifically, on every site the loan recipient helps the community organization to:

- Identify, analyse, and select the value-chain eligible for IGAs;
- Identify partners with the needed expertise for each value-chain;
- Establish an operational credit committee;
- Define and implement an appropriate strategy for the promotion of IGAs in collaboration with sound NRM;
- Prepare portfolios for micro-project financing.

The community organizations are guarantors of loan repayment, and they carry solidarity assurances for every credit beneficiary. The communities commit themselves to mobilising funds representing at least 10 per cent of the grant provided by the Project[28]. This contribution is used as a guarantee, in case of non-repayment of the loans.

The credit system is operational in the six sites visited by the evaluation mission, and the approval procedures are nearly the same in each of the different sites. The needs are assessed in each village and then submitted as micro project proposals to the village credit committees. The requests submitted by the different villages are centralised and appraised by the credit committee of the community organization, which makes the final selection, using previously agreed upon eligibility criteria. The selected proposals are then sent to the Project team for a compliance check.

The value-chains that are eligible to obtain credits depend on the potential on each site. For the entire project implementation area, the value-chains receiving funds are as follows:

- Non- forest products, especially products from the exploitation of ligneous plant resources, except for timber (jujubes, baobab, gums, and resins, etc.);
- Commercialisation of herbaceous products (*Cyperus alopecuroides* tubers, sleeping

[28] This contribution can be collected in different forms: (i) Community members' subscription; (ii) fixed-term savings; and (iii) paid services.

mats, straw, etc.);

- Beekeeping;
- Small and large animal husbandry ;
- Commercialisation of dairy products (milk, cheese, butter, etc)
- Poultry;
- Sale of deadwood;
- Fishing;
- Irrigated vegetable production.

Table 7: Community Based Natural Resource Management

Source: Biodiversity Project. 2008 Activity Report, Saint Louis.

Project Objectives and Results	***Impact Indicators***	***Baseline***	***Expected Outcome***	***Outcome observations as of 31 December, 2008***
Outcome 4: Replicable community-based natural resource management systems generate alternative revenues for local populations	Increase by 12% of the revenues of households at the 16 sites from sustainable natural resource management.	There is no reference situation related to household incomes indicated in the CSE documents.[29] The reference situation will be elaborated by the project.	At least 50 % of the households in the 16 sites have increased their incomes up to 12 % thanks to the sustainable management of resources.	The 'animal fattening' value-chain benefited from 30% of the allotted amount. It is followed by the 'non-timber forestry products (27%), dead wood (13%), commercialization of herbaceous products (12%), milk products (6%), gardening (6%), fishing (3%), beekeeping (2%) and poultry farming (1%) industries. The NTFP and the herbaceous products represent 39% of the allocated credit. This tendency supports the option of the project to link the income-generating activities to the management of natural resources. The increase of micro-project numbers and the cash amounts linked to the animal fattening (30 % against 24 % en 2007) shows the pastoral vocation of almost the sites.

[29] The mission verified that CSE did not have any contractual arrangement to prepare the socio economic baseline.

				In 2008, 250 micro-projects are financed againts 287 in 2007 and 121 in 2006. In sum, 658 micro-projects have been financed since 2006 for a global amount of 265 204 $US, including 250 in 2008 for an amount of 100 264 $ US. There were two annual rotations of funding for the Associations/Cooperatives that were held. At each deadline, the reimbursement rate was 100 %. The number of beneficiary households can be estimated at 231 totaling about 1618 people with an average allowance of 410 $ US by household in 2008. Other management systems of natural resources have also started generating benefits (money incomes) for the populations although they are not supported by credit lines. As a matter of fact, the populations commercialize dead and green wood (from health cuts, pruning, thinning) and the fodder (resulting from the improvement of herbaceous and woody biomass production). The start up of the revolving fund based on the Project's grants was a novelty of the IGAs in 2008. The start up of the micro-projects funded through reimbursed funds by the promoter of the various sites is now underway. New community credit and savings unions linked to natural resource management represent a positive

				evolution with respect to simply joining the existing credit unions.

The data in Table 7 indicates key results obtained linking IGA with sound NRM. From the standpoint of all of the sites, the implementation of credit funds has opened up perspectives which reflect the optimal value of the natural resource by offering the populations the possibility of developing IGAs based on products obtained using sound ecosystem exploitation. IGAs have the potential to generate higher revenues because they promote the agro processing of crops, which has value-added. Access to credit has created the opportunity of new sustainable livelihood alternatives. This fact has renewed the local populations' interest in ecosystem rehabilitation. As discussed below, several capacities must be developed in order to forge sustainable livelihood opportunities in the Project zone. These capacities go beyond performing tasks. They must change fixed mental dispositions that influence a person's response to new situations.[30]

The Project is implementing IGA linked with sound NRM, with the purpose of increasing the household income in all 16 sites by 10%. Although funds are available, the necessary surveys were not conducted to establish benchmarks in household income, consumption, savings, production, commercialization, labor availability during the agricultural season, etc. In fact, nothing of significance has been carried out for the socio economic monitoring. As mentioned, Project management informally indicated that these studies were costly. If the intention was to save resources—which were budgeted for these studies—it has been realized at too great a cost to be worthwhile. As a consequence of this decision, it is now not possible to ascertain quantitatively the Project's contribution to the population's livelihoods , which is the overall purpose of sustainable human development. There was an absence of capacity from the Project management to display leadership in learning to the changing needs not only of the environment but also the society, i.e. income generating activities.

Hence, because of the absence of benchmarks, the analysis is inferential. Observation suggests that household income has increased among the participant households, though exact figures are not available. Reportedly, even non participant households have improved their lot by exploiting the dead and green wood that results from cleaning, cutting, pruning, thinning, etc. and fodder from the improvement of herbaceous and ligneous biomass.

It should be noted that the implementation of credit funds constitutes a vital mechanism for the promotion of economic growth in an area characterized by an absence of an adequate supply of accessible financial services. This situation stems from the fact that these areas reflect a considerable agro-ecological risk which affects levels of production and fluctuations in agricultural prices. These are economically depressed rural areas with a narrow potential for economic growth. In fact, the potential of agricultural and rural development based on sound NRM should be a theme in the socio- economic baseline.[31]

Although women were not targeted in any particular way, they were able to access credit individually or as members of associations. This important role reserved for women is linked to the role they play in natural resource management. To strengthen this dynamic process, it would be useful to encourage the implementation of a system to facilitate vulnerable groups' access to credit. This system would be tasked with the execution of activities including: (i) support for organizing credit groups; (ii) capacity building (statutory operation, activity

[30] UNDP Capacity development, op cit, 2009, page 5

[31] There has been considerable research on the potential of agriculture in the region. Some early work has delved into the constraints and potential from the environmental standpoint, cf. Matlon, P.J. & D.S. Spencer. Increasing food production in Sub-Saharan Africa: environmental problems and inadequate technological solutions. AAEA. December, 1984

planning, etc.); (iii) support-advice for the efficient implementation of activities in order to ensure a successful credit operation.

In so far as beneficiaries are provided with access to credit, they have shown a commitment to prudently manage the credit funds allocated to them. Out of the 6 sites visited, the mission only recorded a single case of deterioration in its portfolio. At all of the other sites, the repayment rates are satisfactory (between 96 and 100%) and the level of resources available reveals clear gains (up to 16% at some sites).

Table 8: Estimated Credits Allocated in Two Sites[32]

Sites	Grant received (US$)	Number of MPs funded	% funding allocated to women	Cost of investments outlaid (US$)	Repayment rate	Revolving Fund US$)
Ndiaël	19,977	64	58 %	8,961	98 %	14,297
Mbalal	15,384	62	33 %	-	100 %	-

Source: Mission estimates from field interviews

The credit beneficiaries manifested specific expectations: (i) diversification of the fields eligible for credit (particularly commerce); (ii) access to higher levels of credit; and (iii) availability of credit more appropriate for the production cycles.

In the context of ensuring sustainability for access to credit, the Project has encouraged all members [from AIVs and Cooperatives] to join either existing savings and credit unions or to create new unions. This process is underway in most sites. Thus, for example, 3 Mauritanian cooperatives chose to create their own Credit Unions, and 5 others have decided to join one existing union (*Agence de Micro crédit*). By joining this Credit Union, the cooperatives can keep their autonomy as self-governed groups. After negotiation, the following conditions have been obtained:

a) Control of the chair of the administrative council ;
b) Attribution of 6 posts from 9 members of the union office;
c) Control of the president of the credit committee position;
d) Gaining the majority status in the credit committee (3 out of 5 positions);
e) No liabilities from past operations ;
f) Keeping the management position in each cooperative.

Regarding the Credit Unions' viability, the mission estimates that the structures have not yet achieved the required level of maturity. They remain fragile given their incipient professionalization. In addition, the sites' low demographic density, limited transportation network, and incipient economic activity are unfavourable factors for the creation of a profitable microfinance activity.

In fact, a framework for economic growth to take place in the context of the proposed value chain is pivotal. There is need to assess [1] markets for products or services, [2] new techniques or methods for the way outputs are produced, [3] local availability of supplies and equipment, [4] adequate economic incentives, as reflected in remunerative price relationships, and [5] low-cost and efficient transportation (necessary because natural resource products are

[32] The interest rates used vary from one site to another in Senegal without the committee being able to specify on the basis of a rate calculation. In Mauritania, the credit committees conform to the Islamic decree which prohibits the deduction of interest on a loan. As a result, the interest rate is replaced with account fees which are paid in advance.

spread out all over the Project zone). The first three factors provide owner-operators the opportunity to increase outputs or services for economic growth. The other two factors are linked to the perceived incentives of the owner-operator and the availability of infrastructure. The owner-operator will have to consider the margin between costs and returns, that is, his net income must increase if he is to provide his family with a rising level of living. This is where financial viability comes into play under the framework of economic growth.

Achieving economic sustainability is a long term challenge. It is estimated that it takes more than one decade for a microfinance institution to become viable and sustainable in depressed rural areas characterized by: 1- low population density, 2- inadequate transportation network, 3- restricted local availability of supplies and equipment, 4- limited marketable production. Under these conditions it is difficult to propose incentives based on remunerative prices, as most exchanges are based on the barter system and/or the level of family consumption is geared towards meeting subsistence needs.

As indicated, Cooperatives and IVAs have achieved institutional sustainability due to their legally recognized status and their acquisition of rights to manage and exploit the resources within the sites. This sustainability is essential for sustainable human development. Economic growth, which brings about financial sustainability, can be induced in those places where the essentials have been met. However the methods and procedures to induce economic growth in depressed rural areas is neither simple nor clear. It is essential that the two nations, with the support of the development partners, search jointly for strategies to resolve this conundrum.

4.2.2.5 Activity n° 4: Capacity Strengthening

In the current context of government disengagement and economic liberalization, building the capacity of rural professional organizations assumes crucial importance. In Senegal and Mauritania, these rural organizations are not always as efficient as is necessary to fulfil their missions. Generally, their weakness comes from organizational and management shortcomings. To the extent that an organizations' existence is due to the initiatives either of public authorities or donors, their legitimacy is in question. In addition, they have a limited capacity to generate endogenous financial resources.

To overcome these constraints, the project's Capacity Strengthening component emphasized either the consolidation or acquisition of skills. The objective is to allow community organizations to: (i) manage sites by developing and implementing action plans, financial monitoring of activities, supervising work implementation; (ii) become the interlocutors of supporting organizations; (iii) guarantee the community access to credit; and (iv) represent the organization's interests in discussions and negotiations at different levels (local, national and regional).

Table 9: Key Results in Strengthening Capacity for Sustainable MNR

Source: Biodiversity Project. Project Activity 2008, Saint Louis.

Outcome 5: Local, national and regional capacities for sustainable management of natural resources / ecosystems are reinforced	12. Increase of the number of community management structures that have a financial plan, including a plan for self-financing of management costs	In 2003, no community management body had a financing plan.	All 16 financing plans are functional.	All the 16 associations and cooperatives work out action plans develop follow up evaluation systems every year and set a reschedule the following year next year taking into account the difficulties faced and the lessons learnt. In 2008, data collection on the flora and the fauna was conducted together with local populations and technical services. The data base conducted by the project was shared with these partners and made available for them through appropriate tools in the framework of the elaboration of management plans. Missions for supporting technical services and NGOs were undertaken in order to increase their intervention capacities and to strengthen synergy between all the actors.
	13. Legislative texts relating to decentralization and empowerment of community structures for natural resource management are analyzed by mid-term	The texts are generally unsuitable and little known to the actors.	A solid base for new law is under negotiation.	The legislative and statutory texts of both countries related to resource management have been analyzed. The recent revision of the Mauritanian forest code is inspired by the experience of the project. This experience is based on studies and activities carried out both in Mauritania and Senegal. In Mauritania, the new forest code was approved on September 18th, 2007. The draft of the application decree is available. The agreement protocols on the co-management of the state owned forest of

	and a solid base for new laws is under negotiation at the end of the project.			Ngouye, Nere Walo and Walalde (site of Boghe) are the result of discussion on how to harmonize the legislative and statutory texts. These discussions aim at securing and empowering the local population within the sustainable management of natural resources. In Senegal, the farming organization that became acquainted through the project on the framework of the agro- sylvopastoral law and on the decree related to the organization of the cattle route and the use of pastures, require the application of these texts without delay.
	14. The number of the representatives of participants in the inter-site and cross-border exchanges. 15. An evaluation and follow up system developed and implemented	The number of representatives of participants was 0 in 2003. In 2003, no evaluation system was available.	Increase of 400 A databank on the 16 sites is available	At the national level, two inter-sites exchange visits on Income-generating activities, tested techniques, management plans and local rules have been organized for 243 participants whose 4 sou-prefets, 75 women, 20 local councils and 15 technical representatives. The project has a follow up and evaluation system with a setting of a geographic information system and a data bank for all the sites. This bank has been enriched with the collection of the new data. Parts of the bank has been, restructured, re-edited and published. A list of the herbaceous species recorded in the sites has been translated into national language (Hassanya, Pulaar, Wolof) and has been published on the project web site. The evaluation of the impact of the techniques has been achieved.

				Maps and technical files of the 16 intervention sites are updated and available on the website of the project. A data base on the fodder species selected in order of preference and by cattle category is available for 10 sites out of 16. The project has also set up a web site which is regularly updated. Synergies of activities and partnership have been developed with different organisms / projects. .

Table 9 indicates that the Project has achieved valuable results in capacity building for the community organizations. Due to the training provided and the exchange visits organized, the community organizations were able to:

- Prepare and implement site management plans;
- Plan annually for the activities to be implemented on the sites;
- Assure activity monitoring ;
- Master the various techniques tested;
- Mobilize village level actors so they could have access to credit;
- Negotiate partnerships complementary to project support.

Capacity building has also targeted the decentralized technical services and the NGOs in order to allow them to ensure supervision of the implemented site activities in the most efficient manner. However, the training provided could not be extended to the operational divisions of these decentralized organizations (human, logistic and financial resources), despite the fact that these divisions are tasked with replicating the project achievements.

From the perspective of the mission, the capacities to be strengthened are diverse and varied. They can be divided into two broad categories: [1] technical and management skills, and [2] strategic and business skills. So far, the Project has concentrated its efforts on ameliorating technical and management competencies. In future efforts, the intervention strategy should consider incorporating the amelioration of strategic and business capacities of the community organizations' leaders, i.e. to develop skills in the analysis of rural business opportunities including commercialization procedures, financial proposal and resource mobilization, proposal preparation for rural investment opportunities, monitoring of activity execution, etc.

These capacity strengthening activities should target four categories of actors:

- Leaders who perform functions at different levels of community organizations, so that they can improve the capacity of their organization to take on the roles and responsibilities which are assigned to them (village committees, AIV/Cooperatives, national and regional consultation frameworks for biodiversity conservation);
- Elected officials of local administrations, in order to help them create conditions of sustainable management at the sites;
- Vulnerable groups from the sites, in order to allow them to access credit and to ensure efficient, profitable and sustainable micro-credit exploitation;
- Decentralized technical services tasked with scale-up and replication of the project achievements.

The Project has contributed to the support of the dynamics of sub-regional integration between Mauritania and Senegal, favouring exchange visits between communities in sites on either side of the Senegal River. This consolidation of Mauritanian and Senegalese community relations comes in the framework of a pastoral economy, by the restoration of transhumance between the two countries[33]. In addition, a new agreement regulating transhumance between the two

[33] Over a million heads of livestock – 5 to 10% of the Mauritanian total – cross the Senegal and Mali borders each year in search of water and pasture. This migration is of key importance for these countries and needs to be managed to prevent conflicts between the populations.

countries was concluded in April 2006, in order to facilitate the flow of herds and to prevent any chance of local conflict. Each country kept in mind the hostilities between communities in April 1989, which were prompted by a simple conflict between farmers and herders in the two countries.

The rehabilitation of ecosystems has been one central task of Project management, therefore, skills and capacities available were primarily related to natural sciences. As evinced in an early technical supervision report, the Project management required enhancing its repertoire of techniques for the delivery of various project outputs essential for overall sustainability.[34] A case in point is the knowledge and expertise required to implement the strategy related to exploiting the value-added from the flora and fauna, and the processing of natural resources (including handicrafts and ecotourism) for income generating activities. The knowledge needed to implement this strategy is related to the social sciences, in particular those disciplines associated with agricultural and rural development.

It is not possible to commission implementing capacity. As indicated, Project management had to provide leadership in learning to adapt to the changing needs, not only of the environment but also of the society, i.e. income generating activities.

One implication of the ecosystem rehabilitation perspective is the clear interdependence between knowledge pertaining to the natural and social sciences as they relate to fostering sustainable livelihood systems—based on sound natural resource exploitation which is often linked with agricultural and rural development. The lesson learned from this Project is that managers must generate knowledge so that ecosystem rehabilitation becomes wholly sustainable. To this end, the capacity development approach calls for, among other things, a transformational leadership in management; that is, a leader capable of identifying the changes needed in mindsets and attitudes such that a vision is created to guide needed changes. This must be executed with the participation of the communities and the commitment of relevant stakeholders.[35]

4.3 Assessment of the Project's socio-economic impact

Conferring on community organizations the management of sites has enabled local populations to conduct range development management which is based on common lands with formally recognized usufruct rights. This experience has empowered beneficiaries not only because they have acquired management rights, but also due to the fact that potential economic gains are now possible.

Through the use of casual, and in some sites daily, labourers for the purpose of conducting pasture or forest reseeding, the Project has subsidized a relatively large amount of financial resources in the villages. For example, at the Diarra site, the AIV has asked village residents to designate 120 workers to take part in works carried out in the forest. During the work period, each worker received a daily fee of $3.38 U.S. This *'meal ticket'* payment system (Botari) is practiced now in most work sites in the installation of fire-breaks.

[34] UNEP. Technical supervision report, op cit June 2002.
[35] UNDP. Capacity development, op cit 2009, pp 19-30

This sound use of natural resource management systems is beginning to generate benefits (monetary income) for communities who are not primary beneficiaries and who are without access to a line of credit. These communities have begun exploiting dead and green wood (from logging maintenance, trimming, pruning, etc.) and fodder (from improvement of herbaceous and ligneous biomass).

Stemming from ecosystem rehabilitation, the productivity of the forests has increased (cf. : Tables 5 and 6). Consequently, the exploitation of non-timber forest products is becoming an important line of activity. At the Diarra site, the villagers recalled that during the harvest, a 5 member family (including children) could collect approximately 50 kg of wild fruit each day. This activity is practiced by 40% of the population on the site and the total quantity of fruit collected was about 5 tonnes, a yield of about $US 1700. Resources generated by issuing permits for exploitation are added to these gains and are managed by an agreed upon distribution[36].

At this stage it would be useful to conduct an agro-economic analysis to ascertain the sustainable levels of harvesting and the maintenance required to ensure economically viable levels of production. However, in terms of the strategy of value-chain proposed, it is vital to determine the medicinal/nutritive value of these wild fruits and other plants. This will indicate the potential for high-value commercialization. Available evidence indicates that economic opportunities for long term development can be found among the "world heritage of African useful plants", with due respect to traditional knowledge and intellectual property rights.[37] The prospecting of useful plants is a by-product of biodiversity management and conservation. This value-chain must be considered in future consolidating efforts.

Access to credit has allowed communities on the sites to benefit from several advantages: (i) an increase in monetary revenues; (ii) an increase in the volume of activities implemented; (iii) the development of savings through revolving fund group (*tontine*) activities; and (iv) positioning on potentially profitable niche markets.

In total, 658 micro-projects have been funded since 2006 for a total amount of US $265, 204. During these 3 years the average loan size was US$ 399. On the assumption that there are an average of 7 members per household, the 658 loans benefited 4, 606 people.[38] Since the number of people estimated to live in the 248 villages of the Project zone is 80 000 people, then approximately 6% of the estimated total population in the Project zone have had access to loans (cf.: sec 1.1 and Table 2). Given the fact that the loan beneficiaries are not able to provide the elements of their operating accounts, and in the absence of monitoring analysis, it is difficult to measure the effect of credit operations on household revenues. It is rational to infer, however, that food intake has improved in approximately 6% of the population in the Project zone.

From the review of the micro-projects financed, it may be inferred that little or no value added has been generated from [1] the micro-projects related to flora and fauna, and [2] from the

[36] The amount required by the community organizations for issuing permits is relatively low (see supra). In so far as ecosystem rehabilitation is funded by external inputs, the communities do not feel the need to adopt a managerial attitude.
[37] Cf. www.prota.org
[38] Mauritania-Senegal Biodiversity Project. 2008 Activity Report.

processing of natural resources including handicrafts, without mentioning ecotourism.[39] In consequence, the available credit has been used to finance subsistence activities to meet family needs. Due to the absence of monitoring information, it is not possible to know the financial return on the loans from previous cycle. Although there were no defaulted loans, the evidence indicates that there was very little value-added from the loans. No one mentioned that they had found a "going business" after returning the loan.

To sum up, the strategy to exploit the value-added from the flora and fauna, the processing of natural resources and ecotourism for income generating activities is sound. Although monitoring data is absent, it is rational to infer that current loans are used to finance activities to meet the subsistence needs of the family unit. So the potential revenue from value-chains which command high value prices in the market remains unexploited. The Project appears to have underestimated the technical and financial expertise needed to carry out the exploitation of value-chains some of which command high-value prices in the market. As consequence, it is not surprising that the economic viability of income generating activities need strengthening through relevant capacities and information.

4.4 Ownership and sustainability perspectives in regards to the techniques and practices promoted

4.4.1 Community ownership of the techniques and practices promoted

In terms of ecosystem rehabilitation, the project is oriented towards the promotion of several techniques, while taking into consideration several concerns: (i) the adaptation of the technique to the characteristics of the implementation area; (ii) ease of application of the technique in the field; (iii) the techniques capacity to produce positive effects; and (iv) providing a sound perspective for community ownership by the beneficiaries. The main techniques promoted were:

- Direct seeding with ground labour;
- Thinning;
- Cutting hay for stocking;
- Installation of manual fire-breaks with animal crossings.

In terms of a comparative advantage, these techniques seem to be sound new practices for the communities of the sites. Villagers underscored the fact that the use of these techniques favoured rehabilitation and protection of the vegetation cover. Still, the degree of integration of certain techniques such as direct seeding was low during the 2007 trials due to various factors (villagers' misunderstood the techniques, did not comply with the criteria and norms required and a lack of monitoring[40]). These facts are paradoxical since the communities expressed interest in *"direct seeding which yields better results than nurseries. If we seed, our effort isn't wasted, even if the rains are not sufficient. The grains remain in the ground and sprout as soon as the rains come. However the plants take a lot of time and consume a lot of water. And the results on the ground are not great".*

[39] Cf. Tableau 5: Les AGR –situation entre 2006, 2007, 2008. Rapport d'activites du projet 2008,

[40] Mauritania-Senegal Biodiversity Project, 2008. Technical survey for direct seeding with ground labour.

The installation of fire-breaks has been well mastered at the sites and is easily replicable in other areas without external support.

The practice of developing and implementing plans and local rules is the main pillar supporting the current process of sustainable management of natural resources. The current procedure shows that local populations can engage in negotiations on how to access resources and achieve compromises that are acceptable to all users. Problems do arise, however, when it comes to applying the decreed rules. Often, transhumant groups look for subterfuges to circumvent the rules or to evade the constraints arising from compliance with these rules. The challenge here is to develop an operational integration of these transhumant groups on the sites

4.4.2 Sustainability mechanisms of the activities underway on the sites

Field visits have revealed differences in the level of community structures' awareness concerning the sustainability of activities. There is a group of sites in which the IVA / Cooperatives are working to establish mechanisms to ensure the continuation of a number of activities without external support.

At the Mbalal site, discussions on perspectives after project-phase out ended up identifying guidelines concerning : (i) the strengthening of site supervision in order to consolidate the achievements of ecosystem rehabilitation; (ii) joining the cooperative membership with a credit union, with the purpose of setting up a revolving fund such that a dynamic and sustainable tool could supply IGAs with appropriate funding; (iii) the rigorous application of local rules and the reinvestment of a portion of the taxes levied by the community organization into activities related to natural resource management.

The Ndiaël AIV has defined a five-year plan, from 2008-2012, whose implementation is based on diversified partnership. Besides the support from the Mauritania/Senegal Biodiversity Project, the association established collaborative relations with decentralized technical services, local organizations (Rosso-Béthio Community and Regional Council for Saint-Louis) and private operators benefitting from the leasing [farmee] of hunting zones and the COMPACT project. In the event of the Project's phase-out, the AIV initiated a planning exercise intended to identify the priority activities to be implemented.

In addition to the first group of sites, there is a second group of sites which have not yet developed an internal review on the issue of the sustainability of the activities which they implement, even though information on the project's phase-out was shared with them. Such a situation can be explained either by the fact that the community organizations lack planning skills, or by the existence of other sources of income (irrigated agriculture, income transfer from relatives, etc.).

At the regional workshop held in Nguigalakh (Rao district, Saint Louis) in October 2009, leaders of community structures appealed to the Mauritania and Senegal governments to find the funding needed to implement the consolidation of activities. In fact, to raise awareness amongst policy makers in both countries, leaders of Inter Village Associations and Cooperatives have requested

official hearings with the Prime Minister of Senegal and the President of Mauritania. They also called on development partners to mobilize funding necessary to consolidate ongoing activities and, thus, ensure the sustainability of Project achievements.

In conclusion, there are concerns about the varying degrees of institutional and economic sustainability manifested by the different Cooperatives and Inter-Village Associations in the project zone. In the mission's opinion, the Cooperatives and IVAs have achieved institutional sustainability stemming from their legally recognized status, as well as their acquisition of the right to manage and exploit all of the resources within the sites. As in other cases in the developing world, whenever the owner-operator modality is introduced, it makes the play of economic incentives in the process of introducing new practices possible. This is because the potential benefits will accrue on the owner-operators, i.e. the Cooperatives and IVAs. These changes in tenure rights enable institutional sustainability, which is essential for sustainable human development. The communities, Cooperative and IVAs, have been empowered by this institutional transformation brought about by virtue of the Project.

Gains accomplished in institutional sustainability have been compromised by the incipient economic sustainability among Cooperatives and IVAs. Wittingly or unwittingly, the capacity transfer to exploit the economic potential of income generating activities was miscalculated. There was a sound strategy to exploit the value-added from the flora and fauna, natural resources and ecotourism. Yet all evidence points to shortfalls in the direction of knowledge transfer to exploit the economic potential of the proposed value-chain. This was due to an absence of functional capacities central to the exploitation of income generating activities. Project management consistently enabled knowledge transfer in order to rehabilitate ecosystems. Yet it exhibited limited disposition to motivate the communities, Cooperatives and IVAs with information and expertise for the effective accomplishment of economic sustainability. Project management consistently engaged stakeholders, yet showed reluctance to implement and monitor policies and strategies for economic sustainability –despite the availability of resources for this purpose.

A framework for economic growth to take place in the context of the proposed value chain central to this process was pivotal. It must be assessed [1] markets for products or services, [2] new techniques or methods for the way outputs are produced, [3] local availability of supplies and equipment, [4] adequate economic incentives, as reflected in remunerative price relationships, and [5] low-cost and efficient transportation (necessary because natural resource products are spread out all over the Project zone). The first three factors provide owner-operators the opportunity to increase outputs or services for economic growth. The other two factors are linked to the perceived incentives of the owner-operator and the availability of infrastructure. The owner-operator will have to consider the margin between costs and returns, that is, his net income must increase if he is to provide his family with a rising level of living. This is where financial viability comes into play under the framework of economic growth. In fact, the proposed value-chains would have created the first spurt of economic growth, had they reached the high-value markets at the right time and price.

Current income generating activities conducted by IVAs and Cooperatives are geared primarily towards meeting the subsistence needs of the family unit. There is little or no market-oriented

production planning, nor are markets and commercialization strategies considered. The value-chains, some of which command high-value prices in the market, were not exploited. In the absence of monitoring studies, it is rational to infer that [1] there is little value added being generated, so the potential for income growth is diminished; [2] from figures available, it may be inferred that approximately only 5% of the targeted population in the Project zone has increased food availability for the family unit. Consequently, the economic viability of income generating activities needs strengthening so as to consolidate the accomplishments in institutional sustainability.

4.4.3 The Project in Prospective

In the context of imminent project phase-out, there is the need to identify what are the factors that need improving among the community-based organizations, so that they can promote themselves and create the conditions needed for their financial sustainability. In this vein, key actions to be considered for the Project in prospective are the following:

- Strengthening Cooperative and Inter-Village capacities to plan their activities within the framework of value-added chains, so as to exploit specific market segments of the global market, including negotiating partnerships. The value-added potential of non forest products, including handicraft products, remains untapped.[41] The identification of market segments and associated commercialization procedures is a growth area in income generation. It must be underscored that the effective exploitation of these market segments are highly influenced by the level of alphabetization and numeracy in the community. [42]
- There is also a growth potential in carbon sequestration. There is economic value in the carbon market, however there are currently two constrains to exploit this market. Firstly, though the data is available in the data bank, the potential of carbon sequestration is unknown. This can be improved as the data set is available. Secondly, there is no link yet with the market in terms of an organization or a broker involved in the market. It must be said that other UNDP/GEF projects have taken a more proactive attitude on this matter.[43]
- Another area of considerable potential for income growth, which remains untapped, is ecotourism. Wilderness settings and pristine areas can only be conserved when the communities surrounding these areas become effective stewards of the ecosystem's management, as is currently the case in Senegal and Mauritania, in virtue of the ongoing decentralization process. There is now a potential opportunity to both manage the ecosystems under the stewardship of the communities and derived income from managing the ecosystem.
- As is known, there are ecotourism principles that need to be reflected in specific policies in order to realize these market opportunities. [44] The cardinal principles of ecotourism include: 1- Educating the traveler on the importance of conservation. 2- Stressing the importance of responsible business, which works cooperatively with local authorities and community members in order to meet local needs and deliver conservation benefits. 3- This can be

[41] The handicraft industry is a USD 6 billion a year business, skillfully led by India and China. Cf. UNDP/Iran. Regional Planning Assessment, Programme Integration and Project Identification for UNDP's Provincial Initiative on Area-Based Development, Teheran, 2004

[42] UNDP/GEF Local business for global biodiversity conservation. New York, 2003, pp 15-54

[43] Cf. Groupe Kinomé www.treesandlife

[44] Cited in UNEP. op cit, 2002 p 18

achieved by relying on infrastructure that has been developed in harmony with the environment, minimizing the use of fossil fuels, conserving local plants and wildlife, and blending with the natural and cultural environment. 4- Directing revenues to the conservation and management of natural and protected areas. Emphasizing the use of environmental and social base-line studies, as well as long-term monitoring programs, to assess and minimize impacts.

Performance Criteria		**Mark**
Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".	
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.	**S**
Marginally Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.	
Marginally Unsatisfactory (MU)	Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.	
Unsatisfactory (U)	Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.	
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.	

4.5 Project performance summary

In the framework of a retrospective analysis, Table 10 is a summary of the project's performance, incorporating strategic areas of intervention:

The approach to implementation is vital as it anchors the framework for expected results.
The environmental outputs and development are rational and planned, not produced by chance.
Environmental results are influenced by stakeholder and beneficiary participation as a means to an end. Issues linked to the environment can evolve if they are perceived as possibility. So when environmental awareness has been conducted at the community level, policies and the necessary environmental management measures can then be addressed.

This experience proved that in the framework of monitoring and evaluation activities, if the outputs are not measured, it is not possible to distinguish between success and failure. If failure can't be recognized, it can't be corrected. However above all, if positive outputs can't be shown,

it is not possible to obtain the support of communities and stakeholders. Finally, based on the outcomes achieved, it is suitable to lay out a global perspective oriented towards promoting sustainability.

Each of the areas of evaluation have been noted by estimating whether or not it responds to the evaluation criteria in a manner which is Highly Satisfactory (HS), Satisfactory (S) Marginally Satisfactory (MS), Marginally Unsatisfactory (MU), Unsatisfactory (U) Highly Unsatisfactory (U).

Table 10. Project performance summary

Qualification	**Areas of assessment**			
	Implementation approach	**Stakeholder participation**	**Monitoring & Evaluation**	**Overall mark**
	82	85	78	80
	S	S	MS	S

Performance Criteria		**Mark**
Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".	90-100
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.	80-89
Marginally Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.	70-79
Marginally Unsatisfactory (MU)	Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.	60-69
Unsatisfactory (U)	Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.	50-59
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.	40-49

This proposed quantification should provide a shorthand estimate, not a precise measure, of the outputs and possible outcomes, in other words an approximation of the project's performance.
The highest mark refers to the thematic performance related to stakeholder participation, [85 out of 100] and monitored by the implementation approach [82 out of 100]. Thus the results obtained testify to the fact that stakeholder participation, particularly at the implementation sites, was a vital mechanism that facilitated the absorption of the innovative elements of biodiversity

management. The decisive manner in which the beneficiaries were implicated in the project activities should be highlighted. Logically, all achievements are the result of a positive implementation approach.

Regarding monitoring and evaluation, even though the project had established the baseline in terms of biomass biodiversity, several other benchmarks are still to be established, i.e. carbon sequestration, greenhouse gas emissions and household revenues for the 16 sites with respect to IGA activities. The absence of household analysis to understand what elements to consider in the financial viability of income generating activities was a setback, even more so because funds were available and there are competent national consultants in both countries as well as research organizations [78 out of 100].

Given the mark for each area of evaluation, the global mark corresponds to [80/100]. Thus, the project's performance is overall satisfactory. It achieved the majority of its main global objectives with regards to the environment and produced satisfactory environmental benefits.

5. LESSONS LEARNED AND RECOMMENDATIONS

5.1 Lessons learned

[L1] The paramount lesson learned is that the effort of rehabilitating ecosystems by local actors can only be conceived within a logic of strengthening their land rights, of constructing sustainable community organizations and of enhancing income. This approach requires working in the short-term to promote environmental rehabilitation initiatives supported by income generating activities to satisfy immediate livelihood needs and to strengthen mechanisms for ensuring the quality of the involvement of beneficiaries in decision making in the long-term.

[L2] The main achievements of the Project (i.e. to start up an organizational dynamic within the sites and developing a mechanism to access credit organized within the framework of sound natural resource management based on the promotion of environmental rehabilitation) are rather time consuming and labour intensive because the process of engaging local stakeholders is participatory and of voluntary nature. This is often misunderstood by central managers.

[L3] Community organizations that have achieved the greatest progress in terms of internal development are those that have drawn the maximum benefits from the support provided by the Project, or that have enjoyed an enabling environment (previous organizational skills, experience with a dynamic farming organization, experience with institutional collaboration with governmental decentralized technical departments and NGO stakeholders). The implementation of the strategy to strengthen Cooperatives and Inter-Village Associations was slower on sites that lacked organizational management frameworks before Project intervention or that possessed a limited tradition of cooperation between villages located on a single site. In the latter case, though the management organizations of the community were informed about the impending Project completion, they have yet to hold consultations on project phase-out prospects.

[L4] The rehabilitation of ecosystems has been one central task of Project management, therefore, skills and capacities available were primarily related to natural sciences. The strategy

to exploit the value-added from the flora and fauna, the processing of natural resources (including handicrafts and ecotourism) for income generating activities is sound. The knowledge needed to implement this strategy is related to the social sciences, in particular those disciplines associated with agricultural and rural development. All combined evidence indicates an absence of management capacity to bridge the natural and the social sciences in order to implement the strategy. Project management had to exercise leadership in learning to adapt to the changing needs not only of the environment but also the society, i.e. income generating capacity.

[L5] The process of attaining overall ecosystem sustainability is complex. The effective application of rehabilitation techniques and practices are not sufficient on their own to ensure sustainability. It is necessary to sequence [1] changes in tenure rights to empower institutional sustainability—essential for sustainable human development; and [2] enable an economic growth framework to induce economic sustainability. These necessary and sufficient conditions should bring about overall sustainability for the ecosystem. In this process, capacity development plays a pivotal role. Management leadership must ensure the diffusion of knowledge and expertise at both levels : [1] techniques for rehabilitation and maintenance of ecosystems; and [2] the sound exploitation of natural resources to enable sustainable livelihoods for the communities.

[L6] One implication of the ecosystem rehabilitation perspective is the clear interdependence between knowledge of the natural and social sciences as they relate to fostering sustainable livelihood systems—based on sound natural resource exploitation which is often linked with agricultural and rural development. The lesson learned from this Project is that management must generate knowledge and implementing capacity so that ecosystem rehabilitation becomes wholly sustainable. To this end, the capacity development approach requires a transformational leadership in management; that is, a leader capable of identifying the changes needed in mindsets and attitudes such that a vision is created to guide needed changes. This must be executed with the participation of the communities and the commitment of relevant stakeholders.

[L7] Greater efforts are required from UNOPS to become proactive within its own mandate such that its enhanced performance can contribute positively to the sustainability of ecosystems. There are management issues among UNOPS, UNDP and Project management intertwined with audit matters beyond the scope of an evaluation exercise. UNOPS and Project management have indicated their intention to review these matters within the context of an audit. This state of affairs has had a negative influence on the generation of development results.

5.2 Recommendations for the Governments of Senegal and Mauritania and donors

From an organizational perspective, it would be best to continue to work in order to consolidate two complementary directions: (i) strengthening the capacity building and institutional sustainability of community organizations so that they can fulfill their mission of strengthening and expanding the achievements of the project, and (ii) configuring a strategy to tackle technical and financial requirements to exploit the value-added from the flora and fauna and the processing of natural resources including handicrafts and ecotourism—so as to ensure the economic viability of income generation activities.

[R1] Consider the effective implementation of the Consolidation Strategy 2008-2010, whose lines of action have not yet been fully operationalized. Although funds were available to carry out this strategy, a flawed disbursement by the executing agency militated against its execution. In this context, operations should focus on:

- the consolidation of mutual savings schemes through a confederation;
- the revitalization of consultation frameworks developed at national and regional levels ; and
- the strengthening the institutional and financial capacity of community structures.
- To this end, the Mission suggests developing an action plan for strengthening the capacity of IVA and Cooperatives so they can take economic advantage of the value-chains proposed by the Project. Insofar as the IVA and Cooperatives are at varying stages of evolution and are characterized by their unequal capability to implement their objectives, the type of institutional support must be decided based on the developmental levels of each of them, i.e. identifying strengths, potentials, constraints and needs perceived as priorities.

[R2] The Project has concentrated its efforts on ameliorating technical and management capacities. In future efforts, the intervention strategy should consider incorporating the improvement of the strategic and business capacities of the community organizations' leaders, i.e. to develop skills in the analysis of rural business opportunities including commercialization procedures, financial proposal and resource mobilization, proposal preparation for rural investment opportunities, and monitoring of activity execution.
These capacity strengthening activities should target four categories of actors: [1] leaders who perform functions at different levels of community organizations, [2] elected officials of local administrations, [3] vulnerable groups from the sites, [4] decentralized technical services tasked with scale-up and replication of the project achievements.

[R3] Consider preparing a project document to formulate a consolidating phase for the consideration of development partners at large. This exercise should be prospective in order to optimize the existing synergies between the initiatives of biodiversity conservation and those of climate change adaptation within the framework of the cross-border transhumance issue, a common concern for Mauritania and Senegal. Such an approach offers significant advantages in that it allows:

- sustaining the effectiveness of ecosystem conservation activities that are likely to have beneficial effects on the climate change adaptation on the same or different scales ; and
- mobilizing financial resources by leveraging concerns related to climate change and biodiversity conservation. In addition to GEF and carbon credits, the source of funding must be diversified to take into account private and public [national and international] sources.
- All monitoring studies should be completed at the earliest possible date, as it is not possible to ascertain with rigor the degree of progress in key outcomes associated with carbon sequestration and greenhouse gas emissions. This is even more so in terms of the socio-economic baseline information, as this information is essential in determining income improvements among the primary beneficiaries. In this connexion, CSE should continue analysing the dynamic growth of the ecosystem with the use of radar images. There may be images in the archives that are useful for understanding trends in bushfire frequency—this holds considerable pertinence for the analysis of greenhouse emissions.

ANNEXES

ANNEX 1

Terms of Reference for Project Final Evaluation

Biological Diversity Conservation through Participatory Rehabilitation of Degraded Lands of Arid and Semi-Arid Transboundary Areas of Mauritania and Senegal

1. Basic project data

Project title:	*Biological Diversity Conservation through Participatory Rehabilitation of Degraded Lands of Arid and Semi-Arid Transboundary Areas of Mauritania and Senegal*
Beneficiary countries:	Mauritania and Senegal
Abbreviation	'450 Senegal Mauritania'
GEF Agency	United Nations Development Program (UNDP) Lead country: Senegal
Execution Agency:	United Nations Office for Project Services Bureau
Implementing agencies and partners:	Ministry of Environment (Mauritania) Ministry of Environment and Protection of Nature, Watersheds and artificial lakes (Senegal) United Nations Environment Program (UNEP) Mauritanian and German cooperation (GTZ) Dutch Cooperation
Project area	Senegal River valley (60,000 km²)
Project sites	16 sites (8 in Mauritania, 8 in Senegal) in the Senegal River valley, accounting for a total of 328.356 hectares
Project duration:	January 2001-December 2008

Financial set-up	
GEF	8,390,360 US $
Government of Mauritania	1,090,000 US $
Governement of Senegal	1,090,000 US $
Other donors (Netherlands, Federal Republic of Germany (GTZ)	2,190,000 US $
TOTAL:	12,760,360 US $

2. Introduction

All full-size and medium sized projects supported by the GEF are required to undergo a final evaluation (FEV) upon completion of implementation. A FEV reviews the implementation experience and achievement of results of the project in question against the project objectives endorsed by GEF, including changes agreed during implementation.

The focal area of the project (the Senegal River valley) covers a large 50 km wide strip on both sides of the Senegal River (100 km) and 600 km long, thus a surface area of 60.000 km². The project's direct beneficiaries are estimated at 80,000 persons living in 100 villages and hamlets in Senegal and Mauritania.

Aimed at developing and applying participatory, replicable management systems, the project intervenes in 16 sites representative of four ecosystems, including: 8 sites per country, 8 wilayas/regions (on average 2 sites per wilaya/region), 15 moughataa/departments (on average 1 site per moughataa/department), 18 communes/rural communities (1 site per commune/rural community).

In this respect, the focus of the '450 Senegal Mauritania' project was on the root causes of biodiversity loss in the four main ecosystems which cover 60,000 km² of the transboundary strip of the Senegal River valley. It sought to improve the natural ecosystems rehabilitation techniques, especially, those likely to generate revenue and to for the sustainable management of natural resources to have and economic impact.

The project's immediate objective is to develop and apply replicable, participatory systems for the rehabilitation and sustainable management of degraded lands in the Senegal River transboundary area, in view of preserving/conserving biological diversity and for diminishing climate change.

In order to achieve the project main objectives, five outcomes have been identified:

1) Biodiversity preservation is improved and carbon is more effectively sequestered because of the restoration of ecosystems and degraded lands through sustainable management;
2) Pressures on range and forest resources are reduced because of adoption of measures to increase supply and reduce demand;
3) Greenhouse gas emissions are reduced and ecosystems are conserved through control of bush fires;
4) Replicable community-based natural resource management systems generate alternative revenues for local populations; and
5) Local, national and regional capacities for sustainable management of natural resources / ecosystems are reinforced.

Rehabilitation of degraded soils and ecosystems of the River valley requires restoration of vegetation cover, where, priority has been given to local species and natural regeneration. The rehabilitation of these ecosystems also has immediate and national benefits, as well as long-term, global benefits. To achieve this goal, the project has encouraged two types of activities: (1) measures targeting the restoration, conservation and sustainable management of ecosystems and biodiversity; and (2) measures for institutional strengthening that emphasise the development of an effective transboundary cooperation to seek appropriate, concerted and harmonized solutions for common problems in the valley.

The project intervention strategy was participatory and integrated, so as to ensure improved natural resource management by actively involving the various parties concerned at all levels in analysizing, planning, implementation, monitoring and evaluation of activities. The strategy is supported by current decentralization policies in Mauritania and Senegal, which entrust local communities with the management of natural resources.

Thus the project's implementation has significantly involved local populations and their organizations, with the support of technical departments, and in some cases, service providers, in accordance with the principles of subsidiarity and complementarity.

Initially planned for five years (2001-2005), the project started its activities in January 2001. In June 2002, the project managers noted a discrepancy between the project document and its logframe. This required an exercise of revising the project strategy, called 'the re-orientation exercise' (or "*recentrage*" in French).

The reorientation strategy proposed by the project was approved by the April 2003 Project Steering Committee (PSC). It sought to further integrate biodiversity conservation in the natural resource management systems to be developed by the Project. This required the definition of impact indicators for the project's objective and components, as well as a general revision of its logical framework. The Project Operations Plan was also revised through an extension of 3 years. The project's revised Annual Work Plans (AWP) were then based on the new logframe approved by the March 2004 PSC. The logical framework and the AWPs clearly integrated the lessons learnt by the project team, as well as the recommendations of the GEF Secretariat assessment missions (SMPR[45], July 2003) and the Mid-term review (MTR, December 2003). A strategic budget review was completed in October 2004.

In 2007, the proposal of a strategy for the consolidation/reproduction of project assets was developed in accordance with the recommendations from the PSC of April 2007 .A consultative mission was undertaken in July/August 2007 to work out a project exit strategy based on the effective involvement of the project's targeted local communities in all activities linked to the management of natural resources and biodiversity conservation. Drawing inspiration from the results and recommendations of the study, the project team refined and adapted a consolidation/reproduction strategy. Based on this strategy, the following points were adjusted, in accordance with the logical framework:

- Operational plan for the period of consolidating project results (2008 – 2010)
- Roles and responsibilities of project stakeholders and partners,
- Terms of reference for the project units and experts.

The consolidation/reproduction strategy and its annexes were submitted for the approval of the PSC.

3. Evaluation Objectives:

The project Final Evaluation (FEV) serves as an agent of change for UNDP's and GEF's programming, as well as for the project's host countries with respect to their policies. Evaluations play a critical role in supporting accountability and institutional learning. Its main objectives are:

1. To assess the relevance, performance and success of the project in the achievement of its objective.
2. To identify early signs of potential impact and sustainability of results, including the contribution to capacity development of local beneficiary organisations, and the achievement of global environmental goals.
3. To identify/document lessons learned and make recommendations that might improve design and implementation of other UNDP/GEF projects.
4. To enhance organizational learning with focus on development work
5. To enable informed decision-making and improved policy development and implementation in the project's host countries.

According to the UNDP/GEF rules and to the Project Document (PRODOC), a final evaluation will be held around the project's final months. As a principle, FEVs should be completed within 6 months of closing of all project activities. The FEV process is initiated by UNDP, but operationally managed by UNOPS, as the project's executing agency.

As an integral part of the project cycle, the evaluation will analyze the achievements of the project against its original objectives. The evaluation will consider the effectiveness, efficiency, relevant, impact and sustainability of the project. It will also identify factors that have facilitated or impeded the achievement of the objectives.

[45] GEF *Specially Managed Project Review* (SMPR).

The FEV will touch upon issues of performance, project design, project strategy, reporting, M&E, use of technical assistance, the relationship with partners and effective use of financial resources.

While a thorough assessment of the progress to date with respect to implementation is important, the evaluation is also expected to result in a set of practical recommendations for the consolidation of project results by the host countries' governments and key stakeholder, drawing lessons. It is equally expected to assist in defining the future direction of biodiversity management in the transboundary areas of Mauritania and Senegal.

The following stakeholders will be considered in the FEV:

- Local beneficiary communities, including, their organizations (associations, cooperatives, *mutuelles* etc.), as well as women's and transhumant's groups
- Ministère chargé de l'Environnement (Mauritania)
- Ministère de l'Environnement et de la Protection de la Nature, des bassins versants et lacs artificiels (Senegal)
- Centre de Suivi Écologique in Dakar, Senegal
- Local service provider NGOs that were involved in project implementation as mediating agents between the project and communities (a full list including contact persons will be prepared by the project)
- Project Coordination Units (regional and national)
- UNOPS Office in Dakar
- UNDP Country Offices in Dakar and Nouakchott
- UNEP (the project's task manager)
- UNDP/GEF Regional Coordination Unit in Dakar, in particular the Regional Technical Advisor for the project (currently based in Pretoria).

4. Scope of the Evaluation

The following elements will be considered within the scope of the FEV:

Performance

- An analysis of the project's contribution to global environmental objectives (i.e. its overall goal or development objective), the project's achievement of its specific objective – assessed through the achievement of project and outcomes/impacts[46] (based on indicators), -- its delivery and the completion of project outputs/activities.

- Evaluation of project achievements according to GEF Project Review Criteria[47]:
    1. Implementation approach
    2. Country ownership/Driveness
    3. Stakeholder participation
    4. Sustainability
    5. Replication approach
    6. Financial planning
    7. Cost-effectiveness
    8. Monitoring and evaluation

- Each final evaluation will include ratings on the following two aspects: (1) Sustainability and (2) Outcome/Achievement of the project's objective (the extent to which the project's environmental and development objectives were achieved).

[46] Proposed changes to and effects on the environment and society to be caused by the project.
[47] Most of this discussion is based on the GEF Council paper: GEF Project Cycle (GEF/C.16/Inf.7)

- As an option evaluators should provide ratings for three of the criteria included in the terminal evaluations: (3) Implementation Approach; (4) Stakeholder Participation/Public Involvement; and (5) Monitoring & Evaluation.
- The ratings will be according to the following scale also adopted in Project Implementation Reports (PIR):

Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.
Marginally Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.
Marginally Unsatisfactory (MU)	Project is expected to achieve of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.
Unsatisfactory (U)	Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.

Lessons and Views of the Project

- Final evaluations should present and analyze main findings and key lessons, including examples of best practices for future projects in the country, region and GEF (technical, political, managerial, etc.). Lessons can revolve around the following leading issues:
    - Strengthening country ownership of biodiversity conservation;
    - Commitment of local populations and their institutions, local, national and regional authorities, as well as other key conservation partners;
    - Strengthening stakeholder participation in the process of analyzing, planning, implementation, monitoring and evaluation of activities;
    - Knowledge transfer gained through the project in natural resource management.

- If applicable, the FEV should also include an annex explaining any differences or disagreements between the findings of the evaluation team, the implementing and executing agencies or the host countries.

Key evaluative questions suggested by the project

- Have the expected results been met? If not, what are the reasons?
- Has the project strengthened partners' capacity to take action so that the site managers can be in charge of biodiversity conservation (management planning and monitoring)? If not, why?
- Assessing the relevance of the project's chosen methodology to achieve the project goals regarding biodiversity conservation
- Is the management of the information system established by the project regularly updated and is the information being effectively used for conservation planning and monitoring?
- Has the project created sustainable and replicable models in terms of income generation that contribute to biodiversity conservation?

- To what extent are the established site surveillance committees and committees for the fight against bush fire viable in the long term with external financing and support?
- How relevant have the project interventions been for beneficiaries? Has the project provided tangible benefits to help them improve their income levels and means of subsistence, as well as their ability to adopt livelihoods alternatives?
- Has the level of public awareness on biodiversity conservation issues and the support of the public for conservation activities improved?
- Has the project been able to create tangible links between local and global environmental benefits?
- What are the guarantees that the project results and benefits will be maintained after its completion in December 2009?
- Has the project applied the recommendations of the MTR and SMPR missions?

Other Aspects

- **Perspective for the future**: assessing the mechanisms to replicate the initiatives developed, taking into account the consolidation/reproduction strategy (2008-2010) whose implementation is ongoing in order to pursue project results and benefits after the end of the funding allocated by GEF and other sources.
- **More specifically, about the project's database**: The FEV will analyze the quality of data produced by project (ecological and socio-economic) and propose a sustainable mechanism for disseminating, using and safeguarding the integrity of this data.
- **Realised co-financing**: Assess whether co-financing has been sufficiently leveraged, including the in-kind contribution from the beneficiary governments (Senegal and Mauritania) – complete Annex B.
- **Gender**: The FEV will consider the extent to which the project has accounted for gender differences when developing and applying project interventions, as well as how gender considerations were mainstreamed into project interventions and the management of the project.
- **Millennium Development Goals**: The FEV will equally consider the extent to which project activities have contributed to the achievement of MDGs, with focus in the areas of biodiversity, poverty reduction and gender.

4. Products expected from the Evaluation

There will be two main products:

- **Final evaluation report**: Based on the above points, the evaluation should provide a document of approximately 40 pages covering all key aspects mentioned in the section on concerning the Scope of the Evaluation. The FEV report will be made available in French and English (UNOPS will arrange the necessary translation and evaluators will help review the document to ensure that both versions correspond).[48]
- **A Power-Point presentation** (in French) of the key findings of the evaluation: Depending upon the complexity of the evaluation findings, UNOPS, in consultation with the UNDP Country Offices in Senegal and Mauritania could consider organizing a stakeholders' meeting at which to make a presentation of preliminary results to the partners and stakeholders.

Indicative Structure of the FEV Report:

[48] It will be up to the evaluators to define if their original report will be in English or French. Whichever is the language of choice, translation to the other language should be organized.

Table of Contents
Acronyms and Terms
1. Executive summary
2. Introduction
3. The project(s) and its development context
4. Findings and Conclusions
   4.1 Project formulation
   4.2 Implementation
   4.3 Results
5. Recommendations
6. Lessons learned
7. Annexes
   - TOR
   - Itinerary
   - List of persons interviewed
   - Summary of field visits
   - List of documents reviewed
   - Questionnaire used and summary of results
   - Co-financing and Leveraged Resources

5. Evaluation Methodology

The evaluation methodology guidelines are provided below. Any changes should be in conformity with international criteria and professional norms and standards (as adopted by the UN Evaluation Group 7). Changes to the methodology must be also cleared by UNDP (and UNDP/GEF) before being applied by the evaluation team.

The evaluation must provide evidence-based information that is credible, reliable and useful. It must be easily understood by project partners and applicable to the remaining period of project duration. The evaluation should provide as much gender disaggregated data as possible. The evaluation will be carried out by the team through:

Documentation review (desk study); the list of documentation to be reviewed is included in Section 6 of these TORs. These documents will be availed by the project and/or UNOPS, UNDP and UNEP, including the UNDP Country Offices and the UNDP/GEF Regional Coordination Unit.

Interviews will be held with the following organizations and entities:

- Local groups (farmers, stockbreeders, Women's groups) and their organization type (association, cooperatives, *mutual benefit societies*)
- Local government administration (*sous-préfecture* in Senegal and *hakem* in Mauritania)
- UNDP: Resident Representatives and Country Directors (as applicable and available), members of UNDP's Environment Units in both the UNDP Dakar and Nouakchott Country Offices, and UNDP/GEF Regional Technical Adviser for Biodiversity covering Senegal and Mauritania.
- Ministère chargé de l'Environnement (Mauritanie): officer in charge of the project et technical directorate to which the project is linked
- Ministère de l'Environnement et de la Protection de la Nature, des bassins versants et lacs artificiels (Sénégal): officer in charge of the project et technical directorate to which the project is linked
- United Nations Environment Programme (UNEP), through the officer responsible for the agency's activities under the project
- Mauritanian and German Cooperation (GTZ)
- Dutch Cooperation

- Centre de Suivi Écologique (Dakar)
- Local government and technical services supporting the project

Field visits: in order to avoid biases, evaluators will choose at least three sites to be visited in each of the countries among the 16 that the project has operated in. This choice can be either random or according to criteria defined by the evaluators (e.g. ecological representativeness, social and organizational conditions, or other.)

6. Implementation Arrangements

The engagement of **one international evaluator and two national evaluators** (one Senegalese and one Mauritanian) has been budgeted for the proposed evaluation team. The team is expected to combine international caliber evaluation expertise with knowledge of the environment sector in both Senegal and Mauritania. The team will be operationally and substantively assisted by UNOPS, the Environment Unit of the two UNDP Offices (in Dakar and Nouakchott), the UNDP/GEF Regional Coordination Unit in Dakar (contact person is the Regional Technical Advisor responsible for the project) and by project staff at the regional and national project coordination units.

Team Qualities:

- Recent knowledge of result-based management evaluation methodologies
- Recent knowledge of participatory monitoring approaches
- Experience applying SMART indicators and reconstructing or validating baseline scenarios
- Recent knowledge of the GEF Monitoring and Evaluation Policy
- Experience applying UNDP's results-based evaluation policies and procedures
- Competence in Adaptive Management, as applied to conservation or natural resource management projects
- For the international consultant, experience in biodiversity issues and rural development (knowledge of, or experience in Sahelian ecosystems is a clear advantage)
- For the national consultants, familiarity with environmental issues in the Senegal River Valley
- Demonstrated analytical skills
- Experience with multilateral or bilateral supported conservation projects
- The two national team members display excellent French communication skills (oral, written and presentation)
- The international team member display excellent ability to write English and is able to speak French fluently

Individual consultants are invited to submit applications together with their CV for a position. Applications are welcome from anyone who feels they can contribute to the team because they possess three or more of the listed qualities. Obviously, the more qualities that can be demonstrated, the better the chances of selection are.

Joint proposals from three independent evaluators are welcome. Or alternatively, proposals will be accepted from recognized consulting firms to field a complete team with the required expertise within the evaluation budget (indicatively $50,000 all inclusive, but preferably below that amount).

Consultants' profiles and proposals from consulting companies will be analyzed by a panel composed of: two (02) representatives from UNOPS (one may be an element from the project team appointed by the UNOPS portfolio manager); one (01) representative from each of the UNDP Country Offices; one (01) representative from UNDP/GEF; and one (01) representative from each of the participating governments. UNOPS' procurement rules and the following general criteria and points will apply for selection:

Criteria *Points*

1. Education	20
2. Professional Experience with respect to the TOR*	40
3. Experience with the Region	15
4. Language	15
5. Cost effectiveness of the proposal	10
Total	100

** May be broken-down in several partial aspects at the panel's discretion*

Both the national and international consultants should become fully familiar with the project through a review of relevant documents prior to beginning travel to the country / initiation of the assignment. These documents include:

- Project document
- Work plans and project budgets
- Inception Report
- Project Implementation Reports (PIRs)
- Project redefinition in April 2003;
- GEF Secretariat Evaluation Mission in July 2003;
- Independent mid-Term evaluation mission in December 2003;
- Characterization of the Project area and sites (CAS) in 2004;
- Review of the project logical framework and operational plan with a 3-year extension (until 2008) in March 2004;
- Project Budget Review (2001-2008) in 2004;
- Development and implementation of the Consolidation/Reproduction Strategy and long term prospects (2008-2010) in 2007 and 2008
- Minutes of all steering committee meetings
- The GEF Monitoring and Evaluation Policy, February 2006
- The Evaluation Policy of UNDP, May 2006
- Recent project reports, website (www.biodiversite.org) and publications

The above-mentionned documents will be made available to the evaluators in advance of the mission and, to the extent possible, in electronic form. Any other reports produced in connection with the project (including those of the PDF Phase), website, publications, correspondence etc. which are considered relevant to the evaluation may availed by the project team after their arrival at the project's regional coordination unit in Saint Louis, Senegal.

The evaluation will be undertaken in-line with GEF evaluation principles of:

- Independence
- Impartiality
- Transparency
- Disclosure
- Ethical
- Partnership
- Competencies and Capacities
- Credibility
- Utility

Evaluators must be independent from both the policy-making process and the delivery and management of development assistance that is relevant to the project's context. Therefore, applications will not be considered from evaluators who have had any direct involvement with the design or implementation of the project. Any previous association with the project, national executing agencies (Ministère chargé de l'Environnement, in Mauritania, or Ministère de l'Environnement et de la Protection de la Nature, des bassins versants et lacs artificiels, in Senegal), the UNDP Offices in Nouakchott or Dakar, or any other partners/stakeholders must be disclosed in the application. This

applies equally to both firms submitting proposals as it does to individual evaluators. If selected, failure to make the above disclosures will be considered just grounds for immediate contract termination, without compensation. In such circumstances, all notes, reports and other documentation produced by the evaluator will be retained by UNOPS, as the operational agency responsible for the evaluation.

If individual evaluators are selected (rather than complete field teams proposed by a consultancy firm), the international consultant will serve as Team Leader. The Team Leader will have overall responsibility for the delivery of the evaluation products. Team roles and responsibilities will be reflected in the individual contracts and indicatively be as follows:

- Team leader / international consultant
- National Senegalese Evaluator
- National Mauritanian Evaluator

If a proposal is accepted from a consulting firm, the firm will be held responsible for the delivery of the evaluation products and therefore has responsibility for team management and backstopping arrangements.

7. Implementation Management

The principal operational responsibility for managing this evaluation lies with the UNOPS in collaboration and consultation with UNDP (including UNDP/GEF) and UNEP. UNOPS is thereby the main operational focal point for the evaluation, responsible for liaising with the project team to set up the stakeholder interviews, arranges the field visits and co-ordinate with the project and Government counterparts. UNOPS will contract the evaluators and ensure, in collaboration with the project coordination units, the timely provision of per diems and travel arrangements within the country for the evaluation team.

8. Mission Timetable

The timetable presented in this section is indicative and, to a certain extent, negotiable. Candidates are welcome to propose alternative timetable, which will be considered when assessing their candidatures.

The proposed time of the evaluation will be from **September to November 2009**, with the draft report being available for comment 2 weeks after the completion of the mission. A schedule of activities which comprises a maximum of **six (06) effective working weeks** of minimum 6 full working days each is set out below.

Resources, logistical support and Deadlines *(please refer to timetable below for proposed dates):*

ONE working week preparation before field work: to review documents, obtain necessary non-project background or supporting documents, finalize evaluation methodology, surveys etc, develop hypotheses about the project strategies and management and consider methods for testing hypotheses. Telephone interview with the UNDP/GEF Regional Technical Advisor should be arranged during this period.

THREE working weeks field work in Senegal and Mauritania, of which at least two weeks are in the Senegal River Valley: evaluators are expected to work 6-day weeks when on mission. With the evaluation's emphasis on results on the ground, the evaluators' team is expected to work closely with the project team.

ONE week after the mission to prepare the first draft of the evaluation report.

THREE weeks after delivery of the first draft report, a fully reviewed translation of the FEV report will be made available and circulated by UNOPS with collaboration from the UNDP Country Offices.

THREE weeks for comments on the draft report: The first draft Final Evaluation report (in both English and French) should be submitted to the Head of UNOPS Dakar and the UNDP Resident Representatives in Senegal and Mauritania with copies to the UNDP/GEF Regional Coordination Unit. UNOPS and the UNDP Offices in close collaboration with the project team, governments and the UNDP/GEF Regional Technical Advisor should analyze, provide comments and share it with different stakeholders.

ONE week to integrate the comments and finalize the evaluation report: The evaluation team will incorporate the comments into the final version within one week of receiving the comments. The evaluation team is responsible for ensuring matters of fact are revised in the report, but matters of opinion may be reflected at their discretion. The final report must be cleared and accepted by the UNOPS in consultation with the two UNDP Country Offices. 'Clearance and acceptance of the report' by either UNOPS or UNDP does not equate with agreement with its contents. It is rather an operational act that indicates that the assignment is fulfilled, so that consultants may get paid. In the case of any unresolved difference of opinions between any of the parties, UNOPS may instruct the evaluation team to set out the differences in an annex to the final report. Any changes to the first draft report will be marked with tracked changes in order to facilitate the updating of translation.

TWO weeks after delivery of the final FEV report, a fully reviewed update of the translation will be made available and circulated by UNOPS. Thereafter, the UNDP Country Offices and the UNDP/GEF Regional Coordination Unit will prepare a management response in collaboration with the Project Office.

It is expected that at least one member of the project would accompany the team during the visits in order to facilitate contact to stakeholders and provide clarifications where necessary.

During the evaluation period, the team will require office space. This could be provided either at project's regional and national coordination units or at the UNOPS Dakar while in the city or by UNDP Mauritania, while in Nouakchott.

ANNEX 2

ITINERAIRE

Samedi 24 octobre 2009

1. Saint–Louis–Ndioum
2. Ndioum–Diarra

Dimanche 25 octobre 2009

1. Ndioum–Richard–Toll

Lundi 26 octobre 2009

1. Richard–Toll–Syer
2. Syer–Richard–Toll

Mardi 27 octobre 2009

1. Richard–Toll–Ross–Béthio
2. Ross–Béthio–Saint–Louis

Mercredi 28

1. Saint–Louis – Rosso

2. Rosso – El Khatt
3. El Khatt – Rosso

Jeudi 29

1) Rosso – Mballal
2) Mballal – Rosso
3) Rosso – Boghé
4) Boghé – Nouakchott

Lundi 2 novembre

1) Nouakchott – Saint–Louis

Vendredi 13 novembre

2) Saint–Louis – Dakar

ANNEX 3

LISTE DES PERSONNES RENCONTREES

A Dakar :

Donato SERENA, Chargé de portefeuille à l'UNOPS
Mohamed Bocoum, Coordonnateur de l'Unité régionale de coordination du Projet
Arona FALL, Chargé de programme, PNUD
Alioune DIALLO, Chargé de programme, Ambassade royale des Pays Bas
Assize TOURE, DG du Centre de Suivi Ecologique
Aliou DIOUF, Expert au CSE
Baba SARR, Directeur des Eaux et Forêts
Ibrahima KANE, Division Reboisement, Direction des Eaux et Forêts
Pape Waly Gueye, Coordonnateur sortant de la CEPS, Ministère de l'Environnement
Racine DIALLO, Coordonnateur entrant de la CEPS, Ministère de l'Environnement
Hamady CISSE, Expert à la CEPS, Ministère de l'Environnement
Ndiawar DIENG, Conseiller technique n°1, Ministère de l'Environnement

A Saint–Louis :

Mohamed BOCOUM, Coordonnateur de l'Unité régionale de Coordination du Projet
Amadou Tidiane DIA, Expert chargé du suivi–évaluation
Ndiogou GUEYE, Chef de l'Unité nationale de coordination du Sénégal
El Hadji Babou NDAO, Expert en aménagement forestier, Unité nationale de coordination du Sénégal
Abdou BODIAN, Expert en pastoralisme, Unité nationale de coordination du Sénégal
Néma OULD TALEB, Chef de l'Unité nationale de coordination de la Mauritanie
Babacar FAYE, Inspecteur régional des Eaux et Forêts

A Nouakchott :

1. Dr Idrissa Diarra, Ministre délégué auprès du Premier Ministre, chargé de l'environnement et du développement durable
2. Ahmed Ould Abdel Vetah, Directeur de la Protection de la nature
3. Ba Amadou, Directeurs des Aires protégées et du littoral
4. Mohamed Yahya Ould Lafdhal, Directeur de la Programmation et de la coordination
5. Amat Paté Sène, Expert au Bureau du PNUD de Mauritanie
6. Keth Kirsch Jung, GTZ
7. Sidi Ould Mohamed Lemine Khalifou, Président de l'ONG dénommée ECODEV
8. Tourad Ould Sory, Expert socio-économiste ECODEV

Au niveau du site de Diarra :

Prénom et Nom	***Fonction***
Demba LY	Membre de l'AIV
Abdoulaye NDIAYE	Président de l'AIV
Idrissa BA	Commissaire aux comptes de l'AIV
Galo HANE	Président commission Elevage de l'AIV
Ibra BA	Secrétaire comité crédit de l'AIV
Seydou Bodiel BA	Président commission environnement de la communauté rurale de Dodel
Thierno SOW	Secrétaire de l'AIV
Fatoumata Mamadou DIA	Adjointe trésorier de l'AIV
Aissata THIAM	Ajointe du Président de l'AIV
Sadio KEITA	Chef sous–secteur des Eaux et Forêts
Ousmane FALL	Chef secteur des Eaux et Forêts de Podor
Moussé DHE	Président comité de crédit de l'AIV
Amadou BA	Trésorier de l'AIV
Abdoul Aziz SY	Stagiaire ENCR de Bambey

Au niveau du site de Syer :

Prénom et Nom	***Fonction***
Amady BA	Président commission élevage de l'AIV
Mbaye KA	Membre de l'AIV
Sala BA	Trésorière de l'AIV
Koura SOW	Membre de l'AIV
Aly SOW	Membre de l'AIV
Abdou SOW	Membre de l'AIV
Ngouty SARR	Trésorier de l'AIV
Aly Yoro SOW	Président comité de crédit de l'AIV
Sidy SOW	Membre de l'AIV
El Hadj SARR	Chef de village
Sidy KA	Président du Conseil rural
Moctar SOW	Président de la commission environnement de la communauté rurale
Moctar Djiby KA	Président de l'AIV

Au niveau du site de Ndiaël :

Prénom et Nom	***Fonction***

Mahmoudou TALL	Assistant PADIN
Ansoumana BADJI	Consultant en aquaculture
Moctar WADE	Coordonnateur du PADIN
Babacar DIOP	1er adjoint au maire de Ross–Béthio
Amadou SOW	Président AIV
Alhousseynou SOW	2ème adjoint au maire de Ross–Béthio
Aldiouma DIALLO	Trésorière de l'AIV
Mariama DIALLO	Trésorière adjointe de l'AIV
Dembel BA	Président commission reboisement de l'AIV
Bacary Sidy DIATTA	Stagiaire ASFAR de Bambey
Abdoul KA	Membre commission surveillance de l'AIV
Alassane KA	Membre commission faune de l'AIV
Sengane SOW	Membre de l'AIV
Babacar DIAGNE	Secrétaire de l'AIV

A Rosso Mauritanie

Nom et Prénom	**Fonction**
Néma Ould Taleb	Responsable de l'Unité
Itawal Oumrou O/ Lehcen	Expert à l'Unité
Au niveau du site d'El Khatt	
Nom et Prénom	
El Banoune Ould Eminou	Président de la Coopérative Sylvo-pastorale d'El Khatt
Ahmédou Salem Ould Houmeïdi	Vice-Président
Rabah Ould Salem	Responsable du volet Feux de brousse
Mohamed Nila Brahim	Responsable du gardiennage
Mohamed Ould Kah	Président Comité Crédit dela Mutuelle
Mint Bahnim Mint Ahmed	Responsable études à la Mutuelle
El Banoune Ould Ahmed Ould Bah	Conseiller municipal
Mboïrick Ould Maham	Notable
Abdallah Ould Lorbeidene	Trésorier de la cooperative
Nejatt Mint Mahjoub	Membre du Bureau de la cooperative
Mounounim Mint Koreibane	-id-
Yehdih Ould Sidi Mohamed	Notable
Mohamed Salem Ould Ahmed Salem	-id-
Moctar Ould Yehdih	-id-
Yedaly Ould Baba	-id-
Yedaly Ould Kah	-id-
Ahmedou Ould Kamal	-id-
Mariem Mint Mohamedou	Membre du Bureau de la cooperative
Mint Nenna Mint Mahmoud	Membre Comité de crédit
Marieme Mint Ahmedou Salem	Coopérative féminine
Mounina Mint Mohameden	-id-
Monomine Mint Mahfoud	-id-
Meimouna Mint Mohameden Vall	-id-

Au niveau du site de Mballal	
Nom et Prénom	***Fonction***

Ndiksad O/ Sneiba	Président de la Coopérative
Limam O/ Selemde	Vice-Président
Mohamed O/ El Moctar	Responsable des pare-feux
Brahim Vall O/ Vaeigh	Comité de crédit
Baba O/ Dah	Notable
El Hacen O/ Isselmou	Secrétaire Général Coopérative
El Houcein O/ Brahim	Membre du Bureau
Sidaty O/ Soueïdy	Id -
Mohamed O/ Soueïdy	Commissaire aux comptes
Mohamed Vall O/ Mohamed Khaïratt	Responsible des AGR
Bette O/ Mohamed Bouna	Membre Comité de credit
Fatimetou M/ Zaïd O/ Moudimia	Gestionnaire de la Mutuelle
Baba O/ Mohamed Abdallahi	Trésorier de la Coopérative
Bilal O/ Djember	Notable
Mboirick O/ Mbareck	Gardien d'un périmètre du site
Doueidi M/ El Hacen	Membre du Bureau de la Coopérative
Meyah M/ Belola	Coopérative féminine
El Khaït M/ Sneiba	Id -
Khaldouna M/ Beddih	Membre du Bureau de la Coopérative

A Rosso :

1. Hakem (préfet) de Keur Macène
2. Moctar Sy, représentant régional (p.i) du ministère de l'environnement et du développement durable

ANNEX 4

RESUME DES VISITES DES SITES

1. Visite du site de Diarra

- Site situé à cheval sur deux communautés rurales (Dodel et Gamadji) ;
- Superficie de 10 000 ha (forêt classée de Diarra : 3000 ha et zone de terroir : 7000 ha)
- AIV regroupe 12 villages ;
- Structure communautaire créée en 1996 avec l'appui du PROWALO (forêt classée autrefois riche en ligneux et en pâturage a connu une dégradation à partir de 1973 avec les sécheresses et l'afflux de charbonniers détenteurs d'autorisations délivrées par le service forestier) ;
- AIV a deux objectifs ; planter des arbres et protéger le site ;
- Appui du projet pour l'obtention d'une reconnaissance officielle de l'AIV ;
- Encouragement du projet pour faire des démarches en vue obtention d'une parcelle pour le siège de l'AIV ;
- Activités menées dans la forêt classée : (i) semis ; (ii) surveillance ; (iii) élagage ; (iv) pépinières ; et (v) récolte de semences ;
- Mécanisme de micro–crédit pour développer des AGR liées à la GRN ;
- Création de comités villageois et paiement droit adhésion de 5000 F par village, en plus des cotisations mensuelles dont le montant est de 500 F CFA par mois par adhérent ;
- Intervention de l'AIV a mis fin aux activités de carbonisation dans la forêt ;

- Exploitation des produits forestiers non ligneux : jujubes, gousses et miel ;
- Capacités de production de fruits de balanites et de jujubes évaluée à 5 tonnes (prix de vente à 150 F CFA par kg).

2. Site de Syer

- Aménagement d'une parcelle pastorale test de 300 ha en 2007 (superficie totale du site est de 27 800 ha), avec mise en défens de 16 parcelles dont la superficie est comprise entre 20 et 150 ha ;
- Ces mises en défens devraient devenir plus tard des parcelles de biodiversité ayant un statut d'aires protégées (possibilité prévue dans le Code des collectivités locales) ;
- Zone confrontée à une forte dégradation se traduisant par raréfaction des espèces appétées ;
- Application d'un système de rotation des pâturages en saison des pluies avec durée exploitation des parcelles fixée à 7 jours ;
- Retour de plusieurs espèces végétales dont Zornia glochidiata et Dactyloctenium aegytiaca ;
- Parcelle de biodiversité dans les bas fonds caractérisée par le retour de la faune (outardes, gazelles et oiseaux d'eau) et une forte dynamique de régénération des Acacia radiana ;
- Constitution de réserves fourragères (expérience menée par un pasteur ; ce qui a permis de nourrir pendant 1 mois 3 bovins et 30 ovins) ;
- Appui financier de la communauté rurale pour l'entretien des pare–feux (1 000 000 F CFA).

3. Site de Ndiaël

- Mise en défens de 2003 à 2008 d'une parcelle pastorale (règles locales autorisent la fauche de la paille et l'accès du bétail en période de soudure, mais l'accès du bétail est interdit en période de maturation des gousses et des fruits sauvages) ;
- Effort de réhabilitation de l'écosystème exige des ressources financières limitées puisque l'investissement porte sur la délimitation du site avec des pancartes) ;
- Surveillance est assurée par les villages à titre bénévole ;
- Accès des transhumants est contrôlé (installation dans les villages limitrophes de la parcelle mise en défens) ;
- Zone fait l'objet d'une convoitise foncière (demande d'une attribution de 2 500 ha faite par un promoteur et adressée à la Présidence de la République. Demande rejetée par le service forestier parce que le site a un statut de réserve de faune, de site de Ramsar et site de réserve de biosphère transfrontalière) ;
- Accès réglementé pour prélever les gousses
- Pare–feu périphérique de 150 km ouvert avec l'appui du projet et entretenu en 2009 avec le soutien de la RBT ;
- Elaboration du PTA 2010 et contact avec projet RBT pour financement de l'entretien des pare–feux.

4. Site d'El Khatt

Ce site se situe à 40 Km environ, au NNE de Rosso. C'est un site pastoral, de la commune d'el Khatt, moughataa (département administratif) de Méderdra, wilaya (région administrative) du Trarza. Il est toutefois limité au sud par deux défluents du fleuve Sénégal, dont les eaux inondent parfois la partie située dans la dépression.

Le site occupe une superficie de 15 462 ha et regroupe 12 villages et/hameaux, regroupant près de 11 505 personnes ; la commune regroupant 22 villages et une population de 7 400 personnes.

Le projet avait commencé par un regroupement de 4 villages autour de la zone de pâturage, en 2001. Puis, en 2004, le regroupement s'est élargi aux autres villages et a abouti à la création de la coopérative sylvo-pastorale d'el Khatt, officiellement reconnue en 2006.

Pendant toute la période précédant la reconnaissance, la coopérative a continué son travail de gestion des ressources naturelles (GRN).

Les activités de semis, de pépinières et, surtout d'ouverture de pare-feux sont ainsi conduite, sous la supervision des services techniques. Il faut noter qu'en dépit de la modestie de leurs moyens, ces derniers ont assurés un encadrement, jugé satisfaisant par les bénéficiaires.
En particulier, ce site a mis en œuvre un programme de 40 Km de pare-feux périphériques et une mise en défens de la zone, ainsi qu'une sensibilisation permanente en direction des populations du site et hors du site.

Une exploitation rationnelle des ressources naturelles a permis la régénérescence d'espèces végétales, réputées disparues depuis quelques années.

La coopérative a adopté un plan de gestion du site, avec une subdivision de celui-ci en parcelles (inter-dune, dune fixe, tamourt, plaine inondable). Dans ces parcelles, des semis sont réalisés, ainsi que la mise en défens.

Les résultats de ces activités pourraient être résumés comme suit :

- Une quasi éradication des feux de brousse ;
- La production de plants et plantations ;
- La cueillette de semences et de la gomme arabique ;
- L'exploitation du bois de chauffe ;
- Le tissage des nattes ;
- La valorisation du lait ;
- L'embouche ovine.

La mise en place d'activités génératrices de revenus (AGR) a permis à la coopérative sylvo-pastorale de renforcer les activités de GRN, avec des crédits accordés à hauteur de 4 millions d'Ouguiya, avec un encadrement par une ONG spécialisée, dénommée ECODEV.

Une mutuelle de crédit est créée pour répondre aux exigences de la Banque Centrale de Mauritanie (BCM) ; mais les membres de la coopérative ont des performances très limitées en la matière.

En résumé, on peut dire qu'au site d'El Khatt :

- Les populations regroupées au sein de la coopérative sylvo-pastorale sont très enthousiastes et tirent un intérêt réel des activités du projet ;
- Une véritable restauration de la diversité biologique est visible ;
- Une exploitation rationnelle des RN est aussi réalisée ;
- La coopérative a créé sa mutuelle pour répondre essentiellement aux exigences légales.

5. Site de Mballal

Le site de Mballal se trouve à 35 Km au NNW de Rosso, dans la commune de Mballal, moughataa de Keur Macène, wilaya du Trarza. Il s'étend sur 11 000 ha et renferme une population estimée à 8 000 personnes, réparties dans 14 villages et encadrées par une coopérative sylvo-pastorale.

Comme El Khatt, Mballal se trouve sur la partie exondée du bassin du fleuve Sénégal. La coopérative de Mballal a commencé par une mise en défens partielle (saison des pluies) et des semis d'espèces locales. Ce n'est qu'au cours de la deuxième année que la coopérative a entamé des travaux de technique de pépinières ; technique à laquelle elle a substitué celle de demi direct, à cause de l'importance relative de moyens et de temps qu'exige la première.

La préservation de l'aire du site a permis d'arrêter les coupes abusives et la carbonisation.
La reconnaissance officielle de la coopérative et le fait que l'Etat ait confié la gestion du site à la coopérative, ont largement contribué aux résultats atteints par cette dernière, dans le cadre du projet, dont le siège est installé à Loubeirid, qui est une localité secondaire par rapport à Mballal.

Ainsi, la coopérative a, entre autres :

- Procédé à la délimitation du site ;
- Réalisé des labours et semis directs ;
- Réalisé des pare-feux, dont un pare-feu périphérique de 60 Km ;
- Réalisé la production de plants et de plantations.

Le financement des AGR est à hauteur de 4 millions d'Ouguiya. Les activités suivantes ont ainsi été réalisées :

- Embouche,
- Ramassage et vente de paille,
- Ramassage et vente de bois de chauffe,
- Vente de lait,
- Collecte et vente de semences sylvicoles,
- Ramassage et vente de gomme arabique.

La coopérative a créé une mutuelle de crédit, pour être en conformité avec la réglementation en vigueur. Avant la mise en place de la mutuelle, 34 micro projets ont été financés ; ensuite, en 2008, 36 autres ont été financés et 13 en 2009.

Pour des raisons de prescription religieuse (charia islamique), les mutuelles n'appliquent pas de taux d'intérêt, mais des frais fixes de traitement des dossiers de 4 000 UM par dossier.
Les travaux ont occasionné des dépenses s'élevant à :

- 1 494 000 UM en 2006 ;
- 1 018 600 UM en 2007 ;
- 1 250 000 UM en 2008.

Les membres de la coopérative ont bénéficié d'une innovation : l'un d'entre eux a mis au point une « machine » très simple, à traction animale, pour ouvrir les pare-feux.

La régénérescence des essences locales, dont certaines avaient disparu, a aussi permis des revenus non négligeables (gomme arabique). Les méthodes de cueillette appliquées dans le site sont plus en mesure de préserver la ressource, alors qu'en dehors du site on applique encore la saignée.

En résumé, on peut dire que la coopérative sylvo–pastorale de Mballal :

- Entreprend avec beaucoup d'enthousiasme les activités de préservation de diversité biologique ; c'est une activité nouvelle dans la zone et qui intéresse toutes les populations ;
- A réussi à limiter considérablement les coupes et les prélèvements abusifs des ressources naturelles, en dépit de la faiblesse des moyens de l'encadrement technique ;
- A permis la promotion d'une exploitation rationnelle des RN, notamment de la gomme arabique ;
- A suscité un intérêt croissant des pouvoirs publics, pour l'expérience ainsi développée ;

- A mis en place une mutuelle de crédit, conformément aux recommandations qui lui ont été faites, qui fonctionne de façon encore peu professionnelle et mérite un renforcement.

6. Site de Boghé Est

Ce siteest situé à l'est de la ville de Boghé, commune de Boghé, moughataa de Boghé, wilaya du Brakna. Il faut toutefois noter que le site empiète sur la commune voisine d'Aéré Mbar, moughataa de Bababé.

Le site renferme est qualifié de steppe arbustive comprenant des pénéplaines sableuses ou *« jeeri »*, des plaines inondables ou bas–fonds à *Acacia nilotica* , la forêt classée de Walaldé et la réserve forestière de Thidé. Ce site est donc à vocation agro–sylvo–pastoral sur un espace de 7 923 ha. Il regroupe 14 villages, où vivent 19 920 personnes, encadrées par une coopérative sylvo–pastorale de Boghé Est.

Le site est subdivisé en parcelles pour faciliter la surveillance par les villageois membres de la coopérative. Ces subdivisions en blocs pastoraux et forestiers. Sur le territoire de ces blocs, on a opéré, soit des labours et semis, soit des semis directs, soit encore des semis directs avec des techniques sylvicoles, soit enfin des techniques de gestion rationnelle des forêts.

La coopérative a reçu une reconnaissance officielle et, surtout la concession d'exploitation des ressources pastorales et forestières (protocole d'entente co-gestion avec l'Etat). Elle a réalisé des activités, parmi lesquelles on peut citer :

- L'organisation et la sécurisation de la coopérative,
- La délimitation de la forêt et des blocs ;
- La production de plants et plantations ;
- Le labour et les semis ;
- La réalisation de 60 Km de pare-feux ;
- La sensibilisation des populations ;
- La mise au point de règles de GRN ;
- L'adhésion à une mutuelle de crédit.

La mutuelle, dénommée Agence de micro–crédit (AMIC) a permis le financement de 59 micro–projets pour un total de 4 780 000 UM, avec un taux de recouvrement de 80 %.
Les travaux communautaires de GRN, ils ont coûté :

- 269 000 UM, en 2005/2006 ;
- 1 179 000 UM, en 2007 ;
- 1 000 000 UM, en 2008.

Parmi les contraintes que rencontre la coopérative, on peut citer :

- Une installation anarchique de campements dans le site ;
- La pression animale ;
- Les coupes abusives ;
- La faiblesse du volume des prêts ;
- La pauvreté ambiante des populations.

En résumé, on peut retenir que :

- Le site de Boghé Est regroupe en son sein la quasi-totalité des écosystèmes concernés par le Projet ;

- La population du site est relativement importante par rapport aux sites sylvo–pastoraux et même des autres communes rurales de Mauritanie ;
- La forêt classée de Walaldé est parmi les dernières « rescapées » de la Mauritanie, d'où l'importance de la pression humaine et animale ;
- Le site est le seul dont le territoire s'étend sur celui de deux communes différentes, appartenant à deux moughataa différentes, mais voisines.

ANNEX 5

LISTE DES DOCUMENTS CONSULTES

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RIM/MDRE, 2002. Programme d'action national de lutte contre la désertification
RIM/PNUD, 2004. Plan d'action national pour l'environnement et le développement durable en Mauritanie
United Nations Environmental Programme (UNEP). Mission Report. RAF/98/G31 Biological diversity conservation through participatory rehabilitation of the degraded lands of the arid and semi-arid transboundary areas of Mauritania and Senegal. Reports dated on : 15/06/02 to 28/06/02; 12/02/05 to 19/02/05; 12/11/05 to 20/11/05; 21/02/06 to 27/02/06; 25/06/06 to 03/07/06; 14/04/07 to 29/04/07.
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UNDP Charting a new low-carbon route to development. A primer on Integrated Climate Change Planning for Regional Government. New York, 2009, pp 11-21
UNDP/UNEP/WB/WRI. World Resources 2005: The wealth of the poor. Managing ecosystems to fight poverty. Washington, D.C., 2005, Chapter 1
United Nations, Joint Inspection Unit (JIU), Glossary of Evaluation Terms (JIU/REP/78/5). Cited in: UNDP 1997, op cit, Ch 3.

ANNEX 6

METHODE ET DEMARCHE DE LA MISSION

1. Objectifs

« L'Evaluation Finale du Projet (EVF) *présente* servira de vecteur de changement pour la programmation du PNUD et du FEM, ainsi que pour les pays hôtes concernant leurs politiques. Ses principaux objectifs sont:

1. Evaluer la pertinence, la performance et le succès du projet dans la réalisation de son objectif.
2. Rechercher les signes précoces d'un impact éventuel et la pérennité des résultats, y compris la contribution au développement des capacités des organisations locales bénéficiaires, et l'atteinte des objectifs environnementaux globaux.
3. Identifier/documenter les leçons apprises et formuler des recommandations susceptibles d'améliorer la conception et la mise en œuvre d'autres projets PNUD/FEM.
4. Accroître l'apprentissage organisationnel en mettant l'accent sur le travail de développement
5. Permettre une prise de décision éclairée et l'amélioration de l'élaboration et de la mise en œuvre de politiques dans les pays hôtes. » [TdR, page 3]

2 La démarche de l'EVF

Les principes majeurs et grandes lignes stratégiques du Projet englobent : [49]

- la gestion durable comme une stratégie de conservation de la biodiversité,
- la gestion forestière des formations sahéliennes avec exploitation basée sur la régénération de ces formations par la population ;
- la mise en œuvre de l'approche participative ;
- l'utilisation de techniques à la portée des populations locales ;
- la définition et l'évolution des rôles respectifs entre les services étatiques, la société civile et la population ;
- la gestion des pâturages à travers la conduite animale.

Dans le cadre des lignes stratégiques du Projet, la mise en œuvre de l'EVF impose de taches multiples et variées, chacune dans un contexte et timing différents.
La démarche convenable pour la mise en œuvre du EVF est l'approche participative [AP]. L'AP est un processus d'évaluation collaboratrice. Elle est basée sur les acquis du projet et valorise la contribution de toutes les parties prenantes. Chacun a l'opportunité de présenter ses perceptions. Le processus de décision est de nature collégiale. [50]

[49] Projet biodiversité. Mise en œuvre de la stratégie de consolidation pour renforcer la coopération mauritano-senegalaise, initiée par le projet. Août 2008, p 5

[50]. L'approche participative met, en effet, à jour la différence entre une évaluation et une vérification Un **audit** est un examen qui apprécie et rend compte de la mesure dans laquelle une situation donnée, un processus ou une

L'EVF comporte deux approches complémentaires : l'une rétrospective et l'autre prospective. L'approche rétrospective se focalise sur l'évaluation des résultats du développement qui englobe les résultats environnementaux globaux.[51] Elle attribue les points de l'évaluation sur les effets. On cherche les résultats attendus et mesurables pour déterminer la contribution du projet envers ceux-ci. On doit établir un haut degré de plausibilité d'association entre les produits du projet et les résultats observés.
De plus, l'examen rétrospectif, en raison de son focus sur les résultats de développement, ne vise pas à analyser en profondeur les questions de vérification. L'on soulève des questions de gestion seulement ci ces questions sont révélées, durant l'analyse, comme ayant une influence marquante sur la réalisation des résultats de développement escomptés.
A partir des constats et les leçons apprises provenant de l'examen rétrospective, l'approche prospective s'adresse à la problématique d'après -projet, notamment la durabilité des résultats acquis.

Pour évaluer les accomplissements, l'approche participative applique "l'enchaînement des résultats" et les "champs d'évaluation" dans le cadre de la gestion basée sur les résultats. "L'enchaînement des résultats" a trois niveaux. Ils sont de nature composite, c'est à dire que les actions à chaque niveau doivent être complétées de façon satisfaisante avant que le prochain niveau puisse être entamé. Si vous accomplissez les actions ou activités requises, vous devriez accomplir les résultats ou changements que vous voulez, autrement appelés les produits, comme illustré ici-bas. Les trois niveaux de résultats sont:

- résultats à court terme = produits
- résultats à moyen terme = effets (objectifs de développement immédiats)
- résultats à long terme = impacts (objectifs de développement).

Par l'entremise des « champs de l'évaluation », les dimensions en corrélation avec la pertinence, la performance et le succès peuvent être évaluées. Ces trois dimensions sont le cœur d'une évaluation à l'opposé d'une vérification d'audit.
Dans le cadre d'une EVF, chaque dimension est évaluée en utilisant les critères qui suivent :

- Pertinence - le degré auquel les objectifs d'un projet restent valides et pertinents tels que planifiés ou subséquemment modifiés dû aux circonstances changeantes dans le contexte immédiat et l'environnement externe dudit projet.
- Performance - le degré de mise en œuvre d'un projet de façon efficace, compétente et respectant les échéanciers:
    1. Efficacité - le degré auquel un projet réalise ses objectifs immédiats ou produits les effets désirés;
    2. Efficience - la transformation optimale d'intrants en produits;
    3. Ponctualité - la production en temps opportun des intrants et des résultats.
- Succès - Les critères qui suivent décrivent le succès:
    1. Durabilité – la pérennisation des aspects positifs des résultats du projet après la fin de la coopération technique créé par le projet; *durabilité statique* - le flux continu des bénéfices résultant du projet et visant toujours la population ciblée; *durabilité dynamique* - l'utilisation ou l'adaptation des résultats du projet, à un contexte différent ou un environnement changeant, par la population ciblée ou par d'autres.
    2. Renforcement de capacité - jusqu'à quel point les individus et les organismes (gouvernementaux et non gouvernementaux) développent leurs capacités de façon individuelle et en coopération pour

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performance est conforme à des normes ou critères prédéterminés. L'audit s'occupe de l'affectation des ressources, de la gestion financière et administrative et, dans une certaine mesure, de questions de fond. Par contre, **l'évaluation** est un exercice de durée limitée qui vise à apprécier systématiquement et objectivement la pertinence, la performance et le succès de projets en cours ou achèves. PNUD. *Suivi et évaluation dans une perspective de résultats*. New York, 1997, p.10

51 Voir: UNDP. Assessment of development results. Key elements of methodology. New York, 2002, pp 3-5

exécuter des fonctions, résoudre des problèmes et planifier et atteindre des objectifs visés par le projet.

3. Impact - les résultats d'un projet qui sont évalués contre les objectifs de développement ou les buts à long terme du projet, la situation changeante, que ceux-ci soient planifiés ou non, positifs ou négatifs.

3 La recherche de l'EVF

Dans le cadre de l'approche rétrospective, la recherche de l'EVF a été mise en application dans des phases différentes, comme montre le Tableau 1. Chaque phase comportait des procédures spécifiques pour la récolte et l'analyse de données.

Tableau 1: Phases de Recherche de l'EVF	
Phase	Date
1. Planning de l'EVF	15 octobre– 22 octobre
2. Visites de [3] sites au Sénégal et [3] en Mauritanie	23 octobre – 31 octobre
3. Rédaction du rapport préliminaire a Saint Louis	3 novembre – 13 novembre

Phase 1

3.1 Planning de l'EVF

Les activités clés réalisées pendant cette phase on été les suivantes :

Dakar. Après l'examen sommaire de la documentation de base, l'équipe de l'évaluation a rencontre le représentant du management de bureau de pays PNUD/Dakar, le représentant régional de l'UNOPS, ainsi que le représentant de l'Ambassade Royale des Pays Bas. Egalement l'équipe a rencontré les agences d'exécution sénégalaises au sein du Ministère de l'Environnement, le Centre de Suivi Ecologique, ainsi qu'une prise de contact avec le représentant de l'OMVS. Les discussions portaient sur des thèmes relatifs aux TdR.

Nouakchott. L'Equipe a rencontré le Ministre de l'Environnement, le représentant du bureau de pays du PNUD/Nouakchott, le Directeur du programme de la Coopération technique allemande (GTZ), le président de l'Ecole du développement locale, et le président de Groupement national des associations des coopératives agro-sylvo-pastorales. Les discussions portaient sur la conception, la mise en œuvre et la durabilité des réalisations dans les sites visites.

Saint Louis. Dans le cadre de la gestion axée sur les résultats de développement, il était essentiel d'aboutir à une appréciation de la performance du Projet dans le processus de la génération de produits aboutissant aux résultats escomptés. Puisque le temps constitue une ressource restreinte, l'équipe sommairement a partagé son approche méthodologique de la mise en œuvre de la MEV avec l'équipe du Projet. L'approche méthodologique se trouve à l'Annexe 8.

Sur la base de l'examen de résultats réalisés (Annexe 9), l'équipe d'évaluation et le Projet accordèrent sur l'application de critères standards d'évaluation. La collecte de données notamment les entretiens en profondeur avec des focus groups ont été mis en application dans le cadre des critères suivants.

Pour évaluer les accomplissements, l'approche participative applique "l'enchaînement des résultats" et les "champs d'évaluation" dans le cadre de la gestion basée sur les résultats. L'exposé se trouve a l'Annexe 8.

L'information disponible indiquait que les données concernant la situation de référence étaient incomplètes. En conséquence, l'évaluation du progrès vers les résultats escomptées dans certains composants ne pourrait être que

déductive. [52] En bref, en raison de la complexité technique du Projet et prenant en considération le contexte institutionnel, toujours en évolution, la présente évaluation a été achemine par l'orientation de la gestion axée aux résultats du développement. En conséquence, les constats et recommandations sont base sur l'évidence disponible.

Phase 2

3.2 Les visites de sites au Sénégal et en Mauritanie

En principe, afin d'éviter les partis pris, l'équipe d' évaluateurs conjointement avec le Projet choisiraient de visiter trois sites dans chaque pays, sur les 16 couverts par le Projet (Tableaux 2 et 3). D'abord, les critères de représentativité écologique, et spécificité des conditions sociales et organisationnelles en vigueur ont été pris en compte. Ensuite la notion de vérifier les acquis du Projet a été un facteur prépondérant. Dans cette optique, on a visité des sites ayant des réalisations considérables et autres sites ayant moins de réalisations. L'expérience acquise suggère que les réalisations de la population à la base comportent un effet de démonstration à l'intérieur des écosystèmes en évolution. Tous ces éléments jouent un rôle essentiel pour la durabilité de réalisations, mais aussi font partie de l'approche de l'évaluation participative qui est axée sur les accomplissements. L'annexe 2 présente l'itinéraire de la Mission en Sénégal et en Mauritanie.

Tableau 2. Senegal : entretiens en profondeur avec des focus groups			
Site	Diarra	Ndiayel	Syer
Ecosystème	Plaine inondable (Forêt classée)	Lac/mare/plaine inondable (Réserve de faune)	Plaine sablonneuse
Mode de Production	Sylvo-pastoral	Sylvo-pastoral	Pastoral
Administration Local	Sous- préfet	Sous- préfet	--
Services Techniques	Chef service départemental (Eaux et Forêts) Chef sous secteur (Eaux et Forêts)	Coordinateur du PADIN	--
Collectivités Locales	Président Conseil rural Membres association [14]	Maire PCR Membres association [14]	Président du Conseil Rural Membres association [12]

Tableau 3. Mauritanie: entretiens en profondeur avec des focus groups			
Site	Mbalal	El Khatt	Boghé
Ecosystème	Plaine sablonneuse	Plaine sablonneuse	Plain sablonneuse/ plaine inondable
Mode de Production	Pastoral	Pastoral	Sylvo pastoral
Administration	Hakem	--	--

[52] Dans la mesure que l'information concernant l'état de lieux est incomplet, l'analyse relative au progrès vers les résultats escomptes est compromise.

Local			
Services Techniques	Chef service régional de la protection de la nature	--	--
Collectivités Locales	Membres coopérative [19]	Membres Coopérative [23]	Membres Coopérative

Les entretiens ont été ouverts de sorte que chaque participant a eu l'opportunité de présenter ses perceptions. L'équipe a rencontré des femmes membres des familles des collectivités locales pour avoir leur perception vers les produits proposés par le Projet. Ces entretiens ont permis d'entrevoir certain aspects de la pertinence et de la durabilité des produits du Projet ainsi que la problématique de la pauvreté rurale par rapport à l'effet des activités génératrices de revenus.
La liste de personnes interviewées au Sénégal et en Mauritanie est dans l'annexe 3. Le résumé des visites de terrain dans le deux pays riverains se trouve dans l'annexe 4.

Lors des entretiens avec les focus groups à l'intérieur des sites choisis, l'Equipe a structuré la recherche de l'EVF dans le cadre des cinq questions clefs de l'évaluation participative**.**

Première question : Avons nous accompli ce que nous avions programmé ?
La réponse à cette question établit le progrès accompli dans les objectifs du projet.

Seconde question : Qu'avons nous appris concernant - ce qui a fonctionné et ce qui n'a pas fonctionné ?
Cette question traite des raisons du succès. Apprendre ce qui a bien fonctionné et ce qui n'a pas fonctionné est le cœur de ce processus. Les thèmes de concentration d'une évaluation portent sur les leçons retenues.

Troisième question : Quel changement le projet a-t-il effectué ?
La réponse à cette question vient de l'analyse du succès relatif (ou le manque de succès) du projet mesuré en fonction des critères définis ci haut. Les questions fondamentales sont:

- Est-ce que les politiques mises en place sont-elles durables? Si oui, est-ce que la durabilité est de nature statique ou dynamique?
- Y a t'il déjà des indications d'un impact?

Quatrième question : Que pourrions nous faire de différent?
Cette question traite des recommandations. Il y a deux étapes dans ce contexte:

- La première consiste au diagnostic de l'importance et de l'étendue des obstacles auxquels fait face le projet.
- La deuxième consiste à l'opinion considérée par l'équipe d'évaluation pour surmonter ces obstacles. Cette opinion sera émise dans le cadre d'un délai (court, moyen ou long terme) et identifiera les organismes responsables pour compléter le suivi.

Cinquième question: Quelles planifications ferons nous pour utiliser les conclusions de l'évaluation dans le cadre des leçons retenues?

L'équipe d'évaluateurs donne de l'information et des données qui, une fois acceptées et intégrées, font partie des connaissances acquises en termes de leçons retenues.
Les leçons retenues doivent êtres disséminées et disponibles aux parties prenantes. Ils pourraient servir de vecteur de changement pour la programmation du PNUD et du FEM, ainsi que pour les pays hôtes concernant leurs politiques.

Phase 3
3.3 Rédaction du rapport préliminaire a Saint Louis.

La dernière phase concerne la rédaction du rapport préliminaire. Sur la base du rapport préliminaire, le 12 novembre et le 13 novembre 2009 lors d'une réunion de présentation, l'équipe du Projet, et les parties prenantes clés ont validé les conclusions et recommandations préliminaires, respectivement.

ANNEX 7

Project implementation issues

1.0 Implementing Mid-Term Review missions' recommendations and proposed readjustments

In its December 2004 report, the Regional Coordination Unit (UCR) presented the recommendations made by the mid-term evaluation mission [conducted in December 2003][53].

· It was revealed that the [13] recommendations aimed at amending administrative and project management procedures have been implemented. These amendments are reflected in budgetary reforms, the 2004-2008 operation plan, the minutes of consultation meetings, partnership protocols, amendments to the logical framework and other agreements in the UCR's report.

· The integration of the [11] technical recommendations is rather confusing. Despite the sound experience resulting from the implementation of some recommendations, other recommendations are still pending.

○ Firstly, the role of women in the management of biodiversity is still striving to find its proper place. Almost everywhere in the Sahel, the crucial role of women in the management of natural resources such as agriculture is unquestionable. However, there is still the need for more extensive analyses to determine the comparative advantage that women represent in the management of biodiversity.

○ Concerning the harmonization of legislations, the review of the Mauritanian Forest Code was inspired by the experience of the project, and this should be highlighted as a success story for the project[54]. In Mauritania, the new forestry code was approved on September 18, 2007. The application decree of this code is currently available (since March 2009). Included in the memorandum of understanding signed for the joint management of forest reserves of Ngouiye, Nèrè Walo and Walaldé (Boghé site) are the outcomes of the discussions on harmonizing legislative and regulatory laws. In Senegal, farmers' associations informed by the Project of the law on agro-silvo-pastoral orientation and the decree on the organization of the itinerary of cattle and the use of pasture land are being petitioning for the application of these laws as soon as possible. Though these sites are legally secured within the framework of legislations harmonized in both countries, there is still a need for consolidation.

Even if the project could establish a benchmark for biodiversity and systems for the exploitation of natural resources, several benchmarks have yet to be set.

· Regarding carbon sequestration, a lack of benchmarks prevents determining the relative increase in the quantity of carbon sequestrated on the 160 000 acres of developed sites. Nevertheless, because of the 2006 and 2008 inventory, the project currently has data on the ligneous and herbaceous biomass of the sites. This information is available on the Project website.[55]

· Regarding greenhouse gas emissions, the lack of reference points makes it difficult to measure the reduction of greenhouse gas, even though it has been observed during visits to the Senegalese and Mauritanian sites that bushfire control committees are better equipped and prove efficient in regards to the maintenance of firebreaks. Indeed in 2008, only four (4) fire outbreak cases, spread out over a total area of 2 010 ha, affected the Syer (10 ha) and Aouré sites, (2000 ha) representing 0.61% of the 328 356 ha covered by the project sites.[56]

In regards to the target increase of 10 % of total household income in the households of the 16 sites, to be achieved

[53] Regional Coordination Unit. State of implementation of the recommendations from the mid term evaluation Saint Louis, December 2004, pp 2-11

[54] Cf: Annex 8, p 5

[55] CF : Annex 8, p 2

[56] CF : Annex 8, p 4

through the sustainable management of natural resources, it is difficult to measure because of the lack of benchmark. However, in accordance with the recommendations proposed by the MTR, the project implemented a strategy to promote income-generating activities (AGR), the outcomes of which can be measured.[57] For example, in 2008, 250 micro-projects were financed, as compared to the 287 projects in 2007 and the 121 micro-projects in 2006. At the association and cooperative levels, the available financial inputs had two annual cycles. At each maturity date, the recovering rate of loans was 100 %. The number of beneficiary households amounts to about 231, or approximately 1 618 people. Moreover, this procedure brought about monetary incomes for populations who did not even belong to the sectors being targeted by the project. (In fact, people exploit the dead and green wood (resulting from cleaning, cutting, pruning, thinning, etc.) and fodder (from the improvement of herbaceous and ligneous biomass

2.0 Characteristics of the implementation strategy of the Project [58]

The main guidelines and principles guiding Project execution are made up of innovating aspects such as:

- Sustainable management as a strategy for the conservation of biodiversity,
- Forestry management of sahelian formations as a means of enabling the population to pursue their exploitation through the regeneration of these formations;
- Implementation of the participatory approach;
- Application of user-friendly techniques by the local people;
- Definition and implementation of the respective roles imparted to public administration, civil society and the population;
- Management of pasture lands through herd management. [59]

The implementation strategy is characterized by an iterative increment, meaning that at every stage, the strategy improves its relevance gradually. In this iterative process, the main benchmarks are as follows:

- June 2002. The reformulation of the project was proposed because of distortions between the project document (rehabilitation of degraded lands) and its logical framework (conservation of the biodiversity).
- The reformulation makes room for biodiversity conservation in the management systems of natural resources. This reformulation includes the review of the Logical framework as well as the operation plan, and includes a three year extension. The logical framework included lessons learnt from the first three years and recommendations from GEF's SMPR evaluation missions and the mid-term project review.
- April 2007. The consolidation/ reproducibility strategy and long-term prospects (2008-2010) were proposed. They were based on how all of the activities related to natural resources management and biodiversity conservation would be effectively undertaken by organized local populations. This strategy consisted of adjusting the logical framework, the (2008-2010) operational plan, roles and duties of stakeholders and partners of the project and the terms of reference of the project units and experts.
- July 2008. The CPP recommended the implementation of the [2008-2010] strategy. Consequently, it was recommended by others that a draft proposal be formulated that took into consideration the implementation of the consolidation/reproducibility strategy, initiated through the project in order to strengthen cooperation between the two countries ». [60]

The backbone of the project strategy is the participatory approach. The basic principles for the implementation of this participatory approach are as follows:

- *Principle of subsidiarity* - In the context of environmental protection, the principle of subsidiarity requires that the

[57] CF : Annex 8, p 4
[58] The background of the Project is analysed in Chapter 3. The following analysis is based on technical and institutional factors.
[59] Biodiversity Project. Implementation of the consolidation strategy to strengthen Mauritania-Senegal cooperation, initiated by the project- Saint Louis, August 2008, pp 3-11
[60] Consequently, the 2008 annual Work plan focuses on: 1- refinement of procedures on structures consolidation, planning and management (ex. management rules), 2- implementation of evaluation systems of procedures, 3- assessment of outcomes of applied techniques, 4- capitalisation and documentation of experiences.

State intervenes only if, and within the objectives set for the proposed action, these objectives cannot be achieved satisfactorily by local populations.

· *Principle of participation* - Each time the public (at the grassroots level) is targeted in a convention, participation becomes a requirement. This is because the effective implementation of a convention/agreement requires the involvement of stakeholders, for the sake of sustainability.

· *Principle of decentralization* [Principle 5a] "National forestry policies should acknowledge and adequately protect the identity, culture and rights of the indigenous people, their communities, other communities and inhabitants of forests… and help them benefit from adequate livelihood and living standards through land policies encouraging a user-friendly management of forests."

· *Partnership Agreements* - International cooperation for safeguarding the environment is a necessity imposed by a global ecosystem and is gradually being instituted as a legal obligation, which splits itself into a series of specific obligations (meticulously described by some treaties).

3.0 Structure of the implementation strategy

The strategy focuses on the following:
1- Consolidation/replication of lessons learned in current Project sites,
2- Gradual transfer of competencies to permanent structures,
3- Up-scaling of lessons learned in order to ensure the sustainability of all project activities and their various components.[61]

The components of sustainability focus on the following.

Sustainability of good governance
The participatory approach helped to manage complex and often conflicting relationships among users of resources. This approach also encourages the participation of marginalized groups such as cattle breeders, in community decision-making with regards to the management of natural resources.

Technological sustainability
The replication of convincing development and restoration technologies is indispensable for the sustainability of socio-economic and environmental impacts.

Strengthening of relationships between ecological and economic sustainability
The experience of the Project proves that:

· Promoting the rights of local populations so they are able to exploit their resources is the cornerstone of the strategy aimed at providing local populations with enough motivation to become involved in the sustainable management of resources and the conservation of biodiversity.

· Developing grassroots income-generating activities represents an incentive to encourage local communities to invest in the sustainable management of natural resources. Following this idea, loan systems were put into place and investments were made on all of the sites. The outcomes are encouraging.

Institutional sustainability
Capacity building at all levels is essential for the sustainability of lessons learned from the project. The aim is to consolidate competencies into a coordinated and integrated management of different ecosystems.

Political sustainability (friendship and cooperation)
The project has achieved remarkable progress by promoting more open exchanges and dialogue between Mauritania and Senegal concerning the management of natural resources, which was previously the source of conflicts in this

[61] Biodiversity Project. Implementation of the consolidation strategy to strengthen Mauritania-Senegal cooperation, initiated by the project - Saint Louis, August 2008, pp 4-5

cross-border area. In villages, systems of conflict resolution have been put in place. The challenge ahead consists of scaling up these efforts.

3.1 Summary of roles and responsibilities of project partners

Based on initiatives to be taken up by the Mauritania and Senegal governments, the key actions required of the different stakeholders include:

· The signing of an agreement between the two governments to create a legal work plan and to formalize the commitments of both governments to continue with the consolidation process until 2010;
· Mainstreaming of lessons learned from the project into national policies;
· Inclusion of the costs of consolidation activities into national budgets;
· Integration of consolidation operations into the mission assigned to concerned services of the two countries;
· Mobilization of additional financial inputs and necessary external technical support
· The Biodiversity Project through the Regional Coordination Unit (UCR) and National Project Units (UNP) must endeavor, among other things, to:
· Conduct sensitization/awareness and information missions on the execution of the project for the populations and technical services (central and decentralized);
· Produce technical guides and other learning tools in order to prepare the transmission of competencies to permanent intervention structures;
· Organize training/ information/ demonstration sessions for decentralized services to better equip them for the challenges of their consolidation mission;
· Organize administrative and financial management training through technical services and NGOs for associations and cooperatives/unions;
· Capitalize the database and monitoring/evaluation tools of the Project's technical services

Under the framework of the disengagement of the project, associations/cooperatives are called to manage natural resources independently:

· Renew periodically their executive board to make them more functional;
· Put in place their own financing system that would guarantee their autonomy on organizational and financial levels in the long-term based on the application of good management plans and rules;
· Elaborate annually a plan of action/ investment based on funds generated.

In conclusion, sustainability can only be achieved if municipalities and rural communities:

· Adapt management plans to their local management plans;
· Take sustainability into account in their budgets, schedule activities in their management plans;
· Control the application and respect of management rules.

3.2 IEC Strategy and plan of action

Exchanges on the proposal and experiences of the project are carried out through Information, Education and Communication (IEC) strategy. To this end, a website has been designed by the project team "www.projetbiodiversite.org" with the financial support of GTZ (German Technical Cooperation. The site has been operational since 2007.

The main points of the experiences from the project have been made available to the public via this website. The plan of the site is all-inclusive and includes the background and justification of the project, objectives and strategies, partners and useful links, the consolidation/replication strategy and the long-term prospects of the Biodiversity project. The information available is presented as follows:

· Detailed information on the intervention area available includes: biophysical features, demography, production systems, land use planning, biodiversity problems, as well as information on the 16 intervention sites
· Information on the activities and outcomes as well as the activities of each component of the project are

available : the management of silvo-pastoral resources, the reduction of pressure on pastoral and forestry resources, bushfires fighting, the promotion of income-generating activities and capacity building.

· Project Documentation: studies, technical guides, management plans, databases, other documents and current issues

The chart (Chart 1) below indicates the frequency of monthly visits to the site since the beginning of the project. This information reveals a kind of growing interest on the part of users.

· There is no specific information to evaluate the impact of IEC on populations involved in conservation activities.

· It is also not possible to determine how the information system contributed favorably to the preparation of management plans.

The website and the information system have been used for the planning and monitoring of the conservation process.

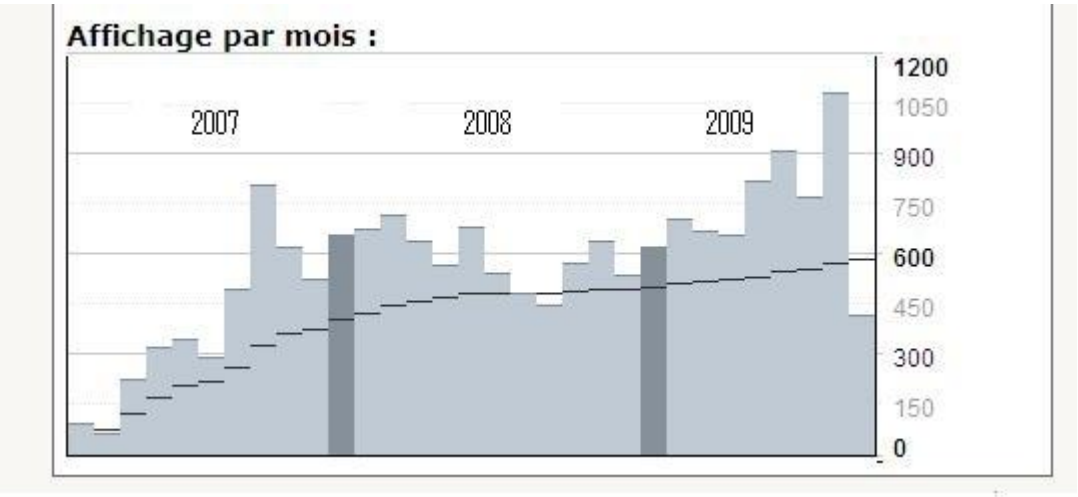

Chart 1: Frequency of monthly visits to project website
Source: UNCP, Saint Louis, 2009

4.0 Environmental Monitoring

The prerequisite for any monitoring process is the definition of benchmarks. Basically, benchmarks are the first set of observations on a theme being studied. The main objective of the study conducted by the Centre in charge of environmental monitoring is to have a better knowledge of the Project intervention area and targeted sites.[62] This includes having spatial and temporal information on the environment that can be easily consulted and updated in order to:

· Support a relevant analysis of the environment and ecosystems;

· Guide communities, authorities and various stakeholders on the choice of strategies and areas for development;

· Conserve biological diversity and manage natural resources in harmony with available resources and needs [page 5].

On the website, a database on biomass (herbaceous and ligneous) is updated every two years for each site. Table 1 shows estimates of the important potential of carbon sequestration. This potential increased between 2006 and 2008. The analysis of this phenomenon has begun, but the dynamic of the growth of ecosystems must be completed. The

[62] Centre for environmental monitoring. Features of the area and project sites, Dakar, September 2005

capital asset is the existence of databases from 2004 to 2008. Available data can also be used to prepare outreach manuals on forestry techniques including: consumption of fodder, labor, seedling, firebreaks and others.

Table 1: Potential of carbon sequestration on two sites

Site	2006	2008
Gabou [Senegal]	0,16 T/ha	1,28 T/ha
Ngouye [Mauritania]	0,59 T/ha	1,30 T/ha

Source: Estimates of the Mission with the support of the Project and CSE

As discussed in section 1.0, though the project could establish benchmarks with regards to maintaining the biodiversity of the biomass, several thematic on benchmarking need to be addressed; for instance, the sequestration of carbon, greenhouse gas emissions, the evolution of household income on the 16 sites under income-generating activities (AGR).

Recommendations

Monitoring Studies

Under the transition period, it is vital to conduct benchmark studies (i.e., the evolution of the economic effect of AGR on family income in the areas of intervention, carbon sequestration, and greenhouse gas). These databases are available on the Project website and this survey is very useful in terms of beginning studies on climate change. This endeavor inspires hope as it relates to the management of global warming. In addition, it has the potential of increasing the incomes of the populations located surrounding the Senegal River.

5.0 Efficiency of the procurement procedure of goods and services

Thirteen [13] out of the twenty-four (24) recommendations of the MTR were oriented towards modifying administrative and project management procedures. Though most recommendations have been implemented, delays continue occurring in the disbursement of funds, which remains a challenge for UNOPS.

For example, in 2003, in order to facilitate the monitoring of accounts and enable proper operation at the local level, a system of “Imprest account” was put in place. Three accounts were opened with a fund level of 50 000 US$ for each national unit and 15 000 US$ for each regional coordination unit. Payments could be made by check (with a countersignature) or by physical presentation at the cash for any amount less than 50 US$.

At the beginning of 2009, the Imprest accounts were closed and bank accounts closed to usher in the “Availability system”, which was never operational. It is therefore not surprising to note that this situation greatly slowed down project activities entirely.

Furthermore, in October 2009, it was proposed that a petty cash system of 2000 US$ be created (the limit of any individual expenditure must not exceed 100 US$) for UCR and UNEP/SEN. For greater amounts, bills were sent to UNOPS for payment, just as at the beginning of the project when it worked in collaboration with the UNDP, before the establishment of the Imprest accounts system.

In conclusion, the management of disbursement funds remains a challenge for the UNOPS administration and this has affected the execution of the project. The mission met the regional manager and proposed that UNOPS management should be aware of the challenges and seek technical and administrative options to address this issue.

Regarding the financial situation of the project [Table 2], most available resources have already been used. As of November 2009, there is a balance of about 353 000 US$ in the project account.

Table 2: Financial status of the Project as of 24/02/09

RESOURCES	Allocated	Spent	Balance
GEF(Global Environment Facility)	8,390,360	8,037,360	353,000
Netherlands	1,650,156	1,650,156	0
Mauritania Government	1,090,000	1,090,000	0
Senegal Government	1,090,000	1,090,000	0
TOTAL	12,220,516	11,867,516	353,000

Source: PNUD/ATLAS, Dakar, November, 2009

Observations on the implementation strategy

(Experience suggests that our knowledge of nature is imperfect just as it is our understanding of the structure of a sustainable management system.[63] Consequently, testing different management approaches, evaluating their impacts and retroacting on lessons learned to influence policies is key for the sustainable management of natural resources. In view of this, the project took initiatives in accordance with the expertise available.

· The implementation strategy was characterized by an iterative incrementalism , which means that at each stage, the strategy improved its relevance gradually.

· Then, based on lessons learned, the strategy focused on: 1- consolidation/replication of experiences acquired in current project sites, 2- gradual transfer of competencies to permanent structures, 3- the scaling up of experiences in order to ensure the sustainability of all of the different components of the project's activities.[64]

Guidelines: Environmental governance [65]

Environmental governance is the prerequisite for biodiversity conservation when using a participatory approach. The involvement of stakeholders, decentralization, and environmental governance has changed during the implementation of this project. The following guidelines must be taken into account when implementing environmental governance.[66]

· The involvement of women in planning and decision-making with regards to the use of resources and livelihoods at the local level needs to be strengthened. There is a need for a thorough analysis to determine the comparative advantage that women bring to the management of biodiversity. Women constitute real social capital.

· Participation of stakeholders. As initially discussed, currently communities within the 16 sites of the project are provided with management plans and are now implementing these plans.

· Decentralization. Local variations as well as the complex and unforeseen nature of ecosystems means that flexible policies are necessary at the local level. Under the decentralization context, farmers, herdsmen, and inhabitants of forests are the main actors with regards to analysis, planning, negotiation and action.

· Equity. Equity implies identifying the holder of rights as the primary decision-maker. For example, those who are closer and more dependent on a sector and its biodiversity and have contributed to its conservation and growth can be considered as owners (holders of rights).

[63] Krystyna Swiderska, et. al. The Governance of Nature and the Nature of Governance: Policy that works for biodiversity and livelihoods, IIIED, no-date, pp 18-25

[64] Biodiversity Project. Implementation of the consolidation strategy to strengthen Mauritania-Senegal cooperation, initiated by the project - Saint Louis, August 2008, pp 4-5

[65] For multidisciplinary thematics, recommendations are in the form of guidelines for obvious reasons.

[66] See : UNDP/UNEP/WB/WRI. World Resources 2005: The wealth of the poor. Managing ecosystems to fight poverty. Washington, D.C., 2005, Chapter 1

· Responsibility. Responsibility is crucial to ensure that government entities address the needs of the society. Involvement in decision-making is essential. The joint management of natural resources provides a way of institutionalizing the responsibility of partners, as they require agreements negotiated over the roles, rights and responsibilities in the management process.

· Transparency and the flow of information. Transparency has become increasingly important because globalization has created a new dynamic in the private sector and at the local level. Fraudulent decision-making processes bring about active connivance between governments and companies, often to the detriment of sound environmental management and against the rights of the poor.

· Efficiency and effectiveness. The best way to guarantee the efficiency of environmental governance is to focus interventions on a sound analysis of the local situation. Indeed, many interventions underestimate the importance of informal non-monetary economies based on reciprocity and exchange, which often exist alongside monetary economies. Such non-monetary exchanges are particularly important in addressing the needs of the poor and in supporting their production systems, value systems and traditional lifestyles that preserve biodiversity (for instance exchange markets among herdsmen in the Sahel).

· Timely orientation and timing. Environmental regimes of governance should emphasize the goods and services required by stakeholders and should be broad and flexible enough to adapt to local diversity and changes.

· Study and experimentation. Using flexibility with government institutions is key to inducing feedback and capitalizing on lessons learned.

6.0 The model for the conservation of ecosystems

The Biodiversity Project has developed replicable sensitization and training models for key stakeholders, highlighting the importance and need to conserve and manage biological diversity within ecosystems around the valley of the Senegal River.[67] These models are schematic and go from the bottom up. . The implementation is marked by an iterative incrementalism meaning that at each stage, the strategy improves its relevance. [68] The main benchmarks are the following.

The keystone of the model is the development of pilot schemes of natural resources management systems. A pilot scheme consists of an intervention sites managed by inter-village representatives and established structures as far as the law is concerned. The model is adapted to intervention sites, representing the four ecosystems in the valley of the Senegal River. Sites were selected based on participatory diagnosis of criteria for site selection. In each country, eight (8) sites used for pastoral, forestry or silvo-pastoral activities were selected, adding up to sixteen project intervention sites . The site areas vary between 1 000 and 45 000 ha. The total area of the sites is estimated at 328 000 ha. Each site is defined and the limits of these sites are legally recognized. In Mauritania, the Hakem, is the legal authority providing legitimacy to the management of natural resources and acknowledges the limits of the site on paper. In Senegal, the rural council is responsible for similar functions in a site.

The functioning of the model is based on the development and implementation of rangeland and natural forest management systems The key element in the operation of the model is that the grassroots structure elaborates and validates a number of local management rules for pasturelands or natural forests or a combination of both, with the involvement of concerned technical services and specialized NGOs. These local rules for the protection, exploitation and regeneration of resources must be in accordance with pieces of legislation and regulations already in force in the country. They are validated during general assembly meetings, adopted by the rural council and approved by the sub-prefect (in Senegal) or the Hakem (in Mauritania). These rules are then applied by all concerned actors. They are assessed and updated, if need be, every year. The local management rules are backed by a simplified development and management plan, which organizes temporary activities of protection, exploitation and regeneration that must be undertaken to achieve targets set by the population or managers of the site.

[67] Biodiversity Project. Information Education and Communication Strategy. Guide pour l'élaboration de messages- clés, Saint Louis, juillet 2005, pp 3-13

[68] A model is a simplified representation of a process, a system. [electronic dictionary]

In the area of development and implementation of natural forest management systems, the manager of a forest must agree with other partners on the objectives to be assigned to the forest (protection, production …) and consequently must determine the actions to be undertaken to achieve these objectives.

· All forestry techniques are organized spatially and temporally under a development and management plan elaborated with the participation of populations and local government and the support of service providers. These simplified development and management plans are validated by grassroots structures in charge of their implementation before being approved by competent authorities.

· In Senegal, development plans are adopted by the deliberation of the rural council, and approved by the representative of the government, the sub-prefect. A technical approval is given by IREF. Then, the development and management plan of a forest reserve is supplemented by a participatory forest development agreement, which defines the conditions for the management of the forest. This agreement is a partnership tool between the forestry service (IREF), the local government (rural council) and the grassroots structure of the forest (Association). These three (3) partners are committed to managing the forests.

· In Mauritania, development plans must be approved by the DPN/MEED. The development plan of a forest reserve is bound by a participatory forest development agreement. This agreement represents the vessel of partnership between the forestry service (DEPN / MEED) and the grassroots structure manager of the forest (Association/Cooperative). These two partners are committed to managing the forests rationally for development purposes. Development plans and agreements are implemented and monitored annually. When necessary, development plans are reviewed and updated.

· The management of natural forests in the valley is primarily a silvo-pastoral management: forest provides green pasture for different herds (sheep, goats, camels, and cattle). Development and management plans of forests include an important dimension for pastoral activities: the involvement of herdsmen and the application of techniques in the management of pastoral resources in the forest.

Under silvo-pastoral management, bushfire control is crucial to preserving resources within and around the sites on the one hand and on the other hand, to reducing the emission of harmful gases, carbon oxide in particular, into the air. This falls in line with the objectives aimed at reducing carbon in the atmosphere. The model helps to identify tangible links between local and global advantages.

· Bushfire control systems rely on local knowledge and know-how. Consequently, bushfire management techniques are simple, less expensive and thus affordable for communities and local governments. To fight efficiently against these bushfires, simple and sustainable detection and early-warning systems have been developed at all levels: local, regional and national. Bushfire controls committees have been organized, equipped, and have been put in place to prevent and fight efficiently against bushfires.

The sustainable management of sites must be supported by revenues coming from the sustainable exploitation of resources on the site. Finally, the last element of support is the development of community management systems oriented towards alternative forms of income generation. Outputs that can be sustainably exploited to generate community income have been identified for each site and integrated into the rational management of sites.

· Associations / cooperatives are responsible for the rational management of sites and the development of income-generating activities on the same sites. They refer to a credit-monitoring committee who is in charge of support for user groups selected to manage loans allocated, including their reimbursement. A credit committee is backed by a specialized agency in the microfinance institution, which signs a service provision contract with the project coordinator.

· Funds planned for income-generating activities are deposited on an open account in the name of the credit committee and jointly managed by National project units and leaders of the credit committee/ Association. After one or two years, the credit committee of the Association/Cooperative will initiate an insurance scheme to become a community savings and loans company. All the community savings and loan companies on the intervention sites come together to form a network or federation to receive diversified financing and to ensure a decentralized and sustainable funding of income-generating incomes and other investments.

Observations on the model of ecosystem conservation

Obviously, despite the lack of benchmarks, rural households on the sites visited have begun to improve the quality of their lives. This is partly due to the application of models oriented towards sustainable conservation and management of biological diversity within ecosystems chosen in the valley of the Senegal River.[69] The productivity of ecosystems has also improved as a result of a more thorough control of the management of herbaceous and ligneous resources. This approach has been combined with defined rights to exploitation of resources and a greater community involvement of members in the institutional process. The revenue accrued from the increased productivity of ecosystems is known as environmental revenue. [70]

Lessons learned on the conservation of ecosystems

Relationships between poverty and sustainable management of ecosystems

The model of sustainable conservation and management of biodiversity within ecosystems proposed by the project carries a potential that could maximize environmental revenue. Consequently, poor and marginalized rural families can gradually get out of poverty; for example they can enjoy a balanced diet and better health and begin accumulating wealth, that is, a family house, a number of cattle, a bicycle, etc.

However, maximizing the environmental income for the poor requires changes in the governance of natural resources, as suggested in the guidelines on environmental governance. This is because the poor often lack legal entitlement and propriety rights on their lands and access to additional resources such as bank loans. Their views are not taken into account in the decision-making process. Fortunately, the project has initiated actions in this context. .

Relationship between sustainable management of ecosystems and climate change

It is important to understand that if the productivity of ecosystems declines because of inadequate governance, the wealth of the poor will drop accordingly. Environmental decline affects the poor especially, who fall into extreme poverty. This causes the migration of rural populations towards urban centres or induces them to engage in unsustainable environmental practices such as over fishing, deforestation or overexploitation of lands to feed their family. This is the main reason why environmental governance should be the consultation framework of all efforts deployed to reduce poverty and later address climate change.

The management of climate change will require a pro-poor political change to induce sustainable practices for the management of resources within ecosystems. There is the need for a greater awareness among the public and private sectors on the required commitment, obligations, responsibilities and environmental practices, in order to facilitate the access of the marginalized to resources that are necessary for an equitable governance of the environment.

Recommendations

Models for the conservation of ecosystems

The models developed by the project focusing on the sensitization and training of key stakeholders for the sustainable conservation and management of biodiversity are replicable. They should be synthesized into manuals

[69] Even if the whole data is sketchy, the database on the growth of biomass in the past years is a reasonable indicator. See : www.projetbiodiversite.org

[70] See: UNDP/UNEP/WB/WRI. World Resources 2005: The wealth of the poor. Managing ecosystems to fight poverty. Washington, D.C., 2005, Chapter 1

for eventual extension efforts in order to ensure the sustainability of lessons learnt and replicate these lessons nationally and at the sub-regional level.

Commercialization and the sustainable exploitation of biodiversity

The trade of non forest products from the forest including handicraft products is the cornerstone of a sustainable exploitation of biodiversity for sustainable income-generating activities.[71] Therefore, the creation of small enterprises for the conservation of global biodiversity must be consolidated. The training must be based on the identification of growth areas and subsequent commercialization procedures. It must be highlighted that in most cases, growth markets for non forest products are located, for example, in EU countries because of the market globalization process. Likewise, the commercialization of aforementioned products is highly influenced by the level of alphabetization, in particular numeracy. .

***Guidelines for the Integrated Planning Climate Change for regional government** [ITCP]*[72]

Climate change is inevitable. As the competition for land and water resources increases gradually, conflict for access to these resources will become more and more frequent in the coming years at the regional and local levels. To prevent these potential conflicts, regional and local authorities must take necessary measures to address climate change from today onwards.

The Biodiversity Project has key experiences to be used when addressing climate change.

· If regional and local authorities wish to succeed in their efforts to address climate change, creating an efficient partnership is a key factor for the elaboration of integrated climate change plans [ITCP].

· Regarding long-term planning, a decisive option for governments is to prepare territorial plans integrating climate issues. The objective is to identify and prioritize adaptation and reduction initiative based on the assessment of physical and economic impacts of climate change.

· The ITCP will stress the socio-economic advantages of a good management of natural resources in the framework of short and medium-term climate change.

· To overcome institutional barriers, ITCP must be cross sector-based in nature, covering adaptation and reduction, and must consider the two synergies and compromises.

· ITCP should not be seen as the maker of rules or as posing constraints to development but rather as those who are willing to pursue social and economic objectives aimed at encouraging changes for a sustainable development of the region.

Overall, the Biodiversity project has the necessary assets and experiences to elaborate the ITCP.

[71] UNDP/GEF Local business for global biodiversity conservation. New York, 2003, pp 15-54

[72] Source: UNDP Charting a new low-carbon route to development. A primer on Integrated Climate Change Planning for Regional Government. New York, 2009, pp 11-21