



UNITED NATIONS DEVELOPMENT
PROGRAMME (UNDP)



GOVERNEMENT OF SENEGAL



GLOBAL ENVIRONMENT
FACILITY (GEF)

**INTEGRATED ECOSYSTEM MANAGEMENT PROJECT IN FOUR
REPRESENTATIVE LANDSCAPES OF SENEGAL-Tranche 2. (PGIES-2)**



Fruit trees Village



Multi-functional Platforms

**EVALUATION OF THE SECOND TRANCHE (2007-
2011)**

FINAL REPORT



Oyster farming using strings



Meeting with Actors

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December 2011

LIST OF ACRONYMS AND ABBREVIATIONS

ADOS	:	Drôme Oourossougui Sénégal Association
AFD	:	French Development Agency
ANCAR	:	National Agency of Rural and Agriculture Advice
PA	:	Protected Areas
ARD	:	Regional Development Agency
ATEF	:	Water and Forestry Technical Agent
AW	:	Annual Workplan
BOAD	:	West African Development Bank
CCBA	:	Climate, Community and Biodiversity Alliance
CDM	:	Clean Development Mechanism
CER	:	Carbon Emission Reduction
CERP	:	Polyfunctional Rural Expansion Center
CF	:	Classified Forest
CGV	:	Village Management Committee
CINTER	:	Inter-Site Committee
CINTER	:	Inter Site Committee
CINTRAS	:	Intra Site Committees at the level of a site
CITES	:	International Convention on the Trade of Endangered Species
CIV	:	Inter-Village Committee
CIVD	:	Inter-Village development Committee
COMNAC	:	National Committee on Climate Change
CONSERE	:	Higher Council for Environment and Natural Resources
CSE	:	Ecological Monitoring Center
CVLCFB	:	Village Committee of Fight against Bush Fires
CZM	:	Coastal Zone Management
DA	:	Directorate of Agriculture
DA	:	Directorate of Agriculture
DAT	:	Directorate of Land-Use Planning
DEEC	:	Directorate of Environment and Classified Establishments
DEFCCS	:	Directorate of Water, Forestry, Hunting and Soil Conservation
DIREL	:	Directorate of Livestock
DISEC	:	Monitoring, Evaluation and Control Plan
DP	:	Directorate of Planning
DPN	:	Directorate of National Parks
DPV	:	Directorate of Plant Protection
DSC	:	Directorate of Soils Conservation
ECIDEC	:	International Exchange for development and Cooperation
ECN	:	Niayes Coastal Ecosystems
EDF	:	European Development Fund
EU-ETS	:	European Union Emission Trading System
FAO	:	Food and Agriculture Organization of the United Nations
FEM	:	Fund for Global Environment
FFEM	:	French Fund for Global Environment
FSD	:	Social Development Fund

GoS:	:	Government of Senegal
GV	:	Village Group
ICD	:	Integrated Conservation and Development
ICD	:	Integrated Conservation and Development
IEF	:	Water and Forestry Engineer
IEM	:	Integrated Ecosystem Management
IETA	:	International Emission Trading Association
IGA	:	Income Generating Activity
IREF	:	Regional Inspectorate of Water and Forestry
ISE	:	Environmental Science Institute
ITA	:	Agricultural Engineer
ITE	:	Animal Science Engineer
ITEF	:	Water and Forestry Work Engineer
IUCN	:	International Union for Conservation of Nature / World Conservation Union
JI	:	Joint Implementation
LC	:	Local Community
LMC	:	Local Management Committee
LULUCF	:	LandUse and Land-Use Change and Forestry
MA	:	Ministry of Agriculture
MAB	:	Man and Biosphere
MAT	:	Ministry of Urbanism and Land-Use Planning
MCSB	:	Mutual Credit and Saving Bank
MDG	:	Millenium Development Goal
MDL	:	Mineral Deposit Limited
MEF	:	Ministry of Economy and Finance
MEPN	:	Ministry of Environment and Nature Protection
MFP/GEF	:	GEF Micro-Financing Programme
MI	:	Ministry of the Interior
NEX	:	National Execution
NGO	:	Non-Governmental Organization
NP	:	National Park
NRM	:	Natural Resource Management
PADMP	:	Protected Areas Development and Management Plan
PAGERNA	:	NRM Self-Promotion Project
PAGVT	:	VT Development and Management Plan
PAN/CLD	:	National Action Plan against Desertification
PAPIL	:	Small-Scale Irrigation Support Project
PASEF	:	Forest Ecosystems Services Improvement and Valorization project
PCU	:	Project Coordination Unit
PFIE	:	Environmental Training and Information Program
PGCRN	:	Community-based Natural Resource Management project
PLD	:	Local Development Plan
PNACB	:	National Action Plan for Biodiversity Conservation
PNAE	:	National Environmental Action Plan
PNAT	:	National Plan of Land Use
PNDS	:	Saloum Delta National Park
PNNK	:	Niokolo-Koba National Park
PODES	:	Orientation Plan for Economic and Social Development
PRC	:	President of Rural Community
PRODAM	:	Matam Integrated Development Plan
ProDoc	:	Project Document
PROGEDE	:	Participatory Management of Traditional and Alternative Energies Project
PSAOP	:	Agricultural Service and Private Organization Program
PSC	:	Project Steering Committee
PU	:	Pastoral Unit

RBDS	:	The Saloum Delta Biosphere Reserve
RBNK	:	Niokolo-Koba Biosphere Reserve
RBNK	:	Niokolo Koba Biosphere reserve
RC	:	Rural Community
REDD	:	Reduction of Emission from Deforestation and forest Degradation
REMEDE	:	Environmental Mutual Saving and Credit Network
RF	:	Wildlife Preserve
CNR	:	Community Nature Reserve
SBSTA	:	Subsidiary Body for Scientific and Technological Advice
SDF	:	Social Development Fund
SFD	:	Decentralized Financial Structure
SFIECE	:	Environmental Awareness, Training, Information and Communication
SNCB	:	National Strategy for Biodiversity Conservation
SPR	:	Sylvo-Pastoral Reserve
SRADL	:	Regional Local Development Supporting Department
STC	:	Scientific and Technique Committee
ToR	:	Terms of Reference
UCAD	:	Cheikh Anta Diop University
ULP	:	Project Local Unit
UNDP	:	United Nations Development Programme
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
UNFCCC	:	United Nation Framework Convention on Climate Change
VCS	:	Verified Standard Carbon
VT	:	Village Territories
WBCSD	:	World Business Council on Sustainable Development
WF	:	Water and Forestry

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1. Executive Summary

The project for ecosystem management of Senegal (PGIES) was designed for a period of 10 years divided into three tranches of 3 years, 4 years and 3 years respectively. This evaluation covers the second Tranche of four years.

The documents analysis, as well as in the field visits and interviews with project stakeholders and partners , have enabled the mission to draw the following conclusions:

- ◆ The PGIES has made remarkable progress in the establishment of Community Nature Reserves (CNR) on more than 577,000 acres across the four local units of the project (PNDS, PNNK, Ferlo and Niayes).
- ◆ The Project was able to combine environmental protection and income generating activities, through savings and credit mutual banks, target populations living in the periphery of protected areas.
- ◆ The partnership developed by the PGIES was exemplary and praised by all the partners that the mission met (Forestry, Directorate of National Parks, Agriculture, Water and Livestock departments, PRODAM, ADOS, MFP/GEF, etc.
- ◆ The reporting system of the project is consistent with National Execution (NEX) modalities, except for the introduction of DISEC.
- ◆ The project's financial management is sound and consistent with the NEX, but differences of opinions exist as to the institutional base of the project.
- ◆ The gender aspect was well integrated into the activities and allowed the project to develop specific activities for women and especially local products processing, poultry farming and petty trade. Many income-generating activities have been initiated towards women. Women have praised all over, the relief of their domestic work thanks to the equipment provided and through the increase of the revenues from IGA.
- ◆ PGIES has been emulated in the image of the creation of the CNR of Bundu through decentralized cooperation. Under the leadership of PGIES, the status of Biosphere Reserve was obtained for 2 sites (Niokolo Koba and Saloum Delta) with a mapping showing the three main areas.
- ◆ Thanks to the project, 21 of the 31 endemic species of Senegal were found and protected by the Forestry Code. Some of these species are subject to a proliferation *in situ*. These endemic species are part of the world heritage and are part of biological diversity.
- ◆ At the wildlife level, although it is difficult to determine the share that goes to PGIES, we can mention a positive evolution of the species.
- ◆ The amount of carbon hold in the CNR created by PGIES is a significant potential to be promoted in the carbon market. Further details as to promotion methods are given in the report.
- ◆ Despite this good performance, the project's efficiency can be improved by strengthening cooperation effort with the department of Water and Forestry in regard to the fight against bush fires.
- ◆ The project should strengthen its communication component and expand its visibility for a wide dissemination of achievements, so that the latter could play the sought domino effect. .
- ◆ The problem of workers motivation is probably the most critical point to be resolved to ensure maximum success in the sustainability of project achievements.
- ◆ The exploitation of zircon in the Niayes gives rise to concerns regarding the disruption of CNR and the possible expropriation.

The mission made the following recommendations:

Recommendations

To the Government of Senegal

- Address the institutional Base;
- Address the recognition of eco-guards;
- Replace the staff eligible for retirement;
- Develop rules to harmonize approaches in rural environment;
- Resolve land issues related to the implementation of the MDL project in the Niayes.

To UNDP / GEF

- Start the third tranche of the project as soon as possible in order to avoid breaks in the field;
- Shorten time of funds availability.

To PGIES

- Establish the effects of mutual banks on family incomes;
- Finalize the diagnosis and business plan of the mutual of Malandou and define a formal cooperation frame with it;
- Commission a study on improvement of vegetation cover in the Ferlo for the period 2003 (before the Project start) and 2011 (completion of Tranche 2);
- Request MFP/GEF support in the case of difficulty with mutual;
- Emphasize on activities planned in management plans in the last Tranche (3);
- Imply more the region permanent structures in view of post-project preparation, since appropriation of the project by populations is the best barometer of success;
- Imply more the W&F Department in the follow-up activities
- Establish the geographic information system for monitoring and evaluation of project Activities;
- Ensure the upgrade of agents assigned;
- Establish an aggressive communication plan during the third tranche (build up the achievements);
- Increase the number of fruit trees in plantations;
- Request ANCAR support with regard to market-gardening strengthening;
- Elaborate a specification sheet concerning mangrove reforestation with *Avicennia Africana*. The sheet could be capitalized by another project;
- Strengthen nurseryman and ecoguards training on environment protection;
- Organize study tour for CIV and PGIES officials at the Bundu;
- Strengthen the capacities of the UP Office in fuel, in communication skills and literacy

1

2. INTRODUCTION

The Global Environment Facility (GEF) and the United Nations Development Program (UNDP) assisted the Government of Senegal in the formulation of an Integrated Ecosystem Management Project in four representative landscapes of Senegal (PGIES) for a period of ten (10) years divided into three tranches, respectively 3, 4 and 3 years. Scheduled to take place from 2007 to 2011, this second tranche of the project expires in December 2011. On this occasion, a final evaluation was initiated to examine the performance, methods and dynamics of this national initiative to provide relevant factors for achieving the objectives of the project and possibly for a reorientation of actions for Tranche 3.

2

3. BACKGROUND

3.1. Brief History

Senegal is a sahelian country quite flat, which however, has an abundance of flora and fauna of global significance. For the conservation of the ecosystems containing these resources, the country has built a system of protected areas (PAs), including 6 national parks, three wildlife reserves, 20 Sylvo-Pastoral reserves and 213 classified forests. This network of PA covering a total area of 11,934,663 acres (MEPN, 1993), this is more than 40% of the national area has four biosphere reserves including two World Heritage sites of UNESCO and four wetlands of global significance (RAMSAR).

Despite these conservation efforts, the ecosystems of Senegal continue to be faced with major constraints related to: (i) biodiversity loss , (ii) habitat fragmentation and increasing pressure on resources in the PAs , (iii) land degradation in targeted ecosystems, and (iv) decrease in the ability of the vegetation and other biological resources to regenerate spontaneously.

Therefore, to show their commitment and set up new mechanisms for conservation, Senegal has acceded to all international conventions on environment protection stemming from the Rio Conference in 1992, especially on biological diversity, climate change and sustainable land management. It has signed the International Convention on Biological Diversity in Rio in June 1992, ratified it in June 1994 and immediately tackled its harmonization with national legislation and its implementation.

As part of implementation of the Convention on Biological Diversity, Senegal has developed its strategy and a national action plan from which derives this project designed for conservation of terrestre ecosystems.

3.2. Presentation of PGIES

The Integrated Ecosystem Management Project in four representative landscapes of Senegal (PGIES) is an initiative of the Government of Senegal with the financial support of GEF and the UNDP. It is carried out using the National Execution (NEX) modality. The overall objective is integrated ecosystem management, land degradation control and sustainable use of natural resources in four representative landscapes of Senegal.

Intervention sites represent samples of the main types of major ecosystems in the country including sylvo-pastoral ecosystems, forest and coastal ecosystems and coastlines. These include: wildlife reserves of the central North Ferlo, Niokolo-Koba Park, in the South East, Niayes coastal ecosystems along the north coastline and Saloum Delta in the South west Coasts.

The main idea of the project was based on an alternative option of demonstration, consisting in, integrated community approach to strategic planning, development and management of village lands, creation and sustainable management of Community Nature Reserves (CNR) and Pastoral Units (PU) serving as buffer zones and co-management of Protected Areas (PA) representing the sanctuaries of biodiversity for each of these sites

Tranche 2 is expected to consolidate and ensure the sustainability of the cooperation of stakeholders and their actions for the conservation of ecosystems. That is to say, it should strengthen the conservation of biological corridors serving as wildlife seasonal migration and livestock transhumance, by maintaining ecosystem connections acting as adjacent buffer zones around protected areas (PA) and promote community management of Biosphere Reserves. This first implementation of buffer zones in the Sahel, will be used to prevent and reduce the impact of land degradation on the ecosystems functions and services.

Tranche 2 will also conduct demonstrations in Integrated Conservation and Development (ICD) models by promoting sustainable use of natural resources as a tool against poverty in remote Village Territories (VT), landlocked and adjacent to the PA where co-management will also be tested. That is to say that Tranche 2 would focus on economic incentives through community micro credit and savings to ensure the recovery of recurrent costs by the benefits generated by the actors. [Cf: pp. 19-20 Prodoc]

2.1 3.3 PGIES overall objectives

PGIES overall objectives are :

- Integrated ecosystems management;
- Land degradation control;
- Sustainable use of natural resources in four representatives landscape of Senegal

2.2 3.4. Expected results

Global and local results are expected at the end of Tranche 2.

1. Globally, the benefits of tranche 2 are mainly:

- Conservation of 31 endemic plant species well-known in Senegal and many plant species globally known threatened and present in the country;
- Conservation of endemic animal species well-known in Senegal (e.g. *Lisa bandialensis*) and the Sub Region (e.g. *Taurotragus derbianus*);
- An interconnection of ecosystems through the legal establishment of a series of CNR / PU on the periphery of PAs and along wildlife seasonal migration corridors . this interconnection aims at species reproduction, especially migratory herbivores including in particular the Eland Derby, which is an endemic specie originating from the West African sub region;
- Better control of land degradation in the demonstration sites covering a total area of 3.941 million ha;
- Increase ecosystems capacities to sequester carbon in all of the Project sites;
- Improved conservation of genetic stocks in the sub region thanks to the restoration of ecosystem interconnections and therefore of wildlife seasonal migration corridors. The absence of corridors favours inbreeding and therefore genetic weakening is likely to occur in PA. ;

2. At national level, the expected benefits of Tranche 2 include:

- Increase in ranking rates through the legal creation of CNR / PU;
- Better cooperation of populations in conservation of CNR / PU, reflecting decentralization policy implementation skills transfer in natural resource management;
- An Improvement in vegetation cover in a total of 20 PA covering an area of 3.68 million ha surrounded by a total of 18 CNR / PU stretched on a total area of 261,000 ha, that adds up is globally to a total area of 3,941 million ha;
- increase in level of the country achievements relating to the land degradation control, water and soil conservation;
- Increase in land productive capacities resulting in a reduction in food imports;
- Increased capacity for self-sufficiency and food security;
- Reduction in the rural exodus rate thanks to alternative options of tranche 2, which the populations of action sites benefit from through contract plans and micro-credit and savings.

3. At local level, the benefits of tranche 2 include:

- Promotion of social relationship between actors such as friendship, solidarity and mutual aid, as well to organization and training of population so as to enable them to be independent at the end of tranche 3;
- Conflicts reduction through the implementation of management plans of Village Territories and mediation committees at all levels;
- Poverty alleviation through alternative options including contract plans, micro credit and community savings;
- Improved living conditions for populations and a greater solidarity;
- Increase in agricultural productivity through water and soil conservation. .

(see ToR of the evaluation mission)

4. Evaluation Methodology

The methodology consists firstly in consulting literature recorded by PGIES or some actors on various subjects regarding project knowledge and management. Thus, the ProDoc, quarterly and yearly reports, technical committee's reports as well as audit reports is analysed.

Secondly, sites visits and partners meetings are conducted.

The Project rationale framework was used as a tool permitting the analysis of the Project achievements by comparing activities indicators with effective achievements.

4.1. The approach

It is based on a participatory approach after a project analysis on the basis of documents and technical reports provided by the project team.

Work sessions were held on the field, with the various project partners. The way that questions were structured brought out project activities linking along with priorities and Senegal ecosystems conservation policy, as well as the achievement level of set objectives, and the satisfactory level of actual government and beneficiaries needs.

During these sessions partners were asked to give their own opinion of project achievements and to highlight the failings and shortcomings. They were asked the following questions:

- Describe changes brought by the Project;
- Tell their implication level
- Tell what are the positive and negative aspects;
- Tell difficulties encountered while carrying out Project activities
- Tell what corrections should be done if the Project is to continue.

Institutional partners were asked questions on the following points:

- Project approach and intervention strategy;
- Project achievements
- Constraints
- Concrete achievements and their impact;
- Reinforcement measures or conceivable alternative solutions.
-

The mission also undertook a visit to a number of physical implementation, which enabled members to witness existence, and to value their quality.

For these visits ecological representativeness criteria and specific social and organizational conditions have been put forward with consideration of time and space constraints.

- .

2.3 4.2. Evaluation Organization

The main phases of the evaluation mission implementation are recorded in table 1

Table 1: Phases of the evaluation implementation

Phases	Date
1. Organization of the mid-term evaluation	November 9th – décembre 12th
2. Visits of intervention sites	November 9th — November 19th
3. Draft Report submission	November 21th
4. Review of the draft report by the Steering Committee	November 24th
5. Final report submission	Décembre 8th

Visits of the 4 sites

Table 2: Summary of characteristics of the four intervention sites

Site	PNDS	PNNK	Ferlo	Niayes
Ecosystem	Mangrove, savannah	savannah / forested	Northern part: grass and shrub steppe SOUTH: woodland	littoral zone: Sudano-Sahelian species and sub-guinean Mangroves (Gandioli zone)
Production mode	Agricultural, arboricultural piscicultural	Agricultural, forestry, animal	Silvo-Pastoral	Agricultural forestry, arboricultural
Local Administration	Deputy Reeve	Deputy Reeve	Governor of Region	
Technical Services	Officer of the Park, Head of water and Forestry Sector	Head of departmental service (water and Forestry) head of Water and Forestry sub sector	IREF. ARD Plan ANCAR PRODAM Hydraulics, SRADL, ECIDEC Livestock ADOS	ARD Representative Guembeul Park Commissioner
Local Authorities	Rural Council President Members of association [x]	Président Rural Council President Members of association [x]	Rural Counsellor Chiefs of villages Populations Members of association [x]	Rural Council Chief of village Members of association [x]

3 5. ACHIEVEMENTS

Overall, the project achievements have been appreciated according to:

- Pertinence;
- Effectiveness;
- Sustainability;
- Impact.

3.1

5.1. The project design

PGIES is designed in a participatory way with the involvement of all stakeholders from the identification tranche. The Project design meets the objectives of biodiversity conservation, community management of natural resources through sustainable development. The objectives of the project as well as its results expected at the end of the 10th year were clearly, explicitly and logically expressed in the Prodoc of the project in verifiable terms.

The Project goes from an analysis of the baseline situation "without project" characterized by a widespread degradation of ecosystems and their evolution over time and then consider alternative scenarios to this baseline situation with a view to establish the institutional, organizational and technical improvement of living conditions based on the sustainable biodiversity management ..

The project approach is based on a subdivision of the country into geographical areas, that are representative of the various country's ecosystems. To reduce the pressure in protected areas, the project has designed, with root actors and institutional partners, Community Nature Reserves (CNR) and pastoral units (PU) established in the periphery of Protected Areas with a charter of good practice accepted by all.

5.2. The institutional framework

The stakeholders in the formulation process of the Ministry of Economy and Finance, the supervisory Ministry and the UNDP have participated in the formulation of the Project.

The project is under the supervision of MEPN and the financial supervision of the Ministry of Economy and Finance through the *Projects and Programs Support Unit*. MEPN is also the supervisory ministry of the three main institutional field partners of the project i.e., the Directorate of Water, Forestry and Hunting ; the Directorate of Soil Conservation (DEFCCS)

and the Directorate of National Parks (DPN). It also supervises the Directorate of Environment. Decision-making, guidance and monitoring of the project consist of: (i) the Tripartite Meeting chaired by the Ministry of Economy and Finance¹, (ii) the Project Steering Committee (PSC) chaired by the Ministry for Environment, (iii) the Scientific and Technical Committee (STC) chaired in an ad hoc basis by one or the other structure. The Secretariat of these bodies is provided by the Project Coordination Unit (PCU). The Tripartite Meeting is held regularly. In order to ensure a good Project management .

The Steering Committee meets regularly to ensure good management of the project
The Scientific and Technical Committee is established and meets regularly in order to approve technical reports and PTA.

In each of the four sites, it was planned to appoint an Assistant in charge of the Protected Area (PA), an Assistant in charge of the CNR / PU and an Assistant in charge of the Village Lands (TV). This planning is not fully operational at the time of evaluation due to some retirements that are not replaced and the fact that the period is provisional.

The project has a monitoring, /assessment and control representative, responsible for physical and financial execution reports of the project and performance reports.

The general rule of National Execution (NEX) is that the projects are under the direct supervision of a national Directorate. PGIES is an exception to this rule.

Most institutional barriers were removed during the first tranche of the project. All of the CNR and PU has been subject to deliberations in due form, thus enabling to secure the activities that were carried out there.

The scope of the mission was mainly to check the results available on the four sites and meet with beneficiaries and to verify the effectiveness of cooperation in the field and project performance. In this regard, the Mission found that the DPN, the DEFCCS (now split into two) and SGP / GEF in the four intervention sites are involved in the operations of the Project .

¹The meeting is no longer held because it was judged redundant

5.3 Project relevance

PGIES has been set up within a context of generalized degradation of the country's natural resources due to a climatic deterioration as well as anthropic pressure (regression of woody formations, extension of water and soil salinization phenomena, and loss of vegetal and animal biodiversity).

Senegal's protected areas, despite their status, have not escaped from that degradation because they have been subject to excessive pressures from neighbouring populations living there who could find with minimal expenditure the means to meet their needs.

Up until that time, the repressive policies undertaken to preserve protected areas did not produce the expected results. So, there was a need to develop a more participatory approach involving populations living near these protected areas in a win-win option. For that purpose, we may say that PGIES is a relevant project whose objective is to mitigate the pressure on protected areas by developing at their periphery community nature reserves and pastoral units where populations can use natural resources in a sustainable way and according to rules accepted by all, while participating to the preservation of those protected areas.

As designed, the project is in line with the vision of the Government of Senegal which recognizes that an integrated ecosystems management, land degradation control and the sustainable use of natural resources are national priorities and cross-cutting sectors in the seven pillars of the environmental planning of Senegal:

- The National Action Program for Desertification Control (PAN/LCD)
- The New Forest Policy of Senegal (NPFS)
- The National Territory Development (PNAT) and PODES
- The National Action Plan for the Environment (PNAE)
- The Strategy and Action Plan for Biodiversity Conservation
- The implementation strategy of the United Nations Framework Convention on Climate Change
- The National Strategy for Sustainable Development

As regards equity and gender considerations in the implementation, the project makes sure in all its activities, women are taken into account (see attached reports of site visits)

5.4. Project efficiency

The cost of a plant produced in a nursery, planted and protected is estimated at 400 francs by the Forestry Development Division of the Water and Forestry Directorate. If we take into account the 577 000 ha covered by CNRs and their biomass growth, this represents the equivalent of an average annual reforestation effort of 56 413 290 plants of more than 5 cm in diameter.

An investment of 20 billion CFA francs per annum during five years would have been required to reforest the same surface areas as CNRs with the same results.

The actual investment and running costs (over a period of 30 years) of a CNR of PGIESPGIES of 10 000 ha (Niokolo) have been estimated at 839 345 000 CFA francs (source Kinome).

The fight against bush-fire has been a success commended by all the project partners.

Income generating activities initiated as part of the project (arboriculture, product processing, cattle-breeding, bee-keeping) have not only had a positive impact on the environment, but also allowed beneficiaries to diversify their activities and improve their income. Mutual saving and credit banks have well played their roles; they operate with satisfactory reimbursement rates. Mutual saving and credit banks of Gandon is in its sixth credit phase with an aggregate FCFA123,580,000 . 22 440 000 have been funded as revolving in Malandou and Windé Diohi in behalf of 167 beneficiaries including 99 women. The mutual saving and credit bank of Toubacouta has granted 20 855 000 F of credits to 133 people in 2010, with a reimbursement rate ranging between 80 and 93%. Thanks to its sound management, that fund has been among the five selected funds, following a long process, for the test of a business software. The mutual saving and credit bank of Koar in the PNNK site has allowed producers to improve their banana production thanks to input credits.

Thanks to modern bee-keeping techniques, honey harvesting is no longer a risk of bush-fire propagation. This has had a positive impact on the conservation of vegetal natural resources and on animal biodiversity.

Despite these good performances, it is still possible to improve the project efficiency, by sharing efforts namely with the Water and Forestry Department in bush-fire control.

During the last year of tranche 2, the budget sharing per Outcome (figure 1) shows that emphasis has been laid on Outcome 2 (sustainable development and community-based natural resources management in village territories), and Outcome 4 (sustainable co-management for biodiversity conservation). Outcome 6 (learning, evaluation and increased adaptive management) should be more consistent during tranche 3 of the project for a better sustainability of actions. The regular ecosystems monitoring and evaluation (Outcome 5), as well as a relevant political and legal framework (Outcome 1), will enable to have a better legibility of impacts and effects.

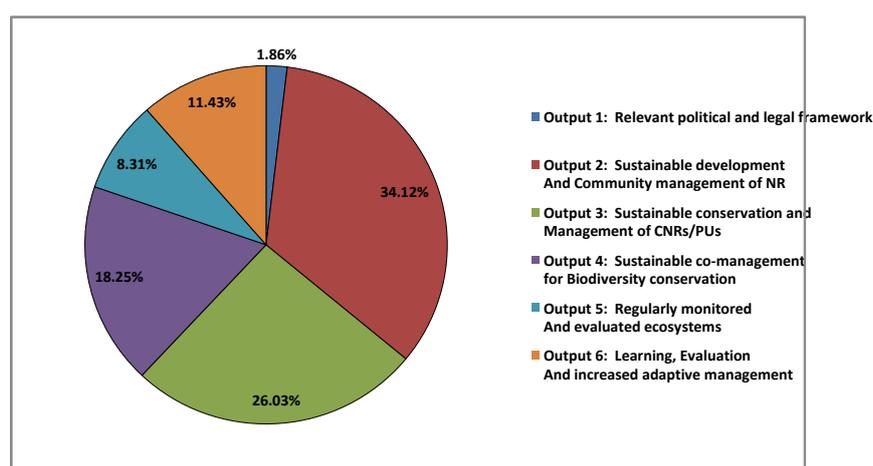


Figure 1: Budget sharing per Outcome

5.5. Project effectiveness

The results achieved in bush fire control have been recognized by all the partners who have noticed an effective reduction of the number of fires compared to the situation preceding the project, especially in Ferlo where those fires were the greatest threat to the development of cattle-breeding.

Bee-keeping is so successful that some bee-keepers propose even to generalize the dissemination of bee-hives as a means to control bush-fires, because where bee-hives are found, owners are more vigilant and react at the slightest alert.

The introduction of fruit trees in compounds and community orchards has been an incontestable success. Fish farming has been a total success. Endangered vegetal species have been identified and partially protected by the Forestry Code. Animal species which were getting rarer are now frequently encountered in sites. Mangroves which used to be subject to destructive exploitation by traditional oyster farming are less disturbed by the new techniques based on the use of strings. Besides, the reforestation of these mangroves has allowed a spectacular regeneration.

5.6. Elaboration of annual and quarterly workplans

The project produces annual and quarterly work plans, in a participatory manner, involving all the relevant partners in each site.

5.7. Resource mobilization

Altogether, resource mobilization has been well achieved. One problem raised at this level concerns the delay in the availability of UNDP's contribution, as mentioned in the audit report. The project budget has been entirely absorbed.

The establishment of the contribution of the Government of Senegal has sometimes suffered from some delay and variation in the amounts.

In the field, resource mobilization was not a specific problem, except sometimes delays in the payments of indemnities to State agents put at the disposal of the project by traditional services such as the Water and Forestry Department or the National Parks Directorate.

Human resources mobilization has somewhat suffered from the retirement of some agents during the current transition period.

5.8. Implementation of activities and outcomes achieved

Table3: Indicators and outcomes achieved

	Indicators	Outcomes achieved	Rating
<p>Project goal</p> <p>Integrated Ecosystems management, Land Degradation control, Sustainable Use of Natural Resources demonstrated in four landscapes representative of Senegal.</p>	<p>Conservation integrated to Development demonstrated in Tranche 1 is disseminated in Tranche 2 in 100 pilot villages adjacent to PAs</p> <p>Land Degradation control is effective in all the pilot villages of the project through land use plans, CNRs/PUs and adjacent community VTs through a capitalization of the best practices in the sustainable use of natural resources by end of A10.</p>	<p>A model of conservation management Integrated to development, as well as the sustainable management of Lands and Biodiversity Conservation, have been disseminated through the establishment of 26 Community Nature Reserves (CNRs) with a surface area of more than 577 000 hectares for 203 pilot villages sheltering 99 009 inhabitants.</p> <p>Presence of animal and plant species of global significance increased by 30% in each site thanks to community conservation of adjacent VTs and thanks to the co-management of PAs.</p> <p>Less than 30% of local actors draw significant profits from the sustainable use of natural resources in sites.</p>	
<p>Outcome 1:</p> <p><i>Political and legal framework</i></p>	<p>The equal access to land production systems gained in Tranche 1 is perpetuated through community encouragement and cooperation</p>	<ul style="list-style-type: none"> • 26 CNRs/PUs covering a surface area of more than 577 000 hectares are created and endowed with local community-based development and natural resources management plans. These plans are adopted and in the process of implementation ; • The relevant stakeholders ratify the consensual common charter around the Saloum Delta Biosphere Reserve and the Niokolo Koba Biosphere Reserve ; 	3

	Indicators	Outcomes achieved	Rating
<i>relevant to an integrated and participatory ecosystems management</i>	measures for the benefit of men, the cattle and the fauna by the end of A7 and disseminated by the end of A10.	<ul style="list-style-type: none"> • Harmonization of local good management charters of CNRs of the Biosphere Reserves of Niokolo Koba and Saloum Delta with the consensual common charter ; • 26 CNRs/PUs endowed with a local natural resources good management charter ; • Support to the establishment process of Ferlo Biosphere Reserve. 	
<p>Outcome 2:</p> <p><i>The sustainable development and community-based natural resources management is effective in Village Territories</i></p>	A total of 175 pilot villages around the PAs of the 4 project action sites have a community local space occupation and management plan adopted and in the process of implementation through the most appropriate capitalized techniques and technologies derived from local knowledge by end of A7.	<ul style="list-style-type: none"> • 175 pilot VTs including 25 CNRs/PUs adjacent to PAs are endowed with local community land occupation and management plans in the process of implementation • The environmental awareness-raising action plan is implemented in 35 test schools with the establishment of a school garden/orchard including 12 in Ferlo, 7 in PNNK, 9 in PNDS and 7 in the Niayes ; • Awareness/training exchange visits of local councilors (Rural Community Chairman, MPs, Senators and ARD) in terms of biodiversity conservation and sustainable development are organized in PNNK (Tamba), Kolda and Kédougou), and in the Niayes ; • 16 integrated community nurseries including 5 new ones (Linkéring, Niéméniké et Koar au PNNK, Touba Baria in PNDS and Lake Tamna in the Niayes) are created and equipped according to the adopted design ; • 70 village nurseries are operational ; • 1.209.1 ha of salted lands are restored (960 in PNDS and 249.1 in the Niayes) ; • 2 862 ha of mangroves are in the process of regeneration including 1140 in the Niayes and 1722 in PNDS ; • 1169.21 ha of degraded wetlands are in the process of restoration including new 825 ha of wetlands comprising 50 ha in Ferlo, 35 ha in PNNK, 140 in PNDS and 600 ha in the Niayes) ; • 1397.25 ha of arable lands are fertilized with improved compost ; • 5000 ha of lands are developed and demultiplied over 4150 ha including 3000 in Ferlo, 500 in PNNK, 500 in PNDS and 150 in the Niayes ; • 465.66 km of shelter belts and hedging plants are planted and maintained ; 	4

	Indicators	Outcomes achieved	Rating
		<ul style="list-style-type: none"> • An operational network of 9 Savings and Credit Funds (REMEDE) for the benefit of the populations of 26 CNRs/PUs is established ; • 4397 improved stoves of a more efficient model are manufactured and used in sites including: 1031 in Ferlo, 1200 in PNDS, and 1410 in PNNK and 755 in the Niayes, with a demultiplication of 5000 « bane ak souf ». 	
<p>Outcome 3: <i>Conservation and sustainable management of Community-Based Natural Resources and Pastoral Units legally established around PAs.</i></p>	<p>A series of 25 CNRs/PUs is legally established around PAs in action sites selected for the project with for each of them a Space Occupation and Management Plan with local rules and regulations for a sustainable use of natural resources, so as to generate interest for a reduction of pressures from men and the cattle on PAs as well as reduce conflicts between concerned actors before the end of A7.</p>	<ul style="list-style-type: none"> • 26 CNRs/PUs are created around PAs and endowed with local development and community-based natural resources management plans. These plans are adopted and in the process of implementation • 538 km of firebreak maintained including 375 km bordered by species for multiple uses ; • 180 km of firebreaks are opened including 80 in Ferlo and 120 in PNNK ; • 99.2 km of dunes around market gardening basins in the Niayes are in the process of fixation ; • 1 667 ha of regeneration/restoration of degraded spaces with local species achieved ; • 220 pilot villages equipped including 105 new ones in small equipment for bush-fire control ; • 200 bee-keeping micro projects without smoke with 481 Langstroth bee-hives for the benefit of the populations of CNRs/PUs ; • Demultiplication of medicinal species is underway in integrated community nurseries and CNRs; • The findings of the research on medicinal plants are available ; • 493 firebreaks are cut with hay collection. 	3
<p>Outcome 4: <i>Sustainable co-management for biodiversity conservation is</i></p>	<p>Each of the PAs has an adapted development plan adopted and in the process of implementation with the cooperation of all the relevant stakeholders through sharing of the</p>	<ul style="list-style-type: none"> • The biophysical studies for the development of ponds in Kountadala and Simenti at PNNK are finalized in relation with the Retention Basins Directorate ; • 60 sign-boards are designed and settled in partnership with PASEF/UNESCO • Sign-boards in the road Diénoudiala-Niéménéké at PNNK are rehabilitated ; • 3 birds nestling islets and 3 water regulation works have been built in the 	3

	Indicators	Outcomes achieved	Rating
<i>demonstrated in PAs.</i>	benefits of eco-tourism by the end of A7 and disseminated by the end of A 10.	<p>Special fauna reserve of Guembeul ;</p> <ul style="list-style-type: none"> • 205 km of firebreaks are maintained ; • 36 former poachers are incorporated among eco-guards and benefit from micro projects (guinea fowl breeding, bee-keeping without smoke, etc.); • 05 hen-houses for the benefit of former retrained poachers. 	
Outcome 5: <i>Regularly monitored and evaluated ecosystems.</i>	The project performances in ecosystems management and poverty reduction through alternative options around PAs are regularly monitored by a Databank fed by M&E community forums.	<ul style="list-style-type: none"> • 01 inventory of animal/plant species with evaluation of fauna migration in each of the 4 PA and 25 CNRs/PUs is carried out ; • 19 participatory community debates on project actions are held ; • At least 18 exchange visits regularly organized allowing a dissemination of the best practices by grassroots actors ; • The level of carbon sequestration in field control sites is monitored (feasibility study carried out) ; • A consultative study (comparative) of the evolution of the populations' living conditions, of land productivity, of the impact of bush-fire control and the use of improved stoves is carried out ; • The project results are disseminated ; • A research in partnership with KINOME ECOSECURITIES has enabled to measure the quantity of sequestered carbon in 08 CNRs of PNNK between 2004 and 2009 ; • Support from the Geography Department of CAD University for a conclusion on the status of endemic species has not yet been gained; • A digital herbarium, a physical herbarium and a leaflet have been produced on endemic species found in the field. The two physical herbaria are entrusted to the vegetal biology department of ISE and CAD University ; • The digital herbarium is published in the project website. Leaflets are translated into national languages (Serere, Wolof, Pular and Mandingo) ; • Some species (<i>Ficus dicranostyla</i>, etc.) are subject to demultiplication in integrated community nurseries. 	4

	Indicators	Outcomes achieved	Rating
<p>Outcome 6: <i>Learning, Evaluation and increased adaptive management.</i></p>	<p>The capacity-building of Local Communities is effective, through an efficient and flexible management of the project, based on the learning by doing principle leading to a partnership for synergies in the implementation of lessons learnt and best environmental practices capitalized in the participatory planning, implementation and monitoring-evaluation by the end of A7.</p>	<ul style="list-style-type: none"> Local actors are informed and trained, are aware of their responsibilities and interest and having effective capacities and organized in Economic Interest Groups at the level of Polyvalent Rural Expansion Centers, VTs, CNRs and PAs; 	3

Rating scale

RATE	EXPLANATION
4	Very satisfactory - Fully achieved without any gaps
3	Satisfactory – Largely achieved despite some gaps
2	Fair – Partially achieved. More or less equality between achievements and gaps
1	Bad – Very limited achievements and major gaps
N/A	Non applicable

Note: rates are rounded up to the lower or higher decimal. Only whole numbers are accounted for.

Comments on results:

Overall, most of the objectives have been achieved, including:

- establishment of a secure institutional framework in favour of equal access to land for all users;
- establishment of 26 CNRs for a total area up to 577,000 ha ;
- establishment of 538 km of firebreaks regularly maintained;
- availability of a management plan for 175 village territories ;
- establishment of 70 village nurseries ;
- installation of 4397 improved stoves ;
- funding of 200 micro projects on beekeeping without smoke;
- environmental awareness-raising in 36 schools ;
- communities' capacity building in terms of natural resources adaptive management;
- induction to ensure regular monitoring of ecosystems (to be completed)

However, some objectives have a relatively low completion rate:

- The Senegalese contribution's execution rate at the end of the third quarter of 2011 is low (57, 14% only). The state of the budget implementation is not commented. This is probably due to the necessity to carry on activities until the end of December 2011 using these funds.
- UNDP has been asked to cover the expenditure relating to the transition between phases 2 and 3, because the 5th GEF will not be available before 2012.
- The young plants production by direct seeding experienced an implementation rate relatively low (38%), the activity was on-going during the drafting of the report.
- The land affected by soil salinity has a low rate of recovering (27%).
- The rate of women trained on the manufacturing of "Ban ak Souf" stoves is low (20%).
- The counting of migrating birds in the Ferlo has not yet been carried out.
- A study on the Monitoring, Evaluation and Control mechanism has been carried out but such tool is not yet operational.
- The last scheduled research on the globally threatened endemic species has not been carried out.

Difficulties to find the address of the website (which does not appear on PGIESPGIES cover page) are noted.

Table 4: Dimensions of the log frame

Dimensions of the log frame		Evaluation
LOGIC	Presents a cause and effect chain with a logical effect to achieve the project development objectives	The frame has provided an input/output relationship allowing for reaching the different goal levels corresponding to given assumptions
MEASURABLE	Presents the objectives and results in a measurable and quantifiable way	In general, the frame has set some objectives to achieve in a measurable and quantifiable manner; however, it is sometimes difficult to classify the results of phases 1 and 2 of the project.
DETAILED	States the basic risks and assumptions	The frame has clearly indicated the basic risks and assumptions. However, the risks related to Outcomes 4 and 5 have not been anticipated.

5.9. Established Partnerships

In general, PGIES has established a broad and effective partnership network recognized by most of the stakeholders.

In the various sites, partners were given the opportunity to express their points of view on the cooperation with PGIES and they all share the same opinion, even if sometimes some of them think that this cooperation can be improved.

PGIESPGIES takes part in the Gandon synergy framework which has been expanded to other non-UNDP partners, including the RDA. The RDA has expressed its satisfaction regarding the cooperation with PGIES which sought to capitalize experiences acquired in the area with the involvement of local governments. This synergy has also been materialized in the development of the Gandon LDP which has been collectively taken on by all the stakeholders. It has also strengthened the partnership with the Poverty Reduction Project.

Moreover, a matrix including a list of all the stakeholders, types of activities and donors has been developed.

A second matrix with the results-based partnership has also been developed by the synergy framework. This is an innovative approach welcomed by all stakeholders. The tools developed are capitalized by the RDA which uses them in the other regional departments.

Small Grants Program of the The Global Environment Facility (SGP/ GEF)

It is a financial facility put in place to support and promote community-based initiatives and actions designed to address global major environmental issues. Its mission is to protect the global environment by funding microprojects that provide environmental benefits worldwide.

The general objective of the SGP/GEF is to achieve global environmental profits in the GEF priority areas using community-based approaches. Its specific objectives include:

- Supporting community-based initiatives in favour of the achievement of global environmental benefits;
- Contributing to establish a partnership based on programme approach;
- Promoting the development of a knowledge sharing network in favour of the protection of the global environment.

The strategy of the SGP/GEF implemented in Senegal is centred on the following areas:

- Geographic and thematic concentration (periphery of protected areas);
- Program approach (synergy effect) ;
- Combination (in each project) of environmental protection and income generating activities components (contract-based approach);
- Project participatory management ;
- Networking of SGP/GEF projects in each of the program's geographic and thematic concentration areas.

The SGP/GEF has established a synergetic partnership with the project in the micro finance framework. PGIES has assigned the implementation of its micro credit component to the SGP/GEF. The SGP/GEF also directs a substantial portion of its own funds towards the same villages that PGIES to have a leverage effect and promote widespread deveolpment of those villages. The activities

carried out in collaboration with PGIES and which fall within the SGP/GEF areas of eligibility include: biodiversity conservation, climate change control and sustainable land management. Thus, the project has signed a synergy memorandum of understanding with the SGP/GEF affecting the four sites (Niayes, PNDS, PNNK, Ferlo) in order to benefit from the experience acquired thanks to this program. According to the synergy MoU, the SGP/GEF is in charge of implementing microcredit and community saving initiatives under PGIES as well as community and individual actions. It is also in charge of providing PGIES with a support grant in the form of contract plans or environment related projects aiming at implementing local plans for CNRs/PUs development and community management. Joint missions are organized to monitor activities in the field. The particularity of the partnership is based on the fact that the SGP/GEF is granted only for activities relating to environmental protection.

PGIES also collaborates closely with other partners at local level as mentioned in the feedbacks from the partners of the PRODAM. The representative of the PRODAM has praised the key partnership established with PGIES to achieve a common objective from different entry points. It is necessary to build the capacity of PGIES to enable the beneficiaries to manage the achievement in a sound manner.

The regional hydraulics service of Matam has provided support for the equipment of the drillings, proving thus its effective collaboration. Drillings representing a key success factor for all the activities implemented in the forestry-pasture area, any support related to them is truly appreciated.

Joint cattle-fattening and market gardening activities are implemented with The ANCAR. The ADOS NGO's intervention is complementary and is centred on the building of hydraulic works. The meteorological service has also maintained a close collaboration with PGIES: 5 rainfall stations have been established and the communication of collected data has been ensured (mid-term review).

The planning department is satisfied with people's appropriation of the activities of PGIES. Formalizing and promoting operational community consensus building frameworks is a priority for the partners of PGIES, in the sense that it enables to streamline resources and improve the efficiency of the interventions.

5.10. Financial Execution

PGIES is implemented under the responsibility of the Ministry of Environment. The technical and financial monitoring of the project is taken on by the Project Coordination Unit (PCU) based in Dakar. The interventions are coordinated in situ by four Project Local Units (PLUs).

The Project Local Units (PLUs) based in each of the four project sites are in charge of carrying out field activities. The project coordination mechanism put in place lacks efficiency but remains operational.

The manual of administrative, accounting and financial procedures has been elaborated for PGIES in February 2010 (revised version). This material serves as a management, communication and training tool.

The total budget of Tranche 2 is up to \$ 5,241,000, including \$ 1 251 000 granted by the UNDP, \$ 3,640,000 by the GEF and \$ 350,000 by the government of Senegal.

The share of the project budget allocated to activities amounted to \$ 4,891,000 broken down as detailed in table 4.

Table 4: Budget sharing per activity

Activity	Amount in \$
1. <i>Political and legal framework adapted to integrated participatory ecosystems management</i>	74 980
2. <i>Effective sustainable development and community-based management of natural resources in Village Territories</i>	913 370
3. <i>Conservation and sustainable management of Community Nature Reserves and Pastoral Units legally established around PAs</i>	1 712 360
4. <i>Sustainable co-management for biodiversity conservation demonstrated in PAs</i>	750 550
5. <i>Regularly monitored and evaluated ecosystems</i>	489 890
6. <i>Learning, evaluation and increased adaptive management</i>	949 850
Total	4 891 000

Activity 3 – entitled “Conservation and sustainable management of Community Nature Reserves and Pastoral Units legally established around PAs” – has benefited from the biggest budget portion (namely \$ 1 712 360). This does not seem logic to us, insofar as a very wide area has been turned into CNR or PU in the 4 project sites and capital and workforce-intensive heavy operations, such as firebricks opening, have been conducted.

Activity 6 – “Learning, evaluation and increased adaptive management” – has been granted the second biggest budget share of the whole tranche. This proves that training and sensitization are key components of the project activities.

Activity 2 – “Sustainable development and community management of natural resources in village territories” – has been allocated the third largest budget portion, which reflects the significance of the activities of this budget item: establishment of nurseries and area protection and restoration.

Generally, the budget execution rate is up to 100%. All funds have been used and thanks to fluctuations in the dollar rate exchange, savings up to \$ 55 000 have been achieved and used to cover part of the expenditure of the last quarter of 2011.

The last 2010 audit report certifies that the statement of asset and equipment presents fairly and in all key aspects the project inventory balance as of December 21, 2010, in accordance with the National Execution’s accounting requirements. The report mentions also that the cash position presents fairly and in all key aspects the project cash balance, in accordance with the National Execution’s procedures requirements.

The report further states that the budget and financial execution rates relating to the funds granted by the UNDP have been average (respectively 84.89% and 86.83%) due to an average delay of 25 days in the reception of the funds of the year.

Moreover, the report stresses out that a Monitoring, Evaluation & Control mechanism has not been put in place for the project and recommends its establishment.

5.11. Project Reporting System

Most of the activities planned in the project matrix have been or are being implemented.

The project's quarterly and annually execution reports and account balance are produced on a regular basis.

It is worth mentioning that a Monitoring, Evaluation and Control mechanism has not yet been put in place for the project.

The project related audit missions are implemented each year and certified. The asset base of the project is inventoried and codified.

5.12. Policy, Advice & Monitoring/Coordination Mechanisms

The coordination of the project is taken on by the Project Coordination Unit (PCU) based in Dakar; its mission includes:

- Coordinating, monitoring and controlling all the activities implemented in the four sites;
- Planning action programmes and preparing annual budgets with the PLUs;
- Elaborating financial statements and execution reports.

The PCU often requests on a contract basis the services of private operators, independent consultants, design firms, research centres, NGOs and professional organisations.

The monitoring and evaluation of PGIES are taken on by the M&E Officer based in Dakar. However, it is worth noting that the project does not fully exploit the results of the consultative study on the "Elaboration of a Monitoring and Evaluation Plan" that has included Access databases created to ensure effective analysis of the sets of data values and reports prepared according to selected indicators.

The project is also supervised by the GEF representative, the Environment & Energy Group of the Regional Office for West and Central Africa (UNDP/New York), who conducts periodical supervision missions.

The field activities of PGIES are implemented by the Project Local Units (PLUs). The mission of the latter includes annual programmes execution, local facilitation and activity monitoring. Concerning this point, PGIES has established a partnership with several projects, organisms and decentralized services.

According to several partners, the project steering at site level should be part of a formal framework (signing of MoU or Order of the Governor). In the sites, PGIES often requests the technical services of the administration, including regional, departmental and even local decentralized bodies and local governments which constitute the entry door of the project.

The UNDP is the key partner of PGIES, since the project is implemented on national scale. Obviously, the leadership of the UNDP Dakar Office in terms of managing PGIES is satisfactory. The representative of the GEF – the Environment & Energy Group of the Regional Office for West and Central Africa (UNDP/New York) – has equally provided permanent support and showed marked interest in the smooth execution of the mission.

5.13. Project Value Added Against Global Environment

Thanks to the project, 21 out of the 31 endemic species of Senegal have been identified and protected by the Forestry Code. Some of those species are undergoing multiplication in situ. The concerned endemic species are part of the global heritage and elements of the biological diversity. They shall be protected, for they are found nowhere else.

As regards the fauna, although it is difficult to determine the part devolved to PGIES, according to the PNNK curator, we can note the following:

- The vegetation in Niokolo is improving with a trend towards open woodland ;
- Three elephants observed recently at Niéménéké ;
- The number of buffaloes is decreasing;
- The number of lions is decreasing;
- Lycaon panthers experience a positive evolution ;
- The Buffon's Kob is decreasing whereas the trend of the Defassa Waterbuck and Giant Eland is stable,
- The Kobe is stable but a dislocation of groups is noted, the same trend is observed for buffaloes (at the top of the list of hunted species).
- Given the importance of the surface areas of CNRs (577 000 ha) with their woody biomass, one can say that the project brings a contribution, albeit modest globally, but very significant for the country when one takes into account the share of national losses in the global greenhouse gas emissions. The whole emission of Africa accounts for only 4% of global greenhouse gas emissions.

From another point of view, we can consider that thanks to CNRs and the activities carried out as part of the project (land protection, diversification of income sources, etc.), the project has enhanced the resilience capacities of local populations, building thus their capacity to adapt to climate change.

The measurement of impact indicators related to global benefits should be undertaken through sub contracts or consulting agreement with relevant institutions (such as the analysis of the green cover through satellite imagery) or through specific studies included in the project activities (such as the extent of the benefits of carbon sequestration from the efficiency of improved stoves or through surveys on capacity building efforts) or periodic sampling for example on sedimentation.

As regards the mitigation of greenhouse gas emissions, the study of the experts of EcoSecurities /Kinomé / University of Ziguinchor / PGIES which has allowed to develop a model for quantifying rigorously CO₂ emission reductions due to forest degradation thanks to the creation of CNRs in Senegal, found that PGIES has definite impacts on the global environment, with the reduction of emissions to 2.295 million tCO₂e (tons CO₂ equivalent) between 2004 and 2009 in the eight CNRs around Niokolo Koba National Park. In 2030, the study concluded that (i) PGIES will enable the reduction of 5.925 million tCO₂e only in the Niokolo Koba region, if efforts are pursued and (ii) this also consists in the quantification of a real and measurable return on investment made by the Government, UNDP and GEF.

The impact on carbon sequestration has thus been quantified; the other impacts have been qualitatively described.

All activities in the project are part of the goal 7 of the MDGs "Ensure environmental sustainability" which consists in integrating the principles of sustainable development into country policies and

programs and reverse the current loss of environmental resources. Through the establishment of CNRs (577,000 ha), bush-fire control and the protection of endangered species, PGIES actually contributes to the achievement of the Goal 7 of the MDGs.

5.14. Project strengths/constraints

The main strengths of the project are its participatory approach enabling to involve all stakeholders at all levels from the design to the implementation of activities. The combination of environmental protection and income generating activities is an additional project strength.

PGIES approach is relevant and innovative in Senegal's Integrated and Sustainable Ecosystems Management. It involves the establishment of CNR/PU at the peripherys of PAs, the participation of populations and the creation of synergy between all institutional partners. PGIES has already recorded achievements in terms of bush-fire control, increase of plant biomass, protection of endemic species, and diversification of income sources. In addition, there is a greater awareness on environmental conservation.

Conversion of poachers: The number of bush-fires and poaching incidents has significantly declined in almost every visited site. According to the different people met, the approach of PGIES has allowed them to "regain" and "reclaim" their territory, and especially understand the various stakes related to conservation and wise resource management.

The process of implementation of the Environmental Network of Mutual saving and credit banks for the Promotion of Sustainable Livelihoods (REMEDE) is effective. The network has a manual of procedures including bylaws, articles of association, credit policy, and business plan as well as chart of accounts. It has established the Board of Directors, the Credit Committee and the Supervisory Board. This process has to consolidate the already tangible results of income generating activities. In the long term, it must ensure a sustainable funding of mutual saving and credit banks through micro credit and access to additional financial resources. The stopping of authorizations granted to mutual saving and credit banks has somewhat slowed down the momentum of REMEDE that must be restructured accordingly.

The possibility to value the carbon of PGIES is a sustainable aspect of undertaken actions in the CNR/PU. Indeed, the commitment of people and the prospects offered by the carbon market led to believe a continuity of actions undertaken at the end of PGIES.

Weaknesses

The weaknesses noted are:

- the non-compliance of the monitoring system to NEX requirements;
- the non-effectiveness of the carbon market benefits;
- the fragile socio economic and ecological viability of CID models through promoting a sustainable use of natural resources in Village Territories;
- the tendency of people to claim a financial contribution for any activity within the project. On the other hand, the appropriate monitoring of CNRs/PUs may experience difficulties if the issue of incentives and status of eco-guards is not settled.

3.15 Project Communication/Visibility

Intervention areas of the project are marked with signs indicating sites and specific activities. These indications provide some visibility to the Project, but unremitting efforts should be made to prevent them from damage or displacement. .

Regarding the media, television shows were produced on Project's achievements. PGIES has a website with general but relevant information dealing with its objectives and themes on www.pgies.net.

The project must ensure the upgrading of the staff employed in its intervention areas , because sometimes personnel newly appointed in partner services have a distorted vision of PGIES due to lack of information.

As to carbon market valorization frame, communication on Project's actions within CNR it has set up with direct collaboration of local communities is being strengthened. Sensitization efforts have been made towards communities on benefits that could be made from the carbon market.

The project needs to strengthen its communication component and broaden its visibility in order to reach the domino effect sought through a wide dissemination of its achievements. It should be noted that the French daily *Libération* has devoted an article about the originality of PGIES actions and to carbon valorisation potential of its sites.

Developing an important communication plan for Project Tranche 3 is critical. For example, work carried out on the herbarium is not sufficiently popularized; the issue of its management at each site by the most relevant decentralized structure is not yet resolved. Moreover, in the frame of it Component 2 (effective sustainable development and community management of natural resources in VT), extension campaigns on diversification and intensification of proposed farming techniques, need plan actions either in the context of production systems or in techniques/specific crops.

Considering gender and poverty reduction issues

Many income-generating activities (IGA) have been initiated in behalf of women. They have mainly praised relief of their domestic work thanks to equipment provided and increase of incomes generated from market gardening and arboriculture.

The Project has also provided targeted support in following activities:

- Cashew nuts processing ;
- Oyster farming;
- Market gardening;
- Rice growing;
- Arboriculture;
- Trading;
- Platform operation (3 mill units).

All these activities were supported thanks to micro-credit provided by mutual credit and saving banks. .

5.16. Project Replicability Potential

Project replicability potential is based on benefits that populations gain in those environment conservation activities that bring actual profits. . In that respect, IGA play a critical role. The mission has witnessed differences according to major activity developed in the area. For instance, in the Ferlo, where the fight against bush fire motivates and mobilizes, populations participate voluntarily to firebreaks maintenance fees (each CIV gives FCFA200,000.) ; in the Niayes, mutual credit and saving banks enable populations to financially take in charge ecoguards which play preponderant role in the surveillance of natural community resources.

Community authorities' empowerment should participate in definitive appropriation of NCR and PU by populations. The Project coordination is aware of the necessity to free, financially and materially speaking, CINTER, because the latter will be, at term, the main body in charge of coordination, boost, leadership and partnership search. It is already recognized as an association and will be provided with a permanently manned office and will participate in all decision and orientation authorities.

CINTER will also be the legal owner of carbon credits generated in NCR. Sound management of these credits will strengthen financial autonomy of community organizations and will enable them to invest in populations priority sector. Removal of institutional and legal barriers during Tranche 1 favours dissemination of PGIES model throughout the country, as testified by the setting up of the NCR of Boundou on over 120,000 ha (out of PGIES sites). This initiative has improved PGIES model through a partnership diversification (Regional Council of Isère).

The elaboration of the conservation plan has started in 2008. A LDP has been worked out in parallel with the conservation plan, with the support of Regional Council of Isère. These plans are being implemented.

Fair access to land for stockbreeders is a significant achievement to the credit of PGIES, as it represents an encouraging sign towards project replication possibilities that other projects emulate. CNR creation by Trees and Life (NGO), as well as the setting up of the area of Ndindifelo falls as CNR by the NGO Wula Nafa are inspired by the PGIES model.

4 Conclusion

PGIES has an original approach in integrated Senegal ecosystem management with the particularity of having developed this approach on a large scale which includes the most representative ecosystems of the country. This is the first time in Sub-Saharan Africa that such a large-scale project is conducted. Because of its participatory and inclusive approach, the project has accompanied people living around Protected Areas in their organization in CIV and CGV for maximizing their participation in the project activities. The setting up of mutual saving and credit banks, efficiently and transparently managed in their majority has allowed the development of IGA.

Particular emphasis is placed on women who have developed processing activities (cashew nuts, fish products), poultry, market gardening and oyster farming. These activities have contributed to alleviate rural poverty. Former poachers have been converted into eco-guards with support provided in income generating activities. These ecoguards whose primary function is environment protection can also act as eco-tourists guides..

The creation of 577 000 ha of CNR is probably one of the brightest Project success because beyond their role of PA buffer zones of , they also contribute to the sequestration of large amount of atmospheric carbon, approximately 2.295 million tons of CO₂ equivalent between 2004 and 2009 in the eight RNCs around the PNNK. This constitutes carbon credit that can be exchanged (see in the annex study of NCR carbon potential) in the carbon market; . By creating CNR, the project has not only contributed to reduce greenhouse gas emissions resulting from deforestation and bush fires, but also contributed to absorption of a portion of atmospheric CO₂.

In 2011, already two-thirds of the course, the challenge of building a multifocal project with biodiversity conservation, sustainable land management, adaptation to t climate change through carbon sequestration and promoting ways to sustainable livelihoods by empowering village communities, is being successful.

The logic of restoring villages land rights of in the management of ecosystems and the development of spatial planning models and natural resource management, based largely on local know-how, but also modern techniques and relevant technologies have stimulated the involvement of villagers and generated successful outcomes.

The project operates in eight administrative regions of Senegal. The creation of a national network of inter-village development committees (CIVD), well-structured for the management and replication of NCR, with a network of decentralized financial organizations (SFD) for financing the actors of sustainable management of natural resources, is an opportunity for Senegal and its development partners, to lay the foundations of a new instrument for decentralized management of natural resources and environmental protection, a complementary partner for the administration of Water and Forestry and National Parks as regard conservation. CNR have proven their ability in natural resources conservation, that's why request for creation of new ones from village communities is very important. We must bear in mind that existing CNRs represent at least 5% of protected areas in Senegal.

Considering large amounts of carbon sequestered in CNRs (3 million tons equivalent CO₂ around the PNNK only), we do not despair of the prospects offered by carbon trading, REDD in particular, for funding CNR and MEC networks.

The project was satisfactorily implemented according to NEX methods with an accounting and financial management certified accurate by independent auditors. It should, however, carefully follow recommendations for setting up a DISEC as pointed out by the last audit. The institutional supervision at a national department is an argument advocating for achievements durability once the project is completed.

As part of the project, a fruitful and diversified partnership was set up with services operating on the same actors. An exemplary complementarity has been created with PMF/FEM for funding of activities in view of improving environment quality. Among other partners, one can mention the management of NP, PRODAM, Water and Forestry, Agriculture, Water Resources and Livestock services, ANCAR, ADOS, PAPIL, Wula Nafa and other NGOs. This partnership could be somewhat improved by strengthening the synergy and harmonization of approaches. For this purpose, The Government of Senegal has responsibility for developing a framework containing guidelines approach and intervention in rural areas, to avoid the frustrations and differences among the beneficiaries of the support for sustainable development.

The mission has positive evaluation on the implementation of Project Tranche 2 and speaks in favour of Project Tranche 3 implementation which will be a consolidation phase of achievements and correction of some activities.

The third phase of PGIES will enhance CIVD and national network (CINTER) achievements and capacities. The latter will become an NGO. The team of the project will act as a technical staff and gradually withdraw to the benefit of a technical organization that the NGO will create or any other organization set up to that effect.

7. Recommendations

Recommandation	Target
Address the institutional Base.	Government of Sénégal
Address the recognition of eco-guards issue	Government of Sénégal
Replace the staff eligible for retirement	Government of Sénégal
Develop rules to harmonize approaches in rural environment	Government of Sénégal
.Address land issues related to the implementation of the MDL project in the Niayes	Government of Sénégal
Start Project Tranche 3 as soon as possible to avoid breaks in the field.	UNDP/GEF
Shorten time for funds availability	UNDP/GEF
Show the effects of mutual banks on family income. This should be done in a context of "with" or "without" the support of mutual banks to discern impact on poverty. This study will critical in defining distribution of profits from the exploitation of the carbon market. (This recommendation was	PGIES

made during the mid-term review).	
Commission a study on improvement of vegetation cover in the Ferlo for the period 2003 (before the Project) and 2011 (at Tranche 2 completion)	PGIES
Conduct a diagnosis of the mutual bank of Malandou in collaboration with ECIDEC with which it will define a formal framework for collaboration.	PGIES
Requesting the MEF support program for microfinance in case of difficulty with the mutual banks.	PGIES
For Project Tranche 3, focus on the activities included in development plans	PGIES
. Imply more the region permanent structures in view of post-project preparation, since appropriation of the project by populations is the best barometer of success	PGIES
Imply more the W&F Department in follow-up activities	PGIES
Establish the geographic information system for monitoring and evaluation of project Activities	PGIES
Ensure the upgrade of agents assigned	PGIES
Establish an aggressive communication plan during the third tranche (build up the achievements)	PGIES
Increase the number of fruit trees in plantations	PGIES
Request ANCAR support with regard to market-gardening strengthening	PGIES
Elaborate a specification sheet concerning mangrove reforestation with <i>Avicennia Africana</i> . The sheet could be capitalized by another project;	PGIES
Strengthen nurseryman and ecoguards training on environment protection.	PGIES
Organize study tour for CIV and PGIES officials at the Bundu	PGIES