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PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US\$4.8 MILLION

TO

THE REPUBLIC OF SENEGAL

FOR A

SUSTAINABLE LAND MANAGEMENT PROJECT

July 16, 2009

Sustainable Development Department
Agricultural and Rural Sector Unit
Country Department AFCE1
Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective May 08, 2009)

Currency Unit = FCFA
FCFA 493.00 = US\$1

FISCAL YEAR

January 1 - December 31

ABBREVIATIONS AND ACRONYMS

AAP	Africa Action Plan
AELP	Africa Emergency Locust Project
AFD	<i>Agence Française de Développement</i> (French Development Agency)
ANCAR	<i>Agence Nationale de Conseil Agricole et Rural</i> (National Agricultural and Rural Advisory Agency)
APL	Adaptable Program Loan
ASPRODEB	<i>Association Sénégalaise pour la Promotion du Développement à la Base</i> (Senegalese Association for Grassroots-level Development)
CAADP	Comprehensive Africa Agriculture Development Programme
CAS	Country Assistance Strategy
CFAA	Country Financial Accountability Assessment
CEA	Country Environmental Analysis
CLCOP	<i>Cadre Local de Consultation des Organisations de Producteurs</i> (Producer Organisations' Local Consultation Forum)
CONGAD	<i>Conseil des Organisations Non Gouvernementales d'Appui au Développement</i> (Council of NGOs for Development)
CRCR	<i>Cadre Régional de Concertation des Ruraux</i> (Regional Rural Consultation Fora)
DA	<i>Direction de l'Agriculture</i> (Directorate for Agriculture)
DAPS	<i>Direction de l'Analyse, de la Prévision et de la Statistique</i> (Directorate for Planning, Analysis and Statistics, Ministry of Agriculture)
DAT	<i>Direction de l'Aménagement du Territoire</i> (Directorate for Territorial Management)
DCEF	<i>Direction de la Coopération Economique et Financière</i> (Directorate for Economic and Financial Cooperation)
DDI	<i>Département de la Dette et de l'Investissement</i> (Directorate for Debt and Investment)
DEEC	<i>Direction de l'Environnement et Des Etablissements Classés</i> (Directorate for the Environment and Registered Lands)
DSRP	<i>Document de Stratégie pour la Croissance et la Réduction de la Pauvreté</i> (Poverty Reduction Strategy Paper)
EC	European Commission
ESMF	Environmental and Social Management Framework

FAO	Food and Agriculture Organization
FCFA	<i>Franc de la Communauté Financière Africaine</i> (Franc of the African Financial Community)
FM	Financial Management
FNRAA	<i>Fonds National de Recherches Agricoles et Agro-Alimentaires</i> (National Agricultural and Agro-processing Research Fund)
FY	Fiscal Year
GDP	Gross Domestic Product
GDT	<i>Gestion Durable des Terres</i> (Sustainable Land Management)
GEF	Global Environment Facility
GEO	Global Environmental Objective
GPP	Global Partnership Program
GPS	Global Positioning System
Ha	Hectare
HIPC	Heavily Indebted Poor Country
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFR	Interim Financial Report
IMF	International Monetary Fund
INP	<i>Institut National de Pédologie</i> (National Institute of Pedology/National Institute of Pedology)
IRD	<i>Institut de Recherche pour le Développement</i> (Research and Development Institute)
IRR	Internal Rate of Return
ISA	International Standards on Auditing
ISRA	<i>Institut Sénégalais de Recherches Agricoles</i> (Senegalese Institute for Agricultural Research)
ITA	<i>Institut de Technologie Alimentaire</i> (Food Technology Institute)
JICA	Japanese International Cooperation Agency
Kg	Kilogram
LADA	Land Degradation Assessment in Dryland Areas
LD	Land Degradation
LERG	<i>Laboratoire d'Etudes et de Recherches Geophysiques</i> (Laboratory for Studies and Geographic Researches)
LOASP	<i>Loi d'Orientation Agro-Sylvo Pastorale</i> (Agro-Sylvo Pastoral Orientation Law)
M&E	Monitoring and Evaluation
MA	Ministry of Agriculture
MDTF	Multi-Donor Trust Fund
MEPN	<i>Ministère de l'Environnement et de la Protection de la Nature</i> (Ministry of the Environment and of the Natural Resources Protection)
MTEF	Medium-Term Expenditure Framework
NAP	National Action Program to Combat Desertification
NAPA	National Adaptation Program of Action
NARS	National Agricultural Research System
NEPAD	New Partnership for Africa's Development

NGO	Non-Governmental Organization
NPV	Net Present Value
OP/BP	Operational Policy/Bank Procedure
PACD	<i>Projet de Promotion d'une Agriculture Compétitive et Durable</i> (Promotion of Competitive and Sustainable Agriculture)
PANAC	<i>Plan d'Action National pour l'Adaptation aux Changements Climatiques</i> (National Action Plan for Adaptation to Climate Changes)
PDMAS	<i>Projet de Développement des Marchés Agricoles et Agroalimentaires au Sénégal</i> (Agricultural Markets and Agribusiness Development Project)
PDO	Project Development Objective
PEFA	Public Expenditure and Financial Assessment
PFDS	<i>Projet du Fonds de Développement Social</i> (Social Development Fund Project)
PFM	Public Financial Management
PGIES	<i>Programme de Gestion Intégrée des Eaux et des Sols</i> (Program for Integrated Soil and Water Management)
PIM	Project Implementation Manual
PLDP	Participatory Local Development Program
PMP	Pest Management Plan
PNIR	<i>Programme National d'Infrastructures rurales</i> (National Rural Infrastructure Project)
PO	Producer Organization
PROGERT	<i>Projet de Gestion et Restauration des Terres dégradées du Bassin Arachidier</i> (Groundnut Basin Soil Management and Regeneration Project)
PRSP	Poverty Reduction Strategy Paper
PSAOP	<i>Projet de Services Agricoles et Organisations des Producteurs</i> (Agricultural Services and Producer Organizations Project)
R&D	Research and Development
RPF	Resettlement Policy Framework
SBD	Standard Bidding Document
SIP	Strategic Investment Program for SLM in Sub-Saharan Africa
SIP IR	Strategic Investment Program Intermediate Results
SITAR	<i>Système d'Information Technologique Agricole et Rurale</i> (Agricultural and Rural Technological Information System)
SLM	Sustainable Land Management
SN-CEA	Senegal Country Environmental Analysis
SNRASP	<i>Système National de Recherche Agro-Sylvo-Pastorale</i> (National Agricultural Research System)
SODEVA	<i>Société de Développement et de Vulgarisation Agricole</i> (Agricultural Extension and Development Company)
TIPA	<i>Innovation Technico-agricole pour la Lutte contre la Pauvreté</i> (Techno-agricultural Innovation for Poverty Alleviation)
TFCU	Technical and Fiduciary Coordination Unit (<i>Unité de Coordination Technique et Fiduciaire</i>)
TFESSD	Trust Fund for Environmentally and Socially Sustainable Development
UCTF	<i>Unité de Coordination Technique et Fiduciaire</i> (Technical and Fiduciary Coordination Unit)
UNCCD	United Nations Convention to Combat Desertification

UNDP United Nations Development Programme
UNEP United Nations Environment Programme
UNFCCC United Nations Framework Convention on Climate Change
USD United States Dollar
USAID United States Agency for International Development
WAAPP West Africa Agriculture Productivity Programme
WB World Bank

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SENEGAL
Sustainable Land Management Project

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REPUBLIC OF SENEGAL
SUSTAINABLE LAND MANAGEMENT PROJECT
PROJECT APPRAISAL DOCUMENT

AFRICA

AFTAR

Date: July 16, 2009	Team Leader: Maniével Sène
Country Director: Habib Fetini	Sectors: General agriculture, fishing and forestry sector (70%); Agricultural extension and research (30%)
Sector Director: Inger Andersen	Themes: Land administration and management (67%); Other rural development (33%)
Sector Manager: Karen Mcconnell Brooks	
Project ID: P108144	
Focal Area: Land degradation	
Environmental Assessment: Partial Assessment	
Lending Instrument: Specific Investment Loan	

Project Financing Data

[] Loan [] Credit [X] Grant [] Guarantee [] Other:

For Loans/Credits/Others:

Total Bank financing (US\$ m.): 0.00

Proposed terms:

Financing Plan (US\$m)

Source	Local	Foreign	Total
BORROWER/RECIPIENT	0.00	0.00	0.00
Global Environment Facility (GEF)	3.00	1.80	4.80
Total:	3.00	1.80	4.80

Borrower:

Republic of Senegal

Dakar

Senegal

Responsible Agency:

ANCAR

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Estimated disbursements (Bank FY/US\$m)									
FY	10	11	12						
Annual	2.00	1.80	1.00						
Cumulative	2.00	3.80	4.80						

Project implementation period: Start: August 06, 2009 End: June 30, 2012
 Expected effectiveness date: September 16, 2009
 Expected closing date: June 30, 2012

Does the project depart from the CAS in content or other significant respects? Ref. PAD I.C.	[] Yes [X] No
Does the project require any exceptions from Bank policies? Ref. PAD IV.G.	[] Yes [X] No
Have these been approved by Bank management?	[] Yes [X] No
Is approval for any policy exception sought from the Board?	[] Yes [X] No
Does the project include any critical risks rated “substantial” or “high”? Ref. PAD III.E.	[X] Yes [] No
Does the project meet the Regional criteria for readiness for implementation? Ref. PAD IV.G.	[X] Yes [] No

Project development objective **Ref. PAD II.C., Technical Annex 3**
 The objective of the Project is to contribute to the reduction of land degradation and the improvement of ecosystem functions and services in the Target Areas by adopting sustainable land management practices through the provision of support to the Recipient’s research and agricultural and rural consultation system and to producer organizations.

Global Environment objective **Ref. PAD II.C., Technical Annex 3**
 The objective of the Project is to contribute to the reduction of land degradation and the improvement of ecosystem functions and services in the Target Areas by adopting sustainable land management practices through the provision of support to the Recipient’s research and

agricultural and rural consultation system and to producer organizations.

Project description [*one-sentence summary of each component*] **Ref. PAD II.D., Technical Annex 4**

- A. Support to the Agricultural Research System. This component will strengthen the capacity of ISRA to specifically generate and disseminate SLM-targeted research and knowledge.
- B. Strengthening Agricultural Advisory Services. This component will (i) strengthen the capacity of the agricultural extension system to specifically deliver SLM packages and provide adequate technical backstopping on SLM to farmers; and (ii) support the actual delivery of SLM packages to producers through the agricultural extension system.
- C. Support to Producer Organizations. The component will (i) improve the awareness of producer' organizations on SLM and strengthen the capacity of their members to integrate SLM in their production systems; (ii) strengthen the capacity of POs' leaders to integrate SLM in the formulation of sectoral policies and local development plans; and (iii) facilitate the adoption and replication of SLM on-the-ground.
- D. Support to Sectoral Coordination. The component will strengthen the enabling conditions to allow the Government to move towards a more cross-sectoral and programmatic approach to SLM, and to support incremental costs of project management.

Which safeguard policies are triggered, if any? **Ref. PAD IV.F., Technical Annex 10**

OP/BP 4.01 Environmental Assessment

OP 4.09 Pest Management

OP/BP 4.12 Involuntary Resettlement

Significant, non-standard conditions, **if any**, for:

Ref. PAD III.F.

Board presentation:

None

Grant effectiveness conditions:

- the execution and delivery of this Agreement (the Grant Agreement) on behalf of the Recipient (the Republic of Senegal) have been duly authorized or ratified by all necessary governmental action;
- the Recipient has revised the Financial and Accounting Procedures Manual and the Project Implementation Manual for the purposes of the Project, in a manner satisfactory to the World Bank;
- the Recipient has revised the PSAOP II Arrêté to expand the role of the TFCU and the Steering Committee for the purposes of the Project;
- the TOMPRO software has been updated for the purposes of the Project;
- the Recipient shall have entered into the Subsidiary Agreement with ASPRODEB and into agreements, in form and substance acceptable to the World Bank, with ISRA, ANCAR, and INP for the implementation of the Project.

Covenants applicable to project implementation:

- The Recipient shall prepare and submit to the World Bank annual work plans, in form and substance satisfactory to the World Bank, no later than November 30 of each year.
- The Recipient shall maintain or cause to be maintained a financial management system including records, accounts and preparation of related financial statements in accordance with accounting standards acceptable to the Bank.
- The Recipient shall recruit the external auditor on terms and conditions acceptable to the Association not later than six (6) months after the Project's effectiveness date.

- The Financial Statements will be audited in accordance with acceptable international auditing standards. The Audited Financial Statements for each period shall be furnished to the Association not later than three (6) months after the end of the Project fiscal year.
- The Recipient shall ensure that interim unaudited financial reports (IFR) for the Project are prepared and furnished to the World Bank not later than 45 days after the end of each calendar quarter, covering the quarter in form and substance satisfactory to the World Bank. The first IFR shall be furnished to the World Bank not later than 30 days after the end of the first calendar quarter after the Effective Date, and shall cover the period from the incurrence of the first expenditure under the Project through the end of such first calendar quarter.

I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

1. ***The importance of land resources in Senegal.*** Land is a key resource in Senegal. Seventy percent of the rural population - representing about one-half of the total population - directly depends on land resources for its livelihood. Despite the fact that agriculture's contribution to GDP has declined in recent decades, the sector still employs about 60 percent of the population (Senegal Country Environmental Analysis: SN-CEA, FY08). According to the Government's Poverty Reduction Strategy Paper (DRSP-II), agriculture represents a major engine of growth for the economy, and is particularly well placed to stimulate growth that is widely shared and effective in reducing poverty.

2. ***Land degradation is widespread and has clear causes.*** According to the Senegal CEA almost two-thirds of the country's arable land - about 2.5 million hectares - is degraded. The main causes of land degradation include (i) overgrazing and unsustainable agricultural practices that contributed to deforestation; (ii) population growth that led to an extension of cultivated lands and to increased pressure on forest resources; and (iii) drought.¹

3. ***The negative consequences of land degradation are severe.*** The consequences are social and environmental as well as economic. At least four effects have been identified:

- (a) ***On the country's potential for growth.*** Soil fertility depletion (one of the forms of land degradation) represents one of the main causes of stagnation of agricultural productivity and, consequently, one of the major constraints to agricultural and economic growth. Rough estimates suggest that the annual economic cost of land degradation in Senegal may be in the order of 1 percent of GDP (ref. SN-CEA).
- (b) ***On poverty and vulnerability of rural people.*** The linkage between poverty and land degradation is highlighted in the Senegal CEA. Because most of the rural population depends heavily on land for its livelihood, increasing degradation of this key asset reduces livelihood options and opportunities to generate income. Poverty and vulnerability are thereby exacerbated.
- (c) ***On society.*** Declining soil productivity of agricultural lands and population growth contribute to the abandonment of previously productive lands and increased migration to urban centers, particularly Dakar. The social costs, including unemployment, are potentially high.
- (d) ***On ecosystem functions and services.*** Senegal's territorial ecosystems and their products are an important part of Senegal's natural wealth and essential to the country's food security. Land degradation is considered one of the key factors contributing to imbalances in ecosystems, including waterways, and it threatens the viability of wildlife habitats.

4. ***Sustainable land management (SLM) as a means to address land degradation: opportunities and constraints.*** According to the Senegal CEA, sustainable land management could address land degradation in a way that enhances rural land productivity on a long-term basis. However, despite some isolated technical successes the adoption and replication of SLM

¹ A more detailed description of the major forms and causes of land degradation is given in Annex 1 and Annex 4 Table 4.1.

has remained relatively limited.² Some of the key factors that preventing the adoption and/or replication of SLM include: (a) *a weak enabling environment* (characterized by inconsistent government policies and regulations, weak institutional capacity to support SLM adoption, and an unfavorable land tenure and incentive system); and (b) *a single-sector/project-specific approach* to the problem.

5. ***Recipient's key policies and strategies.*** Land degradation has been repeatedly identified by the Senegalese Government as a significant constraint to both national and local development. Addressing land degradation and promoting sustainable use of natural resources have been prominent objectives in virtually all national policies and strategies since the *National Action Plan for the Environment* in 1993. The Senegalese Government ratified the United Nation Convention to Combat Desertification (UNCCD) in 1995, and submitted its *National Action Program to Combat Desertification* (NAP) in 2000. The NAP identifies the main actions needed to prevent desertification and reduce its effects. The *Agro-Sylvo-Pastoral Orientation Law* (LOASP, 2004) includes promotion of better land exploitation and improvement of soil fertility as key strategic objectives of the national rural development policy. The *Accelerated Growth Strategy* (2006) identifies 'sustainable agriculture' as a key driver of Senegal's economic growth. The *Plan d'Action National pour l'Adaptation aux Changements Climatiques* (PANAC, 2006) identifies sustainable land management as an effective adaptation activity. More recently, the *Poverty Reduction Strategy* (DSRP-II, 2007) identifies reduction in land degradation and promotion of sustainable agriculture and forestry as priority objectives in the fight against poverty. Finally, the Government of Senegal has increasingly recognized that to effectively address land degradation, SLM approaches need to be scaled up within existing institutions. This is best done through cross-sectoral programs, as opposed to projects.

B. Rationale for Bank involvement

6. ***The rationale for the Bank's involvement*** is based on the following elements:

- (a) *Long-term involvement in the sectoral dialogue:* The Bank has led the policy dialogue in agriculture since the sectoral adjustment programs of the 1990s. Recently, the first and second phase of the Agricultural Services and Producer Organizations Project (PSAOP and PSAOP2) have been instrumental in defining strategies and implementing reforms in the agricultural sector. Examples of the latter include implementation of the Agricultural Sector Law, and implementation of the Policy Letter of Development of the Groundnut Sector. The recently completed Senegal CEA provides an additional instrument to further policy dialogue on issues of natural resource management.
- (b) *Opportunity to complement the Bank's rural portfolio:* The Bank has a well integrated rural portfolio in Senegal, which includes, in addition to PSAOP2, the following operations: the Agricultural Markets and Agribusiness Development Project (PDMAS), the Participatory Local Development Program (PLDP), the Africa Emergency Locusts Project (AELP), and the West Africa Agricultural Productivity Program (WAAPP). PSAOP2 and PDMAS recognize the importance of sustainable land management for intensification of production,

² Examples of successes include (1) the SLM system supported by the Rodale Institute and the Agricultural Extension and Development Company (Société de Développement et de Vulgarisation Agricole: SODEVA); and (2) interventions to stabilize sand dunes in the Niayes.

but neither focuses on adoption of SLM. Thus, the proposed operation would strategically complement the Bank's rural portfolio in Senegal, amplifying the impact of Bank-supported rural investments. Mainstreaming SLM through a more programmatic approach ensures a longer-term focus on land degradation and sustainable land management within existing institutions.

- (c) *Linkages with previous and ongoing AAA:* The recently completed Senegal CEA, which was supported by the World Bank, the Royal Netherlands Embassy and TerrAfrica, provides an in-depth analysis of the most important environment and natural resource management issues in Senegal, and a set of recommendations to address these. The proposed operation is one of the instruments through which the recommendations of the SENEGAL CEA would be implemented. In particular, the proposed operation would support the development of a national framework for SLM investments, favor the establishment of platforms for SLM, and support the strengthening of a relevant knowledge management system. In addition, the ongoing AFR study on regional implications of climate change, and a global study on territorial development and adaptation to climate change, will provide detailed information on the capacity of local institutions, including those targeted by the proposed operation, to adapt.
- (d) *Mobilization of technical and financial resources for SLM:* The Bank's convening power will be critical in leveraging support from development partners (DPs) and other stakeholders. The proposed operation is expected to influence investment choices by other DPs working in the country, such as the EC, JICA, USAID, and it will stimulate an increase in SLM expenditures by the Government. As the organization hosting the TerrAfrica Secretariat, the Bank is in a unique position to garner support among TerrAfrica partners in Senegal (NEPAD, UNDP, UNEP, FAO, IFAD, the Global Mechanism of the UNCCD, etc.).
- (e) *Regional and global experience in developing and implementing SLM programmatic responses and investments:* The Bank is well placed to draw upon its own regional and global experience in supporting programs to scale-up SLM. Some examples include recent Bank operations in Ethiopia, Mali, and Ghana, as well as activities in Nigeria (the SLM Investment Framework), and Ethiopia (the SLM Program). In addition, in its capacity as a partner of TerrAfrica, the Bank is well placed to draw from the experience, best practices, lessons, and knowledge generated by others TerrAfrica.
- (f) *Implementation of the TerrAfrica GPP:* TerrAfrica is a Bank Global Partnership Program (GPP). The proposed operation would contribute to implementation of the Business Plan of TerrAfrica, particularly Activity Line 3 (Country Investments) by enabling SLM scale-up.

7. Consistency with GEF Strategies and the GEF Investment Program (GEF-SIP). This operation is part of the regional GEF Strategic Investment Program for SLM in Sub-Saharan Africa (SIP). It would contribute to SIP objectives by: (a) *Supporting Senegal's adoption of a more programmatic approach to SLM* by addressing some of the weaknesses in the enabling environment that hinder SLM adoption and replication; and (b) *Supporting Senegal in applying sustainable practices* that increase land productivity while securing ecosystem services in selected priority areas. The project would, in addition, contribute to attainment of SIP IRs 1

(SLM applications on the ground are scaled up in country-defined priority agro-ecological zones; 2 (Effective and inclusive dialogue and advocacy on SLM strategic priorities, enabling conditions, and delivery mechanisms established and ongoing); 3 (Commercial and advisory services for SLM are strengthened and readily available to land users); and 4 (Targeted knowledge generated and disseminated and monitoring established and strengthened at all levels) (ref. to Section D - Project Components). As part of the GEF-SIP, this operation will directly contribute to the implementation of the GEF Land Degradation Focal Area Goal aimed at arresting and reversing current trends in land degradation, and Strategic Objective 1: creating an enabling environment for SLM, as well as Strategic Objective 2: generating benefits for the global environment through the upscaling of SLM investments. Finally, this operation would further the objective of the Land Degradation-Strategic Program 1: support to sustainable agriculture and rangeland management.

C. Higher level objectives to which the project contributes

8. ***Contribution to Recipient's high-level objectives.*** The Senegal Poverty Reduction Strategy (DSRP-II) gives high priority to combating land degradation and promoting sustainable agriculture. The national rural development policy emphasizes the importance of better land exploitation and improvement of soil fertility. The Accelerated Growth Strategy views sustainable agriculture as an important driver of the country's economic growth. Finally, land management is an effective climate adaptation activity highlighted in the *Plan d'Action National pour l'Adaptation aux Changements Climatiques* (PANAC, 2006). The proposed operation will contribute to higher level objectives in these four policy documents through its efforts to reduce and ameliorate land degradation. This, in turn, is expected to improve rural livelihoods and generate household income. The synergistic effect of the Project on other rural investments in Senegal provides another, more indirect contribution to high-level objectives.

9. ***Contribution to CAS objectives.*** The Bank's Country Assistance Strategy (CAS, 2007) recognizes the importance of enhancing land productivity on a sustainable basis to help to unlock rural growth potential. The CAS includes time-bound, quantified targets for SLM scale-up. One of the targets of outcome 7 of the CAS is *100,000 ha of land sustainably managed in priority areas, including sylvo-pastoral zones in the Groundnut Basin*. A related target for the intermediate outcome is *20,000 ha of land with pilot sustainable management system in place in these priority areas*. The proposed operation would directly contribute to achievement of these targets by promoting the implementation of SLM practices in the Groundnut Basin. By the end of the Project it is expected that 20,000 ha will be under sustainable land management.

10. ***Contribution to CAADP and EAP, UNCCD-NAP, the new UNCCD 10 years Strategic Plan, and UNFCCC-NAPA objectives.*** Extending the area under sustainable land management is the key objective of pillar 1 of NEPAD's Comprehensive African Agriculture Development Program (CAADP) and one of the key objectives of program area 1 (degradation) of the Environmental Action Plan (EAP). The proposed operation would directly contribute to these objectives. In addition, this Project is one of the instruments through which the UNCCD-NAP, the new UNCCD 10 years Strategic Plan, and the UNFCCC-NAPA will be implemented.

II. PROJECT DESCRIPTION

A. Financing instrument

11. **Financing instrument.** The proposed operation would be implemented with support from the GEF with a US\$4.8 million grant extending over three years. The operation will be integrated (partially blended) with the IDA/IFAD Agricultural Services and Producer Organizations Project 2 (PSAOP2). The two projects will have the same structure, institutional arrangements and implementation mechanisms. PSAOP2 has put in place effective mechanisms for engaging the Government on broader policy issues and institutional reforms in the agricultural sector. It is therefore believed that this GEF-funded project would have more leverage in influencing the policy dialogue and mainstreaming SLM into the agricultural sector if integrated into the PSAOP2.

B. [If Applicable] Program objective and Phases

12. N/A

C. Project development objective and key indicators

13. The objective of the Project is to contribute to the reduction of land degradation and the improvement of ecosystem functions and services in the Target Areas by adopting sustainable land management practices through the provision of support to the Recipient’s research and agricultural and rural consultation system and to producer organizations.

14. **Geographical scope and location.** Project activities will focus on the Groundnut Basin (GB), and more precisely will target the departments and rural communities listed in the table below. It may in addition include other rural communities approved by the Bank. A map of the project areas is presented in Annex 4. About 20,000 ha are expected to be converted to SLM.

Zone/Department	Rural Community	Zone/Department	Rural Community
Northern Groundnut Basin (Louga, Kébémér, Tivaouane Departments)	Notto Djobass	Southern Groundnut Basin (Kaolack, Sud Fatick, Kaffrine)	Fimela
	Mewane		Niakhar
Central Groundnut Basin (Thiés, Diourbel, Goassas, Nord Fatick)	Dealy		Nganda
	Touba Mosquee		Latmingue

15. **Key indicators.** Proposed outcome indicators include:

- (a) *Increase percentage of land with SLM practices in the Target Areas.* Percentage of land with SLM practices is defined as land with SLM practices over total land. SLM practices include ‘technologies’ as well as ‘approaches’ applied to raise land quality. Technologies refer to agronomic, vegetative, structural, and management measures that reduce the effects of land degradation. Approaches are measures to introduce, apply and implement SLM technologies (Ref. table 3.1 in Annex 3). (Baseline: 0 percent; target value: 20 percent).
- (b) *Increase percentage of organic matter in the soil in the Target Areas.* Organic matter is used as an indicator of soil fertility, which is considered as a proxy for land quality,

agricultural productivity and ecosystem health³ (Baseline: 0.20 percent; target value: 0.23 percent).

D. Project description and components

16. ***Project description.*** The proposed operation would contribute to above described objectives by:

- (a) *Strengthening elements of the enabling environment for SLM scale-up* at national and local levels. For example, it would strengthen cross-sectoral coordination mechanisms and institutional capacity for SLM. It would also improve the capacity of the main agricultural research institutions to generate and disseminate SLM research and knowledge about improved practices;
- (b) *Supporting the adoption of SLM technologies and practices in selected priority areas*, such as the seed producing areas of the Groundnut Basin. It would do this by strengthening the capacity of producer organizations to adopt SLM measures; setting-up financial mechanisms to facilitate the adoption of SLM; and supporting agricultural service providers in delivering SLM advice and technical backstopping. Special attention would be given to consideration of risks associated with climate change and design of adaptation measures. A World Bank study on territorial development and adaptation to climate change will provide some information on the capacity of local institutions to adapt to climate change, including those targeted by the proposed operation; and
- (c) *Strengthening synergies between the ministries engaged on SLM*, particularly the ministry in charge of agriculture, livestock and environment sectors.

17. ***Rationale for selection of Project location.*** The decision to focus on seed producing areas of the Groundnut Basin is based on the following considerations:

- (a) *Severity of degradation.* The Groundnut Basin is one of the areas in Senegal where land degradation is more severe⁴, mainly because of inappropriate cropping practices.
- (b) *Population density and potential for agricultural production.* The Groundnut Basin the area with the highest population density and where most of the country's agricultural production (approximately two-thirds of total production) is generated. Where quality production is practiced, integrated agricultural practices that include SLM could be certified. This could be incorporated as a quality parameter in the labeling of products derived from sustainable agriculture.
- (c) *Importance of ecosystem functions and services for agricultural productivity.* Senegal's territorial ecosystems and their products provide significant services to rural production landscapes. Land degradation in its various forms has negative consequences for both ecosystem functions (e.g. system soil structure, water quality retention, and mineral

³ In agriculture lands, soil quality is a key factor in the provision of ecosystem functions and services, including, (i) system soil structure, (ii) water quality and retention, (iii) mineral nutrition, and (iv) development of root structures.

⁴ About 1.15 million ha are degraded in the groundnut basin alone, about one-third of all arable land in the country. Detailed studies in Kaffrine in the southern groundnut basin show that, between 1989 and 1999, land on 64 percent of the study area was degraded, while only 1 percent improved (LADA 2005).

nutrition) and agricultural productivity. In the Groundnut Basin, soil fertility depletion represents one of the main causes of stagnation of agricultural productivity and consequently, one of the major constraints to sustainability of livelihoods.

- (d) *Synergies with PSAOP2, PDMAS and WAAPP.* The Basin is an area where the World Bank is already operating through the WB/IDA Agricultural Services and Producer Organizations Project 2 (PSAOP2). Synergies between the three projects are therefore expected.

18. **Project components.** As an operation integrated with the PSAOP2, the activities proposed are organized along the four components of PSAOP2. Each component would be incremental to and/or complement the respective PSAOP2 component.

- (a) **Component A - Support to the Agricultural Research System⁵** (US\$0.6 million): In PSAOP2, this component seeks to increase the capacity of the National Agricultural Research System (NARS). The Project would be used to strengthen the capacity of the Senegal Agricultural Research Institute (*Institut Sénégalais des Recherches Agricoles*, ISRA) to generate and disseminate SLM-targeted research and knowledge. More specifically, this component would:

- A.1 *Support the implementation of demand-driven SLM research and development (R&D) activities* (US\$0.27 million). Activities in this sub-component will mainly focus on providing technical and financial support to the development of R&D activities⁶.

- A.2 *Finance baseline studies* (US\$0.10 million). Activities in this sub-component include collection of baseline information on the bio-physical and socio-economic characteristics of project sites. Information collected would be used for M&E and the SLM Knowledge Base (ref. Component D1).

- A.3 *Strengthen the capacity of the Senegalese Institute for Agricultural Research (ISRA) to generate, disseminate, and monitor SLM-targeted research and knowledge* (US\$0.23 million).

- (b) **Component B - Strengthening Agricultural Advisory Services⁷** (US\$0.7 million): In PSAOP2, this component is aimed at supporting the extension of the agricultural advisory system and consolidation of a pluralistic network of service providers. The GEF-supported Project would complement these interventions by:

- B.1 *Strengthening the capacity of the agricultural extension system in SLM* (US\$0.27 million). This sub-component would strengthen the capacity of ANCAR, farmer intermediaries, and service providers to deliver SLM packages and provide adequate technical backstopping on SLM. The main activities of this sub-component include the development and delivery of a training program for service providers on SLM technologies and practices, the integration of SLM approaches in existing farmer production systems, and land use planning.

⁵ This component is in line with SIP IR 4.

⁶ R&D activities are demand-driven, short-term research activities aimed at quickly responding to the needs expressed by beneficiaries within a specific local or regional context.

⁷ This component delivers on SIP IR 3.

- B.2 Delivering SLM packages* (US\$0.43 million). This sub-component aims at developing and delivering demand-driven, customer-tailored SLM advice through the agricultural extension system. Examples of SLM technologies are presented in Annex 3 (Tables 3.1) and Annex 4 (Table 4.3) and comprise land use regimes, as well as agronomic, vegetative and structural measures. The main activities of this sub-component include: (i) The creation of a database on SLM technologies and practices, and conditions for their applicability; (ii) farmer sensitization and awareness creation activities; (iii) activities aiming at disseminating SLM technologies and sharing lessons/best practices, including set-up of demonstration sites, organization of field trips, farmer-to-farmer exchange events, SLM fairs, and specific training events; and (iv) provision of technical support and backstopping on SLM.
- (c) ***Component C - Support to Producer Organizations***⁸ (US\$2.8 million): In PSAOP2, this component is aimed at strengthening the capacity of producer organizations (POs) to access technical and economic services, and to participate in policy formulation. The GEF-supported Project would provide additional resources to:
- C.1 Strengthen the capacity of POs to integrate SLM in their production systems* (US\$ 0.4 million). The main activities of this sub-component include: (i) SLM training and other capacity building activities (e.g. workshops, animation activities, study tours, etc.) to Producer Organizations' Local Consultation Forums (CLCOP), and cooperatives; (ii) advocacy and other communication and awareness raising activities targeting the rural population about SLM, with information on how to access relevant resources and services; and (iii) training and other capacity building activities to the staff of ASPRODEB to enable them to provide adequate support to POs.
- C.2 Strengthen the capacity of POs' leaders and of local political leaders to take account of SLM in the formulation of sectoral policies* (US\$0.3 million). This component would finance training and other capacity building activities to POs' leaders and local representatives to improve their awareness of SLM and to strengthen their capacity to integrate SLM in the formulation of local development plans and sectoral policies.
- C.3 Support the adoption of SLM practices* (US\$2.1 million). This sub-component would provide financial resources to implement SLM sub-projects. CLCOPs and cooperatives would identify suitable POs⁹ that would present proposals for adoption of SLM practices. With technical support from ISRA, INP, and ANCAR, the identified POs would prepare proposals that would be assessed and then approved by local assemblies (rural councils). To be selected, the proposals for SLM sub-projects would have to satisfy the following eligibility criteria: (i) *the SLM sub-project shall be implemented by a Producer Organization*; (ii) *the SLM sub-project shall not fall within any of the negative list of ineligible activities set*

⁸ This component delivers on SIP IRs 1 and 2.

⁹ To be selected, POs should satisfy the eligibility criteria defined in the Project Implementing Manual (i) to be a legal entity pursuant to the law; (ii) to be constituted at least with twenty members; and (iii) to be a member of CLOP.

forth in the Project Implementation Manual, including without limitation activities that would adversely affect forest areas and/or natural habitats; (iii) the sub-grants will support activities promoting SLM in the Target Area. The selected proposals would then be financed through this sub-component. ASPRODEB would sign a contract with the selected producer organizations which implement their activities in close collaboration with other institutions, including ANCAR, ISRA, and local governments. This sub-component would in addition cover the costs ASPRODEB bears in implementing this activity (e.g. travel costs of staff, technical assistance and consultancy services, and the costs related to monitoring and evaluation of the sub-projects).

- (d) **Component D - Support to Sectoral Coordination**¹⁰ (US\$0.7 million): In PSAOP2, this component is aimed at strengthening the capacity of sectoral ministries (e.g. Agriculture and Livestock) in policy formulation, planning, coordination, and monitoring and evaluation. The GEF-supported Project would be used to strengthen the enabling conditions that allow the Government to move towards a more cross-sectoral and programmatic approach to SLM, and to support incremental costs of project management. This component comprises two sub-components:

D.1 Strengthening cross-sectoral coordination (US\$0.6 million). The main activities within this sub-component include: (i) The institutionalization of the (already existing) SLM Committee (*Groupe Fonctionnel GDT*) as a national multi-sectoral forum in charge of promoting, coordinating and overseeing the development and implementation of SLM activities in the country; (ii) the formulation and adoption of a National SLM Investment Framework (*Cadre National d'Investissement en Gestion Durable des Terres*); and (iii) the development of a Knowledge Base on SLM, a national database incorporating needed information on SLM technologies and approaches (the WOCAT methodology is proposed). It would also include other SLM geo-referenced data and information (e.g. extent and severity of land degradation, soil fertility, vegetation cover, land use and land use change, etc.), as well as information collected during preparation of the SLM Investment Framework. These activities are essential to ensuring the sustainability of project outcomes.

D.2 Technical and fiduciary coordination and M&E (US\$0.1 million). This sub-component would support incremental operating costs of the team responsible for coordinating and monitoring the overall activities of the Project.

E. Lessons learned and reflected in the project design

19. The design of the Project reflects: (a) lessons learned in implementing projects in Senegal, particularly PSAOP; (b) lessons learned in implementing SLM operations in Africa; and (c) findings and recommendations of the recently completed Senegal Country Environmental

¹⁰ This component delivers on SIP IRs 2 and 4.

Analysis, and three analytical works on SLM.¹¹ The main lessons reflected in the project design include:

- (a) *The need to integrate enabling activities with on-the-ground investments:* The Senegal CEA stresses the importance of the enabling environment in scaling up SLM. To be conducive, the environment must rectify perverse incentives, build institutional capacity, and mainstream SLM in sectoral policies. Lessons from past experiences suggest that enabling activities are not sufficient on their own, and need to be accompanied by on-the-ground investments. If successful, on-the-ground activities have a great impact on beneficiaries' motivation, and usually generate a positive momentum for rapid up-scaling of SLM practices. The proposed operation will therefore not only support activities to improve the enabling environment for SLM, but also on-the-ground investments that generate quick wins.
- (b) *Improvement of cross-sectoral coordination is critical to scaling up SLM:* One of the conclusions of the Senegal CEA is that, in order to scale-up SLM, coordination among stakeholders and agencies must be improved. To this end, the Senegal CEA recommends development of a National Investment Framework for Sustainable Land Management (*Cadre National d'Investissement en Gestion Durable des Terres*). This framework would help: (i) to set objectives, thematic and geographic priorities, and investment needs; (ii) to prioritize and cost investments; and (iii) to select the most appropriate mechanisms to achieve them, facilitating alignment and harmonization of different SLM interventions. In sum, the proposed operation will support cross-sectoral coordination mechanisms (e.g. through the establishment of a multi-stakeholder SLM Platform), and provide technical and financial support to develop the National Investment Framework for SLM.
- (c) *POs foster change and promote sustainability:* PSAOP1 showed that institutional reforms and the development of new relationships between clients and service providers can be fostered if producers are empowered and able to provide a contribution toward the cost of services they need. Well conceived POs allow producers to articulate their service delivery needs, ensuring that services are more relevant and efficient, and that service providers are accountable. PSAOP2 is deepening this approach by channeling more financial resources through producer organizations to increase accountability and client-orientation of agricultural services. Focus on strengthening the capacity of POs will remain a central element of the proposed operation.
- (d) *Need to shift the focus from commodity production to land productivity and environmental sustainability in the agricultural sector:* In the 1990s, the Government invested, with the support of several DPs, about US\$1 billion in agricultural and livestock development and rural water supply. Agricultural interventions focused mainly on commodity production and intensification rather than sustainable management of land resources, and land productivity. The impact and long-term sustainability of these interventions was therefore limited. Better integration of SLM approaches into the agricultural sector will help to rectify this.

¹¹ The three studies are: 'Diagnostic Report on Land Degradation and Sustainable Land Management in Senegal', 'Land Management Options Plan', and 'Review Public Expenditure in Land and Environment Management'.

F. Alternatives considered and reasons for rejection

20. *Stand-alone versus integrated operation.* The proposed operation will have the same structure and the same institutional arrangements and implementation mechanisms as the IDA/IFAD Agricultural Services and Producer Organizations Project 2 (PSAOP2). The alternative would have been to develop a self-contained operation. However, considering that PSAOP2 represents a well established instrument for engaging the Government on broader policy issues and institutional reforms, the Project is likely to have more influence on policy dialogue and to be more effective in mainstreaming SLM, if integrated into the PSAOP2.

21. *Component A: Applied research programs versus research and development (R&D).* Strategic and applied research programs seek to achieve medium and long-term national priorities. Adaptive research and R&D are demand-driven, short-term research activities aimed at quickly responding to the expressed needs of beneficiaries within a specific local or regional context. While PSAOP2 supports both applied research programs and R&D, the proposed operation will support R&D only. This choice was made based on two considerations. First, there is already a large stock of SLM technologies available within research institutions. Producers and land users do not demand the generation of new technologies, but information on the conditions under which existing technologies can be applied. Second, the relatively short duration of the project (three years) would be insufficient to produce applied research results, considering the time needed to select and finance research under the competitive mechanism of FNRAA.

III. IMPLEMENTATION

A. Partnership arrangements

22. *Coordination with UNDP under the GEF-SIP.* The proposed operation is one of the two operations developed under the GEF-SIP in Senegal, the other being UNDP's *Innovation in Micro-Irrigation for Dryland Farmers* Project. The two operations will coordinate closely and use the same approach. Both would focus on improving the enabling environment for SLM adoption. They will however target two different geographical areas of the country: the proposed operation would focus on the Groundnut Basin, while UNDP's operation will be implemented in the Bakel Region, situated in the Senegal River Valley. In addition, the planned third phases of the UNDP/GEF *Groundnut Basin Soil Management and Regeneration* Project (PROGERT), and of the UNDP/GEF *Program for Integrated Soil and Water Management* (PGIES) will be fully aligned with the principles and approach of the GEF-SIP.

23. *Partnership with IFAD.* PSAOP2 is co-financed in parallel by the International Fund for Agricultural Development (IFAD). IFAD contributes to PSAOP2 with a loan of US\$6.0 million. IFAD has been closely involved in the design of PSAOP2, from preparation to negotiations. IFAD funds are pooled into the Project's designated account. IFAD plays a role in the learning processes of PSAOP. It does this by using its other projects in Senegal to test poor approaches that benefit from and feed into the institutional reform process through activities that can be flexibly programmed, including exchange visits and thematic workshops.

24. *Partnership with Israeli Embassy.* Within the framework of PSAOP2 and PDMA, the Bank is developing a partnership initiative with the Israeli Embassy to support the scale-up of

the Techno-agricultural Innovation for Poverty Alleviation (TIPA) irrigation system (about US\$ 400,000, this initiative is under preparation). The system is well adapted to smallholders' community production systems, and contributes to sustainable land and water management.

25. **Coordination with other Development Partners' initiatives.** USAID has recently started discussions with Government on preparation of an Agricultural Productivity and Natural Resource Management project (about US\$ 20 million, under preparation) while JICA is initiating a Land Restoration operation. The cross-sectoral coordination mechanism for SLM that this operation supports (Component D) will ensure coordination with these two proposed operations. French Cooperation continues to support some activities linked to PSAOP, in particular professional development for POs, and agricultural and rural development training activities, both through its Promotion of Competitive and Sustainable Agriculture (PACD) Project.

B. Institutional and implementation arrangements

26. **Institutional set-up and implementation arrangements.** The operation will adopt the same institutional arrangements as PSAOP2, which consist of:

- (a) *A Steering Committee (Comité de Pilotage; the same as for PSAOP2¹²), which includes representatives of the implementing agencies and is responsible for approving the work program and consolidated budget, and assessing project performance;*
- (b) *A Technical and Fiduciary Coordination Unit (Unité de Coordination Technique et Fiduciaire - UCTF), the same as that of PSAOP2, which is responsible for: (i) monitoring the overall implementation of the Project; (ii) facilitating the exchange of information and cooperation between implementing agencies; (iii) preparing quarterly progress reports by consolidating the reports of individual components; (iv) consolidating, supervising, and monitoring procurement plans prepared by the different components; (v) managing the designated account, in liaison with the Direction de la Dette et de l'Investissement (DDI) of the Ministry of Finance; (vi) providing operational support to the components as needed; and (vii) liaising regularly with the World Bank. The Coordination Unit is located at the Ministry of Agriculture.*
- (c) *One implementing agency per component or sub-component, specifically:*
 - (i) Component A - Support to the Agricultural Research System: implemented by ISRA (see details in Annex 2).
 - (ii) Component B - Strengthening Agricultural Advisory Services: implemented by ANCAR (which has the legal status of a *Société à participation publique minoritaire*).
 - (iii) Component C - Support to Producer Organizations: implemented by ASPRODEB (an NGO which represents 19 national federations of producers).
 - (iv) Component D - Support to Sectoral Coordination: implemented by: (i) The National Institute of Pedology (*Institut National de Pédologie, INP*), which reports to the

¹² INP will be included as an observer.

Ministry of Agriculture, for the sub-component D1 (Sectoral Coordination); and (ii) the Technical and Fiduciary Coordination Unit for sub-component D2 (Technical and Fiduciary Coordination).

27. The only institutional difference with PSAOP2 is the addition of the INP, which will play a key role in coordinating the activities aimed at strengthening cross-sectoral coordination mechanisms and building a national coalition for SLM (Component D).

28. **Financial management.** The operation will adopt the same financial management arrangements as PSAOP2, which will require the preparation and signing of revised legal agreements. ASPRODEB manages its funds directly through a management services contract. This contract is signed between ASPRODEB and the Technical and Fiduciary Coordination Unit (TFCU). Funds are withdrawn from the designated account or from the credit (in the case of the proposed project, the grant), following the disbursement and financial management provisions of the management services contract. The other implementing agencies send their funding requests to the TFCU. Each implementing agency has its own financial and accounting system in place, certified by an independent auditor, and manages its own procurement activities under the overall guidance and quality control of the procurement specialist of the TFCU. Procedures for coordination, implementation, management, monitoring and evaluation, procurement, and administration are detailed in the Project Implementation Manual (PIM).

29. **Flow of funds.** The funds for this operation will flow from the World Bank to a new Designated Account opened under the DDI at the Ministry of Economy and Finance. The Designated Account will be managed by DDI in coordination with the TFCU. Reporting on the use of funds for the Designated Account and the sub-accounts will be based on statements of expenditure. Reporting on the use of funds for the management contracts will be based on financial and technical reports. Payments will be made in installments. The initial installment will be determined based on the disbursement plan. Subsequent payments will be based on progress reports (physical and financial).

C. Monitoring and evaluation of outcomes/results

30. The PSAOP2 Monitoring and Evaluation (M&E) system will be modified by adding objectively verifiable SLM indicators described in the results framework (Annex 3). The system will be fully integrated with the M&E systems established and used by the PSAOP. It is important to note that establishing an effective M&E system for the whole agriculture sector, and thus for monitoring part of the DSRP-II (Poverty Reduction Strategy Paper), is the ultimate expected outcome of the M&E system established by the PSAOP. The project M&E system, managed by the TFCU will be linked to the M&E system of the components, and will deliver consolidated monitoring information on project activities and progress. The system will collate and process information collected from the components as well as additional data derived from special studies and participatory M&E exercises. The M&E system is web-based and participatory.

31. As in PSAOP, the M&E system is comprised of two elements which will be used in combination to assess the performance of each component:

- (a) *Financial monitoring*, which allows tracking of the resources used to carry out Project activities. It will indicate the budgeted costs for planned activities and completed activities as well as the actual costs of completed activities. Financial monitoring will allow monitoring the financial performance of the Project.
- (b) *Technical and physical monitoring*, which will track indicators identified in the PTBA and monitor physical progress.

32. The Coordination Unit is responsible for overall monitoring of the Project. It will improve the information system to ensure collection of technical and economic information produced by the Project, and it will strengthen dissemination. The M&E system will be measuring yields and production and vegetation cover in order to show possible improvements. However, given its short three year duration, the Project will not be directly accountable for them, as significant changes in these indicators are likely to take longer than the project's life. Baseline values for vegetation cover in the areas targeted by the project are reported in Fig. 3.1 in Annex 3. .

D. Sustainability and replicability

33. **Sustainability.** Expected long-term sustainability of the Project is based on the following elements:

- (a) *Institutional sustainability:* The Agro-Sylvo-Pastoral Orientation Law (LOASP, 2004) includes promotion of better land exploitation and improvement of soil fertility among its strategic objectives. This law, which provides the policy framework for PSAOP2, can be considered a sign of the Government's political commitment. Through institutionalization of the *Groupe Fonctionnel GDT* and formulation of an SLM Investment Framework, SLM is expected to be better integrated in the Senegalese policy framework. An intermediate outcome expected of the Project is an increase in the Government's budget allocation to SLM.
- (b) *Project sustainability:* Sustainability ultimately depends on the impact of innovations and advisory services on agricultural productivity and incomes. Based on the results of the participatory SLM program between the Rodale Institute and farmers in Senegal, it is expected that adoption of SLM technologies will enhance soil productivity; therefore wide-scale adoption of SLM is expected to have positive effects on agricultural productivity and farmers' income. Sustainability also depends on the implementation of a demand-driven approach, where supported SLM interventions are generated in response to the needs expressed through beneficiaries' producer organizations.
- (c) *Financial sustainability:* The financial analysis carried out for this Project shows an Internal Rate of Return (IRR) of 27 percent and farmer Net Present Value (NVP) of FCFA 49 million (US\$ 98,000; ref. Annex 9).

34. **Replicability.** Expansion of Project approaches on a wide scale is enhanced by three activities. First, the Project will strengthen the capacity of the agricultural advisory system in SLM, and the capacity of POs to integrate SLM in their production systems. Second, it will develop a national Knowledge Base on SLM and a National Investment Framework. Third, it will institutionalize a national multi-sectoral forum in charge of promoting, coordinating and

overseeing SLM activities in the country. In addition, a possible third phase of PSAOP -- which will fully mainstream sustainable land management in its design – will further support the consolidation and replication of the results of this Project.

E. Critical risks and possible controversial aspects

Risk factors	Description of risk	Rating of risk	Mitigation measures	Rating of residual risk
I. Country and/or Sub-National Level Risks				
Macro-economic Framework	The global economic slowdown is likely to have a number of impacts, negative (channels of transmission include exports, tourism, remittances and postponed FDI) or positive (reversal of previous years' shocks from oil and food).	Substantial	Sustaining sound macro policy stance: The authorities are pursuing corrective fiscal actions undertaken at end-2008, including the settlement of domestic arrears, which should partly offset external shocks.	Substantial
IDA Portfolio	The accumulation of government arrears led to delays in the payment of counterpart funding (CF) in FY08.	Moderate	Eliminate arrears and place country's fiscal stance on sustainable track. Ensure payment of counterpart funds: The Bank team is working closely with Government so that all 2008 CF arrears are paid in early 2009, and adequate funding is secured.	Moderate
II. Sector Governance, Policies and Institutions				
Sector-specific Risks	Uncertainty of land tenure status for farmers may discourage SLM investments: Lack of tenure security may discourage SLM investments, which are long-term in nature.	Moderate	PSAOP2 will support the land reform process. Activities and SLM investments will be directed to pilot zones with no land tenure issues.	Moderate
	Increase in extreme climate events (e.g. droughts and/or floods) due to climate change: Effects of climate change may undermine the gains made from SLM related investments, and/or may render rapidly obsolete the SLM technologies/ strategies to promote SLM.	Moderate	Risks associated with the effects of climate change will be taken into consideration and mitigated by assessing vulnerability to climate change and integrating adaptation measures into the proposed activities.	Low
III. Operation-specific Risks				
Technical Design	Failure to involve the main users in the SLM technology generation and dissemination process may lead to several inefficiencies including: (i) technologies' lack of correspondence to the diversity of socioeconomic and agro-ecological constraints and failure to take into account the producers' indigenous knowledge; and (ii) delays in technology dissemination and adoption.	Moderate	The Project is designed to bring together technology users and suppliers, based on collaboration of producer organizations, research, and extension. Producer organizations have a crucial role to play in accelerating the diffusion of information, and in providing services to producers to facilitate technology adoption. However, producer organizations need support to build their capacity before they can play an effective role in the technology development and diffusion process, which is why a support-to-producer organizations component is included.	Low
	Lack of appropriate SLM technologies	Moderate	The project will support the generation, dissemination, and adoption of SLM via NARS, advisory systems, and POs.	Low
Implementation	Implementing agencies may lack technical	Moderate	The project will adopt the same	Low

Risk factors	Description of risk	Rating of risk	Mitigation measures	Rating of residual risk
Capacity and Sustainability	and managerial capacity to adequately implement project activities.		implementation arrangements adopted in PSAOP2. The capacity of implementing agencies was already strengthened during PSAOP1 and 2. The only difference with respect to PSAOP is the addition of the National Soil Science Institute (INP) to play a role in cross-sectoral coordination. Capacity of the INP will be strengthened through the Project.	
	Institutional conflicts among sectoral ministries and other institutions may prevent the adoption of a multi-sectoral approach to SLM.	Moderate	The project will specifically support the establishment of a national SLM coordination mechanism.	Moderate
Financial Management	Inherent risks, such as: - Poor governance/corruption in the areas where activities will be implemented - Low capacity of the Ministry of Agriculture to implement and monitor the Project Control risks such as: - Limited knowledge of Bank's FM and procurement procedures - No internal audit functions in place - Lack of strong systems of external audit - Risk of mingling funds with other projects (see details in Annex 7)	Moderate	The CFAA and PEFA action plan is under implementation and the government has created an Executive Secretariat for follow up. Key FM oversight elements of the Project are entrusted to the Government system. Capacity for external audit is enhanced by the recruitment of the external private sector audit firm to carry out the external audit. The Project will be implemented by a TFCU, and the Bank will pay special attention during the supervision mission to the adequacy of the FM system implemented (see details in Annex 7).	Moderate
	The implementation entities in charge of the implementation of the Project may not have acceptable financial management capacity.	Moderate	The Project will use the financial management arrangements of PSAOP1 and 2, which have already benefited from capacity building in financial management and which was rated satisfactory by the last assessment of the financial management review.	Low
Procurement	The implementation entities in charge of the implementation of the Project may not have acceptable knowledge of Bank procurement guidelines.	Moderate	The Project will use the procurement staff who has already been trained in and exposed to Bank procurement procedures under PSAOP1 and 2, and which is satisfactory according to the procurement assessment review carried out in November 2008.	Low
Social and Environmental Safeguards	Although the Project is expected to have positive environmental impacts because it will finance interventions to reduce land degradation, some localized negative environmental impacts may be possible if environmental concerns are not taken into consideration in the design and maintenance of small scale infrastructures (e.g. small dams, storage tanks, etc.).	Moderate	The Environmental and Social Management Framework (ESMF) prepared for PSAOP2 was updated to take into consideration and address the potential negative impacts associated to the implementation of the activities of the proposed Project.	Low
IV. Overall Risk (including Reputational Risks)				
Overall Risk				Low

F. Loan/credit/grant conditions and covenants

35. *Conditions of Effectiveness.* The Grant Agreement shall not become effective until evidence satisfactory to the World Bank has been furnished to the World Bank that the conditions specified below have been satisfied:

- the execution and delivery of this Agreement on behalf of the Recipient (Republic of Senegal) have been duly authorized or ratified by all necessary governmental action;
- the Recipient has revised the Financial and Accounting Procedures Manual and the Project Implementation Manual for the purposes of the Project, in a manner satisfactory to the World Bank;
- the Recipient has revised the PSAOP II Arrêté to expand the role of the TFCU and the Steering Committee for the purposes of the Project;
- the TOMPRO software has been updated for the purposes of the Project;
- the Recipient shall have entered into the Subsidiary Agreement with ASPRODEB and into agreements, in form and substance acceptable to the World Bank, with ISRA, ANCAR, and INP for the implementation of the Project.

36. *Institutional covenants.*

- The Recipient shall establish and maintain, throughout Project implementation, with composition and terms of reference acceptable to the World Bank: (a) the Steering Committee, to be responsible for approving annual work programs and budgets and to assess Project performance; and (b) the TFCU, within the ministry in charge of agriculture, with the responsibility to: (i) support implementation of Project activities; (ii) monitor the day-to-day implementation of the Project; (iii) facilitate exchange of information and cooperation among the implementing entities; (iv) prepare quarterly progress reports; (v) consolidate, supervise and monitor procurement plans for the Project; (vi) manage disbursements in collaboration with the ministry in charge of economy and finance; and (vii) act as liaison with the World Bank.
- The ISRA will be responsible for the implementation of Part 1 of the Project; ANCAR will be responsible for the implementation of Part 2 of the Project; ASPRODEB will be responsible for the implementation of Part 3 of the Project; the INP will be responsible for the implementation of Part 4.A of the Project.
- The Recipient shall implement or cause the Project to be implemented in accordance with the Implementation Agreements and except as the Recipient and the World Bank shall otherwise agree, the Recipient shall not amend or waive any provision of such Implementation Agreements.
- To facilitate the carrying out of the ASPRODEB's part of the Project, the Recipient shall make part of the proceeds of the Financing available to the ASPRODEB under a

subsidiary agreement between the Recipient and the ASPRODEB, under terms and conditions approved by the Association. (“Subsidiary Agreement”).

- The Recipient shall exercise its rights under the Subsidiary Agreement in such manner as to protect the interests of the Recipient and the Association and to accomplish the purposes of the Financing. Except as the Association shall otherwise agree, the Recipient shall not assign, amend, abrogate or waive the Subsidiary Agreement or any of its provisions.
- The Recipient shall ensure that the Project, and each SLM Subproject, is implemented in accordance with the provisions of the Environmental and Social Management Framework and the Resettlement Policy Framework, and shall not, except as the World Bank shall otherwise agree, amend or waive, or permit to be amended or waived, any provision of the aforementioned.
- The Recipient shall ensure that the Project is carried out in accordance with the provisions of the Anti-Corruption Guidelines.
- To provide Subgrants, the Recipient shall cause ASPRODEB to enter into a Subgrant Agreement with the Subgrant Beneficiary in form and substance satisfactory to the World Bank.

37. ***Financial covenants.*** The Recipient shall prepare and submit to the World Bank annual work plans, in form and substance satisfactory to the World Bank, no later than November 30 of each year. The Recipient shall maintain or cause to be maintained a financial management system including records, accounts and preparation of related financial statements in accordance with accounting standards acceptable to the Bank. The Recipient shall recruit the external auditor on terms and conditions acceptable to the Association not later than six (6) months after the Project’s effectiveness date. The Financial Statements will be audited in accordance with acceptable international auditing standards. The Audited Financial Statements for each period shall be furnished to the Association not later than six (6) months after the end of the Project fiscal year. The Recipient shall ensure that interim unaudited financial reports (IFR) for the Project are prepared and furnished to the World Bank not later than 45 days after the end of each calendar quarter, covering the quarter in form and substance satisfactory to the World Bank. The first IFR shall be furnished to the World Bank not later than 30 days after the end of the first calendar quarter after the Effective Date, and shall cover the period from the incurrence of the first expenditure under the Project through the end of such first calendar quarter.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

38. This operation aims to increase the productivity of land resources in the Senegal Groundnut Basin by promoting the use of sustainable land management technologies and practices among farmers. The key issue is whether the investment costs are economically and financially profitable. An economic and financial analysis was carried out for this purpose. The methodology used for and the results of these analyses are summarized below. Details are reported in Annex 9.

39. **Economic analysis.** A cost-benefit approach was used for the economic analysis. The analysis compared the additional costs for farmers in adopting new technologies with expected benefits. The analysis assessed trends in the cost and benefit parameters “with” or “without” project. The profits resulting from the Project come from the increase in agricultural yield and cultivated land achieved in different crops by introducing the technologies proposed in the Project. Three different types of costs were considered: SLM ‘public investments’ (in the collective agricultural support sector and producer organizations), ‘private investments’ (individual investment in agricultural equipment to maximize available opportunities), and ‘additional costs of production’ caused by the adoption of new technologies. Economic prices were considered in this assessment and were obtained by adjusting observed distortions in financial prices (taxes, export duties, etc.). Three sub-agro-ecological zones in the Groundnut Basin (i.e. north, center, and south) have been chosen to assess incremental production over years with and without project. The key assumption made was that the technology adoption rate would vary between 20 percent and 45 percent, depending on the zones and crops under technologies used. Under these assumptions, the economic assessment showed the economic viability of the SLM operation from the perspective of the national economy. The economic Internal Rate of Return (IRR) calculated from the project is 35 percent, with a Net Present Value (NPV) of FCFA 1.8 billion (US\$ 3.5 million) over the three years of the operation, with a capital opportunity cost of 20 percent. The IRR would be 93 percent, with a NVP of FCFA 19 billion (US\$ 38 million) for the 2009-2013 period. The project profitability appears sensitive to decrease in targeted yields (switching value of -5 percent) to the rate of adoption (-10 percent); and extremely sensitive to decrease in market prices (-3 percent).

40. **Financial analysis.** For the financial analysis a “with” and “without” project assessment was made on the basis of the standard farm model and cultivated crops within each of the three above-mentioned sub-agro-ecological zones (ref. Table 1 in Annex 9). For each farm model/agricultural crop, the rates of change in land area, yield and production over the last fifteen years (1994-2008) were calculated at department and regional levels. The “without-project” scenario was developed using the current fluctuating trends in land area and average yields. The “with-project” scenario took into account the option for improving yields and cultivated land with the support of project components, using a technology-estimated adoption rate. The financial analysis shows an IRR of 27 percent over the opportunity cost of capital (the latter estimated at 20 percent) and a farmer NVP of FCFA 49 millions (US\$ 98,000).

B. Technical

41. The rationale for the proposed approach and technical design is based on the following considerations and lessons learned:

- (a) *Need to better integrate sustainable management of land resources in the agricultural sector:* Most of past interventions in the agricultural sector focused on intensification and commodity production rather than on the issues of resource management and land productivity. This approach however led to results that were not sustainable in the long-term.
- (b) *Need to integrate enabling activities with on-the-ground investments:* Lessons from past experience suggest that enabling activities need to be accompanied by on-the-ground investments. If successful, on-the-ground activities have a great impact on beneficiaries' motivation, and generate a positive momentum for rapid up-scaling of SLM practices.
- (c) *POs are key drivers to foster changes and ensure sustainability:* PSAOP showed that institutional reforms and the development of new relationships between clients and service providers can be fostered if producers are empowered and able to contribute to the services they need.
- (d) *Improvement of cross-sectoral coordination is critical to scale-up SLM:* There has been an increasing recognition (supported for instance by the conclusions of the Senegal CEA) that, in order to scale-up SLM, it is critical to improve coordination among stakeholders and implementing agencies.

42. To address these issues, the Project is designed to:

- (a) *Contribute to mainstream SLM in the agricultural sector:* PSAOP is an important instrument to promote institutional reforms and support the implementation of policy reforms in the agricultural sector. By integrating the Project into PSAOP2 by using the same institutional arrangements and implementation mechanisms, this operation is expected to mainstream SLM in the agricultural sector.
- (b) *Disseminate and scale up SLM technologies at the local level:* A significant share of financial resources in this operation is devoted to strengthening the capacity of the agricultural extension system to deliver SLM packages and to support Producer Organizations to adopt SLM technologies (Components B and C). An Operational Matrix that identifies the most appropriate SLM technologies for each geographical location and form of degradation, and their conditions for success, has been prepared during project preparation to guide users in the selection of appropriate technological solutions (ref. Table 4.3 in Annex 4).
- (c) *Empower and strengthen the capacity of local leaders on SLM:* A focus on strengthening the capacity of local leaders (political leaders as well as POs' leaders) to integrate SLM in local development plans and policy formulation is a central element of the proposed operation (Component C).
- (d) *Strengthen cross-sectoral coordination mechanisms for SLM:* The proposed operation would support cross-sectoral coordination mechanisms (e.g. through the establishment of a multi-stakeholder SLM Platform), and provide technical and financial support to develop a national framework for SLM investments (Component D). This investment framework

would help: (i) set objectives as well as thematic and geographic priorities and investment needs; (ii) prioritize and cost them; and (iii) identify and select the most appropriate mechanisms to achieve them, thus facilitating alignment and harmonization of SLM interventions.

C. Fiduciary

43. **Financial management.** A financial management assessment was carried out to determine whether the TFCU in charge of the implementation of the Project has acceptable financial management arrangements. The conclusion of the assessment is that the financial management system in place satisfies the Bank's minimum requirements under OP/BP10.02. It can provide, with reasonable assurance, accurate and timely financial management information on the status of the Project required by the World Bank. The financial management arrangements will be implemented by the TFCU. The Staff and the auditor will be recruited on a competitive basis. The information system installed in the TFCU and the manual of procedures elaborated will also be updated.

44. **Procurement.** The last Procurement Assessment Review for TFCU (Technical and Fiduciary Coordination Unit) was conducted during the period November 14-19, 2008. The results of the review revealed a generally acceptable procurement environment. Nonetheless, training on the Bank procurement procedures will be required for INP's Procurement Officer. The TFCU Procurement Specialist will be responsible for verifying that all procurement activities adhere to the quality standard defined in the implementation manual and comply with procurement guidelines. The TFCU Procurement Specialist will clear all procurement documents before they are reviewed by the Bank (including for activities subject to ex-post review). The Procurement Specialist will also be responsible for consolidating the components' procurement plans into a single procurement and monitoring its implementation.

D. Social

45. As a supplement to PSAOP2, the SLM project is intended to reinforce the positive social impacts of the operation. These positive impacts include: employment creation and revenue generation, and improvement of social capital for producer organizations, participating stakeholders and institutions. Producer organizations and their consultative bodies such as CLCOP (*Cadre Local de Concertation des Organisations de Producteurs*, i.e. Producer Organisations' Local Consultation Fora) are at the center of innovations generated in terms of sustainable land management. These positive effects will trickle to the local level and complement activities of the Participatory Local Development Project (PLDP) that aims at improving access to social services and health and education infrastructure at the community level.

46. In addition, the updated ESMF will help mitigate the potential negative social impacts of sub-projects. These include conflicts between agriculturalists and pastoralists, and conflicts over land due to the new investments.

E. Environment

47. The SLM supplement to PSAOP2 will promote environmentally friendly technologies such as the rehabilitation of acid and salted soils, rehabilitation of degraded lands, and improved irrigation systems for efficient water consumption. Though the location of future sub-projects of SLM is not determined yet, the Environmental and Social Management Framework (ESMF) of PSAOP2 is valid and has specified standard approaches and procedures to address environmental as well as social issues in screening for design, implementation and follow-up. In addition, it includes institutional arrangements where roles and responsibilities of key actors and stakeholders are defined with respect to screening, approval, and mitigation.

48. The Pest Management (OP 4.09) safeguard was triggered under PSAOP2 because the Project's efforts to increase agricultural productivity could increase the use of pesticides. With the emphasis on land use regimes, structural, agronomic, vegetative and biological methods for improving the physical land capital, and the eventual use of drip irrigation, the proposed operation aligns well with OP 4.09. In addition, the Project would continue to implement the Government's Pest Management Plan (PMP) prepared under PSAOP2 (annex ESMF). The updated ESMF was disclosed in-country on September 5, 2008 and in the Bank's Infoshop on April 17, 2009.

F. Safeguard policies

49. Safeguard documentation is already prepared in the framework of the PSAOP2. The Environmental and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) were updated in May 2008 to reflect screening requirements for SLM sub-projects. The ESMF outlines: (i) An environmental and social screening process for pilot sub-projects supported by ANCAR and ASPRODEB; (ii) environmental assessment criteria for ANCAR and ASPRODEB sub-projects; (iii) a separate screening form for research sub-projects, including environmental evaluation criteria; and (iv) a summary of environmental impacts to be taken into account in research sub-projects. The updated ESMF and RPF can thus be applied to future SLM sub-projects. The ESMF and RPF reflecting the adjustments for SLM sub-projects were disclosed in Senegal and at the Bank's Infoshop prior to appraisal. The following table presents the Safeguard policies triggered by the Project.

50. The Safeguards Screenings Category is S2 and the Environmental Screening Category is rated B. The following table presents the Safeguard Policies triggered by the project.

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	[x]	[]
Natural Habitats (OP/BP 4.04)	[]	[x]
Pest Management (OP 4.09)	[x]	[]
Physical Cultural Resources (OP/BP 4.11)	[]	[x]
Involuntary Resettlement (OP/BP 4.12)	[x]	[]
Indigenous Peoples (OP/BP 4.10)	[]	[x]
Forests (OP/BP 4.36)	[]	[x]
Safety of Dams (OP/BP 4.37)	[]	[x]

Projects in Disputed Areas (OP/BP 7.60)*	[]	[x]
Projects on International Waterways (OP/BP 7.50)	[]	[x]

51. OP/BP 4.01, 4.09 and 4.12 are triggered since this is an operation focusing on the agriculture sector, having an objective bearing on pest management. OP/BP4.04 (Natural Habitats) and OP/BP4.36 (Forests) are not triggered, because the project will only intervene in degraded agricultural lands. No sub-project will be approved if forests or natural habitats are affected. As a result, an update of the PSAOP2 environmental assessment was done prior to appraisal. There may be some indirect environmental and social effects due to use of pesticides in sub-projects but these are expected to be minimal and may even be reversed because of project-supported land improvements. The latter include: (i) structural, agronomic and vegetative measures; and (ii) capacity building of project staff and participants in safeguard measures. The Resettlement Policy Framework of PSAOP2 has also been updated and reviewed by the Bank Specialists in view of integrating the SLM project. During implementation of individual sub-projects, consultations will continue to take place with non-governmental and community based organizations and farmers, regarding agriculture sector environmental and social issues.

G. Policy Exceptions and Readiness

52. **Exceptions.** No policy and readiness exceptions are foreseen.

53. **Streamlined processing.** The proposed operation is processed following streamlined procedures. The Project meets streamlined processing eligibility criteria as follows:

(a) **Simple Design:**

- (i) Simple development objective: The proposed operation aims to reduce land degradation and increase agricultural productivity in priority agro-ecological zones in the Groundnut Basin in Senegal, by integrating sustainable land management in agricultural practices;
- (ii) Simple project design: The proposed activities are organized along the four components of the baseline project (PSAOP2);
- (iii) Simple institutional, legal and financial arrangements: The proposed operation will adopt the same institutional, legal and financial arrangements of PSAOP2;
- (iv) No controversial policy reforms: The proposed operation will not deal with policy reform;
- (v) No exceptions to Bank policies: The proposed operation does not require any exception to Bank policies;
- (vi) Not a complicated programmatic approach: While one of the objectives of the proposed operation is to support the Government of Senegal in establishing the basis for a more programmatic approach to sustainable land management, the

* By supporting the proposed Project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas.

operation itself is a simple GEF-supported project integrated to an IDA operation, and is not implementing a programmatic approach;

- (vii) Not a first-time operation in the country or the sector: The Bank has a well established policy dialogue in the agricultural and rural development sector in Senegal.
- (b) *Strong Country Ownership:* The proposed operation is consistent with and contributes to the objectives of the key Senegal policies and strategies. Land degradation has been repeatedly recognized by the Government of Senegal as a key constraint to development at both local and national levels. Addressing land degradation and promoting sustainable use of natural resources have been indicated as key objectives in virtually all national policies and strategies, including the Poverty Reduction Strategy (DSRP-II, 2007). The proposed operation is one of the instruments for implementation of recommendations of the Senegal Country Environmental Analysis, recently endorsed by the Government.
- (c) *Sufficient Institutional Capacity:* The implementation of this operation is under the overall supervision of the PSAOP2 Coordination Unit, which has proven implementation and fiduciary capacity.
- (d) *Low to Moderate Risks:* The proposed operation does not present any significant risk or controversial aspect, and the overall **project level-related risk** is considered low. The Project is Category B with regard to Safeguard policies.
- (e) *Strong Bank Inputs:* The team has strong operational and country experience and mastery of Bank operational policies, including fiduciary and safeguards. The budget for supervision is adequate.

Annex 1: Country and sector or program background

SENEGAL: Sustainable Land Management Project

A. Land resources and land degradation in Senegal: An overview

1. ***Land resources and land use patterns in Senegal.*** Senegal covers a surface area of 19.5 million ha, of which 19 percent are arable (3.8 million ha¹³), 32 percent (6.3 million ha) are covered by forest, savannah and protected zones; the rest is shared between desertified lands and unclassified brush and urban lands (PGIES, 2005). About 65 percent of the arable land (2.4 million ha) are used for rainfed crops, nearly 3 percent for floodplain crops and irrigated crops (100,000 ha), and the rest is uncultivated and is mainly used for herding (1.3 million ha).

2. ***The importance of land resources in Senegal.*** Land is a key resource in Senegal. Terrestrial ecosystems make up 99.7 percent of the country's natural capital (63 percent for croplands and herding land, 30 percent for forests and 6 percent for protected areas) and 13 percent of total national wealth (Where is the Wealth of Nations, 2006). Seventy percent of the rural population (which represents about 50 percent of the total population in Senegal) directly depends on land resources for its livelihood. Despite the fact that the contribution of the agricultural sector to the GDP has declined in the last decades (from 17.3 percent in 1979 to about 9 percent at present), this sector still engages about 60 percent of the population (Senegal Land Action Plan, 1996) and, according to the Government's Poverty Reduction Strategy Paper (DRSP-II), it still represents one of the major engines for shared growth.

3. ***Land degradation in Senegal: Scope and geographical distribution.*** Land degradation is increasingly affecting land resources in Senegal. About 65 percent of the arable land in the country, i.e. about 2.5 million ha (SN-CEA, 2008), is considered degraded. The Groundnut Basin and the sylvo-pastoral zone in the west and center of the country are the areas most affected by land degradation¹⁴.

4. ***Major forms of land degradation in Senegal.*** Major forms of land degradation include the following:

- (a) ***Reduction of vegetation cover:*** It is estimated that forest lands outside the national park system decreased at a rate of 80,000 ha per year between 1980 and 1990. Over the same period, the wood potential decreased at a rate of 1.8 percent per year. In 1998, the FAO estimated this decrease at 50,000 ha per year and the decrease in wood potential at 0.7 percent per year (CSE, 2005).
- (b) ***Soil erosion:*** Erosion due to rainfall is mainly prevalent in the country's south-eastern regions (Casamance) and Western Senegal. It is estimated that water erosion has led to the

¹³ The Groundnut Basin represents 57 percent of these lands, Casamance represents 20 percent, Eastern Senegal 10 percent, and the Senegal River valley 8 percent (PROGERT, 2007).

¹⁴ About 1.15 million ha are degraded in the Groundnut Basin alone, representing about one-third of all arable land in the country. A LADA study (*L'évolution de la Dégradation des Terres au Sénégal, FAO/UNEP/CSE*) shows that 20 percent of the sylvo-agricultural zones have been affected by substantial degradation. In the agro-pastoral zone, land use characteristics have been changed on almost 65 percent of the area, notably with degradation of natural vegetation in just 11 years, with woody savannah evolving towards poorer types of scrub savannah. Detailed studies in Kaffrine show that, between 1989 and 1999, land on 64 percent of the study area degraded, while only 1 percent improved (LADA 2005).

degradation of 9,080,100 ha, which represents 77 percent of total degraded soils (MEPN, 2005). Wind erosion is particularly severe in the country's northern regions (Senegal River valley, Center-north and North of the Groundnut Basin) where soils are very sandy on the surface and are subjected to the Harmattan seven to nine months per year. This form of degradation represents 3 percent of degraded soils.

- (c) *Salinization and acidification*: Salinization represents about 9 percent of degraded soils (MEPN, 2005), and it is mainly observed in the Senegal River Delta, in Casamance, in the Saloum River Delta and in the lower reaches of the Gambia River. The areas affected by salinization are estimated to be about 1,000,000 ha, including 650,000 ha in Lower Casamance, 225,000 ha in the Senegal River Delta and 125,000 ha in the Sine Saloum. The degradation of soils through acidification is particularly present in the Peanut Basin (Thiès, Diourbel, Sine Saloum), in the Senegal River valley and in Casamance. According to 1987 estimates, acid soils or soils undergoing acidification cover about 1,600,000 ha (PRONARES, 1997).

5. ***Main causes of land degradation.*** Main causes of land degradation include the following:

- (a) *Overgrazing and unsustainable agricultural practices*: Extensive agriculture, the inadequate integration of agriculture and animal husbandry, the progressive abandonment of fallow lands and increased monoculture practices, and the disintegration of traditional land management systems are all factors that have strongly contributed to deforestation, loss of soil fertility and soil degradation.
- (b) *Population growth*: Demographic growth at a rate of 2.9 percent per year has led to an extension of cultivated lands and to increased pressure on forest resources due to high demand for charcoal in urban centers. Anthropogenic pressure is significant on 11 percent of degraded soils (PROGERT, 2007).

6. ***The impact of land degradation.*** The negative consequences of land degradation are manifolds.

- a) *On the country's potential for growth.* Soil fertility depletion (one of the forms of land degradation in Senegal) represents in fact one of the main causes of stagnation in the agricultural productivity and, consequently, one of the major constraints to agriculture and economic growth.
- b) *On poverty and vulnerability of rural people.* According to the Senegal CEA, the linkage between poverty and land degradation is well established in Senegal. Because most of the rural population (which represents the poorest and therefore the most vulnerable) heavily depends on land resources for their livelihoods, increasing land degradation reduces their livelihoods options and income generation opportunities, thus exacerbating their poverty and increasing their vulnerability.
- c) *On social costs.* Declining soil productivity in rural lands and population growth contribute to the abandonment of previously productive lands and increased migration to urban centers (particularly to Dakar), with potentially high social costs, including unemployment.
- d) *On ecosystem functions and services.* Senegal's territorial ecosystems and their products are an important part of Senegal's natural wealth and essential to country's food security.

Land degradation is considered one of the key factors of continuing imbalances in the ecosystems (including water resources) and worsening of wildlife habitats.

7. ***Economic implications of land degradation.*** Rough estimates suggest that the annual economic cost of land degradation in Senegal may be in the order of 1 percent of GDP (ref. SN-CEA).

8. ***Sustainable land management (SLM) as a means to address land degradation: Opportunities and constraints.*** According to the Senegal CEA, sustainable land management could offer a means to address land degradation and enhance rural land productivity on a long-term basis. However, despite some isolated technical successes (e.g. interventions to stabilize sand dunes in the Niayes), the adoption and replication of SLM has remained relatively limited. Some of the key reasons that have prevented the adoption and/or wide scale replication of SLM include: (a) a weak enabling environment (characterized by inconsistent government policies and regulations, weak institutional capacity to support SLM adoption, and an unfavorable incentive system); and (b) a single-sector/project-specific approach to the problem.

9. ***Recipient's key policies and strategies.*** Land degradation has been repeatedly recognized by the Senegalese Government as a key constraint to development at both local and national levels. Addressing land degradation and promoting sustainable use of natural resources have been indicated as key objectives in virtually all national policies and strategies since the *National Action Plan for the Environment* in 1993. The Senegalese Government ratified the United Nations Convention to Combat Desertification (UNCCD) in 1995, and submitted its *National Action Program to Combat Desertification* (NAP) in 2000. The NAP identifies the main priorities and actions to prevent and reduce the effects of desertification. The *Agro-Sylvo-Pastoral Orientation Law* (LOASP, 2004) includes promotion of better land exploitation and improvement of soil fertility as key strategic objectives of the national rural development policy. The *Accelerated Growth Strategy* (2006) identifies 'sustainable agriculture' as a key driver for Senegal economic growth. The *Plan d'Action National pour l'Adaptation aux Changements Climatiques* (PANAC, 2006) identifies sustainable land management as an effective adaptation activity. More recently, the *Poverty Reduction Strategy* (DSRP-II, 2007) identifies combating land degradation and promoting sustainable agriculture and forestry as priority objectives to reduce poverty. Finally, the Government of Senegal has increasingly recognized that, to effectively address land degradation and promote SLM, a more cross-sectoral and programmatic approach to scale up SLM (as opposed to a project-based approach) is needed.

Annex 2: Major related projects financed by the Bank and/or other agencies
SENEGAL: Sustainable Land Management Project

A. Bank-funded projects

1. The World Bank has a well integrated rural portfolio in Senegal, which includes the Agricultural Markets and Agribusiness Development Project (PDMAS), the Participatory Local Development Program (PLDP), and the West Africa Agricultural Productivity Program (WAAPP):

(a) The **Agricultural Markets and Agribusiness Development Project** (PDMAS, P083609, ongoing, IDA US\$ 35 million) aims at increasing non-traditional agricultural exports and revenues for project beneficiaries. The PDMAS is based on the supply chain approach, and the use of public-private partnerships. The Project involves the integration of family-farms and small-scale enterprises into farm-to-market value chains in ways that enhance the competitiveness of the entire supply chain. The Project focuses on strengthening selected export and domestic food chains by improving the business environment for vendor integration, upgrading the technology, and integrating production and marketing processes. While the PSAOP supports producer organizations and provides them with basic farm management services, the PDMAS works with more advanced producers and enterprises, as well as with exporters' associations.

Overall Implementation Progress: Satisfactory (04 June 2009);

Progress towards achievement of PDO: Satisfactory (04 June 2009).

(b) The **Participatory Local Development Project** (PLDP, P088656, ongoing, IDA US\$ 50 million) is a follow-up of both the National Rural Infrastructure Project (PNIR) and the Social Development Fund Project (PFDS). The PLDP supports the Government's decentralization and local development agenda. The Project allocates resources to local governments and poor communities to improve the provision of social and economic infrastructures, as well as for productive and income-generating activities. The Project provides small grants to community-based and producer organizations for technical assistance in the design and implementation of productive, income-generating, and natural resource management activities identified through participatory approaches, following key strategic local development objectives spelled out in local development plans. The implementation of this project is closely linked to the PSAOP in that both projects intervene in the same areas (all 320 rural councils).

Overall Implementation Progress: Moderately Satisfactory (30 June 2009);

Progress towards achievement of PDO: Satisfactory (30 June 2009).

(c) The **West Africa Agricultural Productivity Program** (WAAPP, P094084, ongoing, IDA US\$ 15 million) aims at generating and disseminating improved technologies in the participating countries' top priority areas that are aligned with the region's top priorities as identified by West and central African Council for Agricultural Research and Development (WECARD). The WAAPP is based on pillar 4 (Agricultural Research and Technologies Dissemination and Adoption) of NEPAD's CAADP for growth in agricultural GDP. The beneficiaries of the Program are consumers in the region, particularly those affected by extreme poverty, and agricultural producers and agribusiness, as user of the improved technologies. The

key participants are researchers, extension agencies, and universities in generation and dissemination of technology that is directly supported by the WAAPP. By evidence, the WAAPP complements the PSAOP and the SLM in the support to the agricultural services (national agricultural research and extension systems) and producers for generating and disseminating improved technologies.

Overall implementation Progress: Satisfactory (25 June 2009);

Progress towards achievement of PDO: Satisfactory (25 June 2009).

2. The proposed operation would strategically complement the Bank's rural portfolio in Senegal, and increase the impact of the Bank's rural investments in the country, as it will provide an additional instrument to specifically address land degradation and mainstream sustainable land management in the sector.

3. Finally, this operation will benefit from the results of the ongoing World Bank's (1) **AFR Regional Implications of Climate Change** (P108965, ongoing), and (2) **Global Study on Territorial Development and Adaptation to Climate Change** (P112517, ongoing, TFESSD), which will provide detailed information on the capacity of local institutions, including those targeted by the proposed operation, to adapt to the effects of climate change.

B. Projects funded by other Development Partners

4. Projects funded by other Development Partners include:

(a) **UNDP/GEF Groundnut Basin Soil Management and Regeneration Project** (*Projet de Gestion et Restauration des Terres dégradées du Bassin Arachidier*, PROGERT, ongoing, total budget: US\$ 14 million, with contributions from GEF and UNDP of US\$ 3.6 and 4 million, respectively) is a five year Project complementing on-going initiatives to address land degradation in the Groundnut Basin, focusing in particular on introducing and up-scaling innovative sustainable land management technologies and practices (i.e. agro-sylvo-pastoral technologies to intensify production and methods to rehabilitate degraded soils), favoring partnerships among local populations (Grassroots Community Organizations), and promoting income-generating activities. The Project works in five local units (and selected communities) within the Groundnut Basin, covering a total surface area of 46.67 sq. km.

(b) **Program for Integrated Soil and Water Management** (PGIES): This Program was prepared by the Government (Ministry of Agriculture) in 2005. The program aims at increasing agricultural production and soil and water management in the Groundnut Basin and Casamance. The components of the PGIES are: (a) Strengthening communities' capacity in soil and water management; (b) restoration and intensification of agro-sylvo-pastoral systems; (c) improvement of the enabling environment; and (d) coordination, management, monitoring and evaluation. Four demonstration sites (i.e. wildlife migration corridors) are chosen to test land use planning models: (a) The Wildlife and Sylvo-pastoral Reserves in the Ferlo Steppe; (b) the Niokolo-Koba National Park and its associated Classified Forests in the South-East Sudanin-Guinean zone; (c) the Niayes coastal dunes and classified reserves along the northern sea front; and (d) the Saloum Delta National Park and associated classified forests and mangrove/marine

systems in the South-eastern coastal area. The cost of the Program was estimated in 2004 at 17.5 billion FCFA (about US\$ 32.8 million). UNDP, in partnership with GEF and within the framework of the GEF-SIP, is committed to supporting implementation of the Program over a 10 year period. A first phase, which focused on strengthening the enabling environment, has been completed. A second phase (US\$ 7.279 million, with contributions from GEF and UNDP of US\$ 3.640 and 1.251 million, respectively) is currently under implementation.

- (c) **UNDP's Innovation in Micro-Irrigation for Dryland Farmers Project** (under preparation, total budget: US\$ 1.9 million, with a contribution from GEF of US\$ 0.9 million). This operation, one of the two operations developed under the GEF-SIP together with the World Bank GEF-SLM Project, aims at supporting communities in dryland areas to improve their management of water resources. More specifically this operation would: (a) pilot innovative water management practices, particularly small-scale dryland irrigation systems, in the Bakel Region; and (b) support communities in adopting integrated land use planning. In addition, this operation would also contribute to strengthening SLM knowledge management system by conducting a diagnosis of Senegal's small-scale irrigation sector (including barriers to technology transfer); developing a database of small-scale irrigation practices; and compiling baseline information on natural resources in the pilot sites. These activities would provide important information for the development of the SLM investment framework, which the World Bank SLM Project supports. As operations under the GEF-SIP, the World Bank SLM Project and the UNDP Innovation in Micro-Irrigation for Dryland Farmers Project use a similar approach, but are geographically complementary. The two operations use some of the same indicators (i.e. area under SLM), but the World Bank SLM Project focuses on the Groundnut Basin, while the UNDP's operation will be implemented in the Bakel Region, situated in the Senegal River Valley.
- (d) **UNDP/GEF Integrated Ecosystem Management in Four Representative Landscapes of Senegal - Phase 2** (ongoing, total budget: US\$ 11.4 million, with a contribution from the GEF of US\$ 3.6 million): This project, one of those under the GEF-SIP, aims at preventing and reducing environmental degradation in four major ecosystems in the country (i.e. the Wildlife and Sylvo-pastoral Reserves in the Ferlo Steppe; the Niokolo-Koba National Park and its associated Classified Forests in the South-East Sudanin-Guinean zone; the Niayes coastal dunes and classified reserves along the Northern sea front; and the Saloum Delta National Park and associated classified forests and mangrove/marine systems in the South-eastern coastal area) by promoting sustainable use of natural resources through community-based integrated ecosystem management.
- (e) **Israeli Embassy - TIPA** (under preparation, total budget: US\$ 400,000). Within the framework of PSAOP2 and PDMAS, the Bank is developing a partnership initiative with the Israeli Embassy to support the scale-up of the TIPA irrigation system. This system adapts well to smallholders' community production systems while contributing to sustainable land and water management.

5. In addition, **USAID** and **JICA** have recently started a dialogue with the Government for the preparation of an Agricultural Productivity and Natural Resource Management (about US\$ 20 million, under preparation) and of a Land Restoration operation, respectively. **Swiss Cooperation** and **French Cooperation** continue to support some activities linked to PSAOP.

6. The proposed operation not only complements other DPs' existing and planned investments, but due to the cross-sectoral coordination mechanism for SLM that this operation supports (Component D), it also helps strengthen coordination and enhance harmonization of approaches among these interventions.

Annex 3: Results framework and monitoring
SENEGAL: Sustainable Land Management Project

A. Results Framework

PDO/GEO	Project Outcome Indicators	Use of Project Outcome Information
Contribute to the reduction of land degradation and the improvement of ecosystem functions and services in the Target Areas by adopting sustainable land management practices through the provision of support to the Recipient's research and agricultural and rural consultation system and to producer organizations	<ul style="list-style-type: none"> • Increase percentage of land with SLM practices in the Target Areas • Increase percentage of organic matter in the soil in the Target Areas 	<ul style="list-style-type: none"> • To assess the scope of SLM adoption in the areas targeted by the Project • To assess the impact of the adoption of SLM on the fertility of the soil in pilot sites
Intermediate Outcomes	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
A. Support to the Agricultural Research System¹⁵		
SLM technological innovations are developed	<ul style="list-style-type: none"> • At least 3 new technologies have been tested and proven successful by the end of the Project 	<ul style="list-style-type: none"> • To measure the performance of research services on SLM
B. Strengthening Agricultural Advisory Services¹⁶		
SLM services are accessible to producers	<ul style="list-style-type: none"> • SLM activities are integrated into the annual work plan of the Rural Advisory Agency in 30 Rural Councils within the project target area by the end of the Project 	<ul style="list-style-type: none"> • To assess the Rural Advisory Agency's capacity to provide advisory services on SLM
C. Support to Producer Organizations¹⁷		
SLM practices are adopted	<ul style="list-style-type: none"> • 30 project proposals submitted by Producer Organizations to implement SLM technologies are implemented by the end of the Project 	<ul style="list-style-type: none"> • To measure the degree of adoption of SLM technologies by producers
D. Support to Sectoral Coordination¹⁸		
SLM is mainstreamed across sectors	<ul style="list-style-type: none"> • An SLM Investment Framework is prepared by the end of the project 	<ul style="list-style-type: none"> • To measure the capacity of planning and cross-sectoral coordination

¹⁵ This component delivers on the SIP IR 4.

¹⁶ This component delivers on SIP IR 3.

¹⁷ This component delivers on SIP IRs 1 and 2.

¹⁸ This component delivers on SIP IRs 2 and 4.

B. Arrangements for results monitoring

1. The PSAOP2 Monitoring and Evaluation (M&E) system will be updated for the purposes of the SLM project in order to verify progress against the objectively verifiable indicators described in the results framework. The system will build on and integrate with the M&E systems established and used by the PSAOP. The project M&E system, managed by the TFCU, will be linked to the M&E system of the components, and will deliver consolidated monitoring information on project activities and progress. The system will collate and process information collected from the components as well as additional data derived from special studies and participatory M&E exercises. The M&E system is web-based and participatory. The M&E system established by the PSAOP will ultimately become the M&E system for the whole agriculture sector and will be used for the monitoring a part of the DSRP-II.
2. As in PSAOP, the M&E system is comprised of two elements:
 - (a) *Financial monitoring*, which allows to track the resources used to carry out the activities of the Project. It will indicate the budgeted costs for planned activities and completed activities as well as the real costs of completed activities. Financial monitoring will allow monitoring the financial performance of the Project.
 - (b) *Technical and physical monitoring*, to evaluate progress on indicators identified in the PTBA.
3. The overall performance of each component will be assessed combining information from the financial and technical monitoring components.
4. The total organic matter content of the soil will be measured at the end of the rainy season. The technique to measure organic matter is through total carbon content (organic matter content equals carbon content multiplied by 1.72). The measurements will be undertaken by the ISRA which has experience conducting these tests.
5. The tests are relatively easy to analyze. The M&E system will be measuring yields; production and vegetation cover in order to show possible improvements. This information is expected to be useful when preparing the ICR. Given the project's short three year duration, however, it will not be directly accountable for improved yields and vegetation cover. This is due to the fact that these indicators may take longer than three years to show consistent improvement, and a number of factors outside of this project's scope can influence them. Baseline values for vegetation cover in the areas targeted by the project are reported in Fig. 3.1.
6. An impact evaluation will be undertaken to assess the impact of SLM practices. Surveys will be conducted at the start of the project and at least once a year according to the framework defined in the monitoring matrix during the assessment/planification workshops. The impact surveys will be done together with PSAOP. The PSAOP already established food security and poverty level baselines for each of the agro-ecologic zones. The PSAOP baseline study integrates several sets of data related to the ecosystems but it is important to do more in-depth studies of the ecosystems in order to propose relevant indicators for the M&E of the GDT. The data generated will then be integrated in the agricultural sector information system and the country's CDMT. Monitoring and evaluation specialists in each implementing agency will report the results of the surveys to PSAOP, which will be responsible for compiling all data and disseminating results.

7. The Coordination Unit is responsible for the overall monitoring of the Project. It will improve the information and communication system to ensure collection and transmission of technical and economic information produced by the Project.

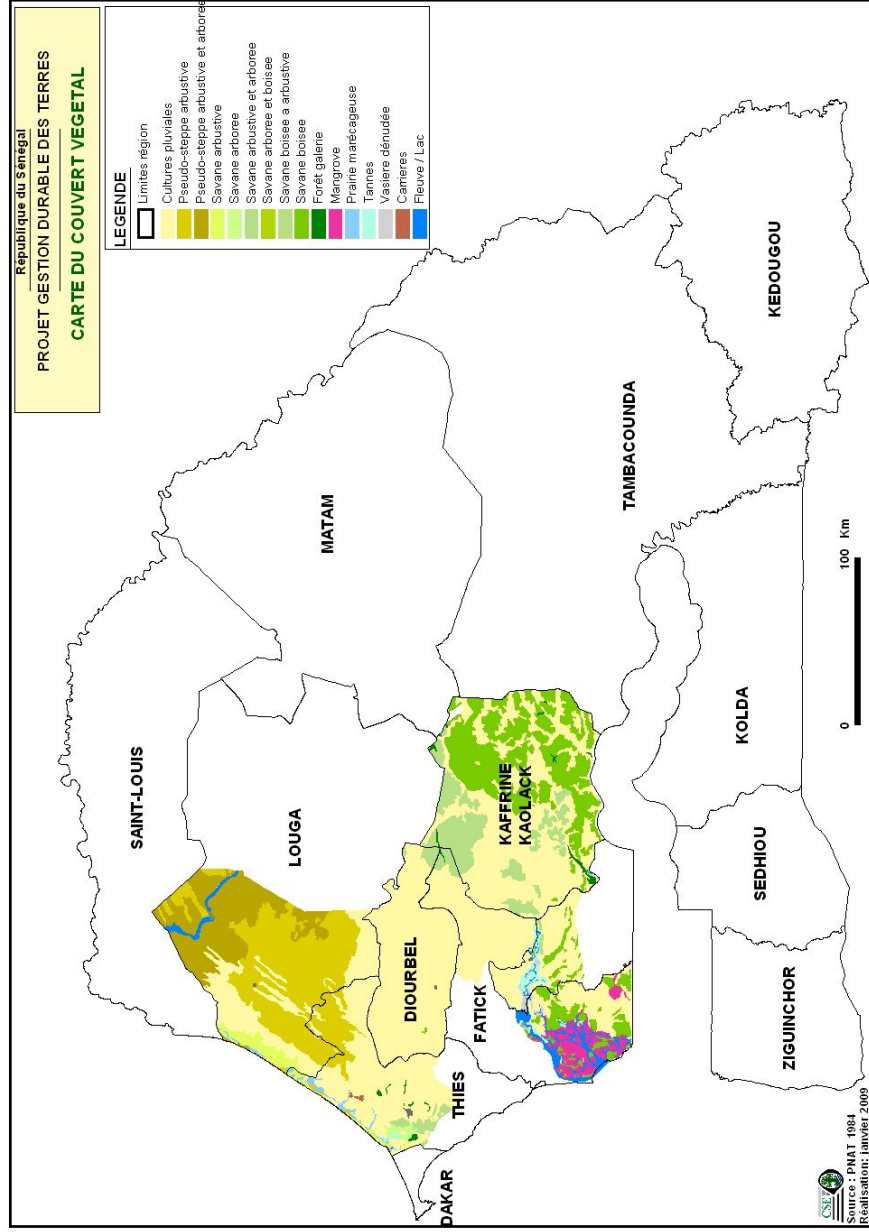
C. Table of Arrangements for results monitoring

Project Outcome Indicators	Target Values										Data Collection and Reporting		
	Baseline		Target value	YR1	YR2	YR3	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection				
<ul style="list-style-type: none"> Increase of organic matter in the soil in target areas (%) 	Northern Groundnut Basin	Notto Djobass	0.2 % ¹⁹	0.20 %	0.22 %	0.23 %	Yearly (Annual progress reports)	Impact surveys	TFCU, INP, ISRA				
		Mewane											
		Delay											
	Central Groundnut Basin	Touba Mosquee											
		Fimela											
		Niakhar											
	Southern Groundnut Basin	Nganda											
		Latmingue											
		Notto Djobass											
<ul style="list-style-type: none"> Increase of land with SLM practices in target areas (%) 	Northern Groundnut Basin	Mewane	0 %	5 %	10 %	20 %	Yearly (Annual progress reports)	Impact surveys	TFCU, INP				
		Delay	0 %	5 %	10 %	20 %							
		Touba Mosquee	0 %	5 %	10 %	20 %							
	Central Groundnut Basin	Fimela	0 %	5 %	10 %	20 %							
		Niakhar	0 %	5 %	10 %	20 %							
		Nganda	0 %	5 %	10 %	20 %							
	Southern Groundnut Basin	Latmingue	0 %	5 %	10 %	20 %							
		Notto Djobass	0 %	5 %	10 %	20 %							
		Mewane	0 %	5 %	10 %	20 %							

¹⁹ Baseline value refers to average values in the Groundnut Basin in 2008 (Badiane A., Khouma M., Sène M., 2000: Gestion et transformation de la matière organique: Synthèse des travaux de recherches menées au Sénégal depuis 1945. ISRA-CILSS-CTA). Specific values for each targeted area will be determined through the baseline studies that will be carried out in year 1 of the Project (Component A).

	Target Values					Data Collection and Reporting		
	Baseline	Target value	YR1	YR2	YR3	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Project Outcome Indicators								
Intermediate Outcome Indicators								
D. SLM technological innovations are developed and disseminated								
<ul style="list-style-type: none"> At least 3 new technologies have been tested and proven successful by the end of the Project 	0	3	0	0	3	Yearly (Annual progress reports)	Routine	TFCU and ISRA
E. Strengthening Agricultural Advisory Services								
<ul style="list-style-type: none"> SLM activities are integrated into the annual work plan of the Rural Advisory Agency in 30 Rural Councils within the project target area by the end of the Project 	0	30	6	12	30	Quarterly (Quarterly progress reports)	Routine	TFCU and ANCAR
F. Support to Producer Organizations								
<ul style="list-style-type: none"> 30 project proposals submitted by Producer Organizations to implement SLM technologies are implemented by the end of the Project 	0	30	10	20	30	Quarterly (Quarterly progress reports)	Routine	TFCU and ASPRODEB
G. Support to Sectoral Coordination								
<ul style="list-style-type: none"> An SLM Investment Framework (SIF) is approved by the end of the Project 	SIF non-existent	SIF developed and approved	SIF developed	SIF approved	SIF developed and approved	Yearly (Annual progress reports)	Routine	TFCU and INP

Figure 3.1 - Vegetation cover in areas targeted by the Project (Baseline, February 2009)



Classes	Hectares
Rainfed crops	2,022,519
Pseudo-shrub steppe	493,035
Pseudo-shrub and wooded steppe	272,073
Shrubby savanna	52,539
wooded to shrubby savanna	85,595
Open to wooded savanna	135,002
Tree savanna	11,443
Woodland savanna	469,658
gallery forest	15,402
Mangroves	75,827
Swamp grassland	18,476
Saline soils	26,678
Bare midflats	10,127
Water body	71,485
Urban areas	2,729
Open Quarries	1,984

Source: Centre de Suivi Ecologique (2009)

Table 3.1 - Examples of SLM practices (technologies and approaches)

SLM practices		
Land/water mgt technologies		Land/water mgt approaches
Agronomic and vegetative measures	Structural measures	Land use regimes
<ul style="list-style-type: none"> ▪ Intercropping ▪ Agro-forestry in crop or grazing systems ▪ Afforestation and reforestation ▪ Mulching and crop residue ▪ Crop rotation ▪ Fallowing ▪ Low till ▪ Composting/green manure ▪ Integrated pest management ▪ Vegetative strip cover ▪ Contour planting ▪ Re-vegetation of rangelands ▪ Integrated crop-livestock systems ▪ Woodlots ▪ Alternatives to woodfuel ▪ Sand dune stabilization ▪ Other 	<ul style="list-style-type: none"> ▪ Terraces and other physical measures (e.g. soil bunds, stone bunds, bench terraces, etc.) ▪ Flood control and drainage measures (e.g. rock catchments' water harvesting, cutoff drains, vegetative waterways, stone-paved waterways, flood water diversion, etc.) ▪ Water harvesting, runoff management, and small-scale irrigation (shallow wells/ boreholes, micro ponds, underground cisterns, percolation pits, ponds, spring development, roof water harvesting, river bed dams, stream diversion weir, farm dam, tie ridges, inter-row water harvesting, half-moon structures, etc.) ▪ Gully control measures (e.g. stone checkdams, brushwood checkdams, gully cut/reshaping and filling, gully revegetation, etc) ▪ Other 	<ul style="list-style-type: none"> ▪ Watershed plans ▪ Community land use plans ▪ Grazing agreements, closures, etc. ▪ Other

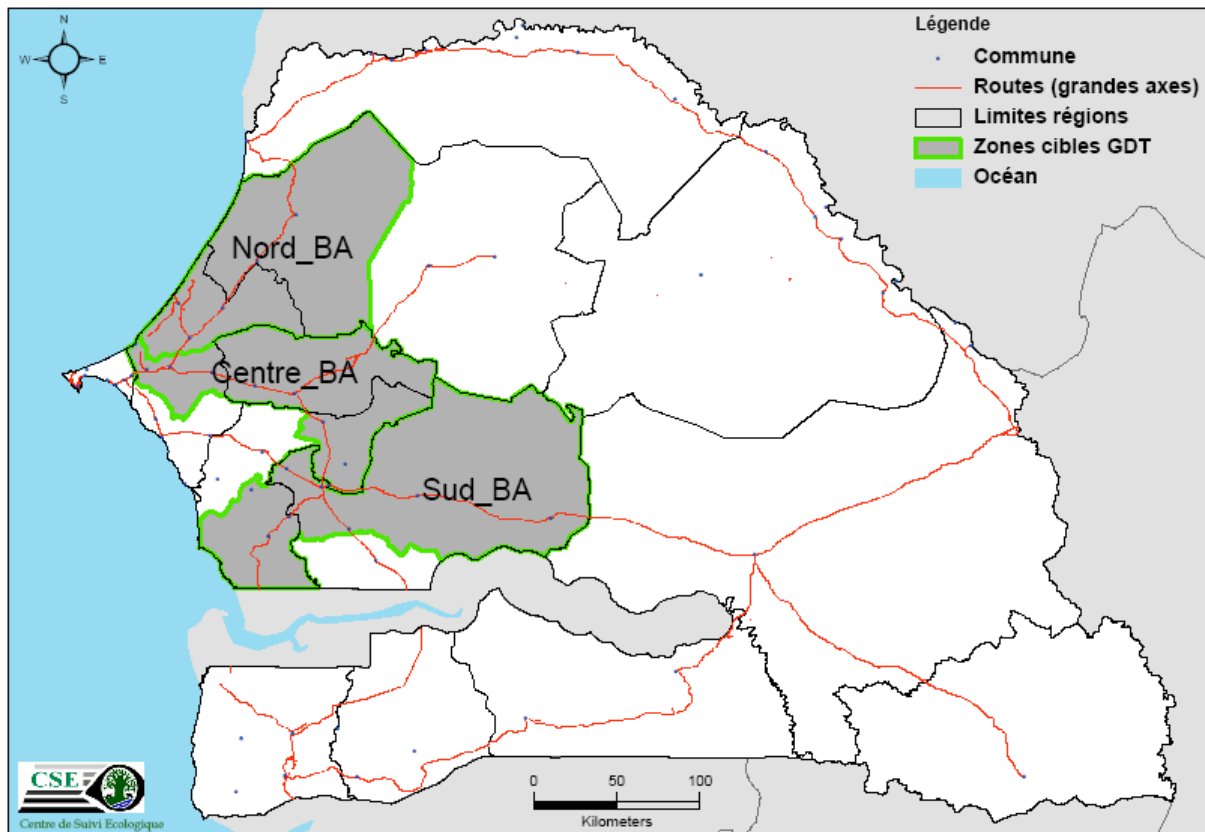
Annex 4: Detailed project description
SENEGAL: Sustainable Land Management Project

A. Project description

1. **Project development objective.** The objective of the Project is to contribute to the reduction of land degradation and the improvement of ecosystem functions and services in the Target Areas by adopting sustainable land management practices through the provision of support to the Recipient's research and agricultural and rural consultation system and to producer organizations.

2. **Geographical location.** Project activities will focus on the Groundnut Basin, and more precisely will target the departments and rural communities listed in Table 4.1, but may include other rural communities approved by the Bank. The map below shows the areas targeted by the Project.

Figure 4.1 - Areas targeted by the Project



Source: Centre de Suivi Ecologique (2009)

Table 4.1 - Project location: Communities targeted by the Project, and form, severity and causes of degradation

Zone/Department	Rural Community	Form and severity of degradation	Causes of degradation
Northern Groundnut Basin (Louga, Kébémér, Tivaouane Departments)	Notto Djobass	• Strong water erosion	• Deforestation/Strong pressure on forest resources
		• Low fertility	• Continuous cropping/No fallow
	Mewane	• Severe low fertility	• No fallow/Low use of organic matter/Industrial pollution
		• Strong wind erosion	• Deforestation/Strong pressure on agro-sylvo-pastoral resources
Central Groundnut Basin (Thiés, Diourbel, Goassas, Nord Fatick)	Dealy	• Severe low fertility	• Continuous cropping/No fallow/Low use of organic matter
		• Medium/Strong wind erosion	• Deforestation/Strong pressure on agro-sylvo-pastoral resources
	Touba Mosquee	• Severe low fertility	• No fallow/Lack of use of organic matter and fertilizer
		• Medium/Strong wind erosion	• Deforestation/Strong pressure on agro-sylvo-pastoral resources
Southern Groundnut Basin (Kaolack, Sud Fatick, Kaffrine)	Fimela	• Severe low fertility	• No fallow/Lack of use of organic matter and fertilizer
		• Medium/Strong salinization	• Destruction of mangroves and strong pressure on agro-sylvo-pastoral resources
	Niakhar	• Severe low fertility	• No fallow/Lack of use of organic matter and fertilizer • Strong pressure on agro-sylvo-pastoral resources
		• Medium/Strong salinization	• The upstream ascent of salt water as a result of anthropic pressure on agro-sylvo-pastoral resources
	Nganda	• Severe low fertility	• No fallow and lack of use of organic matter and fertilizer
		• Strong water erosion	• Deforestation/Strong pressure on agro-sylvo-pastoral resources
	Latmingue	• Severe low fertility	• No fallow and lack of use of organic matter and fertilizer • Overgrazing
		• Salinization	• Upstream ascent of salted water
		• Strong water erosion	• Deforestation/Strong pressure on agro-sylvo-pastoral resources

3. About 20,000 ha are expected to be converted to SLM.
4. The decision to focus on the seed producing areas of the Groundnut Basin is based on the following considerations:
 - (a) *Severity of degradation*: The Groundnut Basin is one of the areas in Senegal where land degradation is more severe, mainly because of inappropriate cropping practices;
 - (b) *Population density and potential for agricultural production*: It is the area with the highest population density and where most of the country's agricultural production is concentrated (approximately two-thirds of total production). Where quality production is practiced, integrated good agricultural practices that include SLM practices could be certified. This could be incorporated as a quality parameter in the labeling of products derived from sustainable agriculture;
 - (c) *Synergies with PSAOP2*: It is an area where the World Bank is already operating through the WB/IDA Agricultural Services and Producer Organizations Project 2 (PSAOP2). Synergies between the two Projects are therefore expected.
5. **Project approach.** The proposed operation would contribute to the above-described objectives by:
 - (a) *Strengthening some key elements of the enabling environment for SLM scale-up* at national and local levels (e.g. strengthening cross-sectoral coordination mechanisms and institutional capacity for SLM; and strengthening the capacity of main agricultural research institutions to generate and disseminate SLM applied research and knowledge); and
 - (b) *Supporting the adoption of SLM technologies and practices in selected priority areas*, i.e. the producing areas of the Groundnut Basin, e.g. by strengthening the capacity of producer organizations to adopt SLM measures; setting-up financial/incentive mechanisms to facilitate the adoption of SLM; and supporting agricultural service providers in delivering SLM opportunities and providing adequate technical backstopping. Considering that the yet uncertain effects of climate change may undermine the gains made from SLM investments, special attention will be given to risks associated with climate change and to design adaptation measures. To this end, the World Bank study on territorial development and adaptation to climate change will provide some information on the capacity of local institutions, including those targeted by the proposed operation, to adapt to the effects of climate change.
6. **Lessons learned and reflected in the project design.** The design of this operation reflects: (a) lessons learned in implementing projects in Senegal, particularly PSAOP; (b) lessons learned in implementing SLM operations in Africa; and (c) findings and recommendations of the recently completed Senegal Country Environmental Analysis and of three analytical works on SLM (these are: 'Diagnostic Report on Land Degradation and Sustainable Land Management in Senegal', 'Land Management Options Plan', and 'Review Public Expenditure in Land and Environment Management'). Main lessons learnt reflected in the project design include:
 - (a) *Need to integrate enabling activities with on-the-ground investments*: The findings of the SENEGAL CEA highlight the importance of improving an enabling environment (i.e. rectify perverse incentives, build institutional capacity, mainstream SLM in sectoral policies, etc.) to scale-up SLM. Lessons from past experiences suggest however that enabling activities are not sufficient alone, and need to be accompanied by on-the-ground

investments. If successful, on-the-ground activities have a great impact on beneficiaries' motivation, and usually generate positive momentum for rapid up-scaling of SLM practices. The proposed operation will therefore support both activities aimed at improving the enabling environment for SLM and on-the-ground investments that could generate quick wins.

- (b) *Improvement of cross-sectoral coordination is critical to scale-up SLM:* One of the conclusions of the Senegal CEA is that, in order to scale-up SLM, it is critical to improve coordination among stakeholders and agencies. To improve coordination, avoid duplication of efforts, and better target and prioritize interventions, the Senegal CEA recommends development of a National Investment Framework for Sustainable Land Management (*Cadre National d'Investissement en Gestion Durable des Terres*). This framework would help to: (i) set objectives as well as thematic and geographic priorities and investment needs; (ii) prioritize and cost them; and (iii) identify and select the most appropriate mechanisms to achieve them, thus facilitating alignment and harmonization of SLM interventions. The proposed operation will specifically support cross-sectoral coordination mechanisms (e.g. through the establishment of a multi-stakeholder SLM Platform), and provide technical and financial support to develop the National Investment Framework for SLM.
- (c) *POs are key drivers to foster changes and ensure sustainability:* PSAOP1 showed that institutional reforms and the development of new relationships between clients and service providers can be fostered if producers are empowered and able to contribute to the services they need. Demand-driven services become relevant, efficient, and accountable thanks to producer empowerment that builds the demand side. PSAOP2 is deepening this approach by channeling more financial resources through producer organizations to increase accountability and client-orientation of agricultural services. Focus on strengthening the capacity of POs will remain a central element of the proposed operation.
- (d) *Need to shift the focus from commodity production to land productivity in the agricultural sector:* In the 1990s, the Government invested, with the support of several DPs, about US\$ 1 billion in agricultural and livestock development and rural water supply. Interventions however focused mainly on commodity production and intensification rather than on sustainable management of land resources and productivity. The impact and long-term sustainability of these interventions was therefore limited. SLM needs to better be integrated in the agricultural sector.

B. Project components

7. As integrated (partially blended) to the PSAOP2, the activities proposed in this operation are organized along the four components of PSAOP2. Each component would be incremental to and/or complement the respective PSAOP2 component.

I. Component A - Support to the Agricultural Research System (US\$ 0.6 million)

8. In PSAOP2, this component seeks to increase the capacity of the National Agricultural Research System (NARS). The GEF-supported Project would be used to strengthen the capacity of ISRA to specifically generate and disseminate SLM-targeted research and knowledge. More specifically, this component would:

A.1 Support the implementation of demand-driven SLM research and development (R&D) activities (US\$ 0.27 million). These R&D activities should (i) derive from a diagnostic done by producer' organizations, (ii) be composed of Package of SLM practices, (iii) cover at least a terroir. The eligibility mechanism for SLM R&D activities will be detailed in the Project Implementation Manual. Activities in this sub-component will mainly focus on providing technical and financial support to the development of R&D activities. R&D activities are demand-driven, short-term research activities aimed at quickly responding to the needs expressed by beneficiaries within a specific local or regional context. R&D activities would focus on addressing issues of land degradation and low soil productivity, e.g. soil protection and restoration technologies, soil and water conservation technologies, agro-forestry technologies, and rehabilitation of salted soils (ref. Table 4.2).

For component A, and in contrast to differently PSAOP2, the proposed operation will support R&D only, and not strategic and applied research programs. This choice was made on the basis of two considerations: First, there is already a sufficient level of knowledge on SLM technologies. Producers and land users do not demand the generation of new technologies, but information on the conditions under which existing technologies can be applied. Second, the relatively short three year duration of the project would likely be insufficient for applied research programs to produce results, considering the time needed for selecting and financing applied research programs under the competitive mechanism of FNRAA.

These R&D activities will be assessed by the FNRAA Scientific and Technical Committee, and validated by the Steering Committee of NARS (*Comité de Pilotage du SNRASP*), the institutional entity responsible for decision-making and scientific and financial management (through FNRAA) of the national research system. Members of the two Committees will also be involved in the monitoring and evaluation of the R&D activities on SLM.

The sub-component will finance the operating costs of the R&D activities, particularly (small) equipment and supplies, the wages of short-term contract workers (for the life of the R&D activities), and travel costs of experts, technical assistance and consultancy services, and the costs related to monitoring and evaluation of the R&D activities. Large construction projects, the acquisition of major equipment, training programs leading to a diploma, and salaries of permanent staff are ineligible.

Table 4.2 - Possible Research and Development Activities

Zone/Department	Form and severity of degradation	Identified R&D activities
Northern Groundnut Basin (Louga, Kébémér, Tivaouane Departments)	<ul style="list-style-type: none"> • Water erosion 	
	<ul style="list-style-type: none"> • Low fertility 	<ul style="list-style-type: none"> • Production of ramial chipped wood • Use of peanut shells • Reclamation of quarries with tree plantations
	<ul style="list-style-type: none"> • Wind erosion 	
Central Groundnut Basin (Thiès, Diourbel, Goassas, Nord Fatick)	<ul style="list-style-type: none"> • Low fertility 	<ul style="list-style-type: none"> • Production of ramial chipped wood • Use of peanut shells • Fish residues • Types of adapted crop rotations
	<ul style="list-style-type: none"> • Wind erosion 	
Southern Groundnut Basin (Kaolack, Sud Fatick, Kaffrine)	<ul style="list-style-type: none"> • Water erosion 	
	<ul style="list-style-type: none"> • Low fertility 	<ul style="list-style-type: none"> • Ramial chipped wood
	<ul style="list-style-type: none"> • Salinization 	<ul style="list-style-type: none"> • Mechanical land reclamation

A.2 Finance baseline studies (US\$ 0.10 million). Activities in this sub-component would include collection of baseline information on: (i) The bio-physical characteristics of the project sites (including vegetation cover, soil quality, carbon sequestration, extent and severity of degradation, area of land under SLM, agricultural productivity, and global environmental benefits, e.g. name and extension of ecosystem of global significance that will benefit from project intervention); and (ii) socio-economic characteristics (e.g. size and composition of the population, population density, household incomes, etc.). All information will be geo-referenced. Information collected will be used for M&E and provided to the SLM Knowledge Base (ref. Component D1). The component will finance the purchase of the necessary equipment (e.g. GPS, hypsometer, computer software) and travel costs (fuel and per diem) to carry out the studies.

A.3 Strengthen the capacity of ISRA to generate, disseminate and monitor SLM-targeted research and knowledge (US\$ 0.23 million). The sub-component will finance vehicles, supplies and equipment (including maintenance), technical assistance and studies, training, and participation in research networks and workshops, etc., to strengthen the capacity of ISRA and other research institutions to carry out their tasks, including monitoring and evaluation of the R&D.

9. The implementation of this component will be coordinated by the Senegalese Agricultural Research Institute (*Institut Sénégalais de Recherche Agricole*, ISRA), and would involve other research institutions, e.g. the Food Technology Institute (*Institut de Technologie Alimentaire*, ITA), the National Soil Science Institute (*Institut National de Pédologie*, INP), the Research and Development Institute (*Institut de Recherche et Développement*, IRD), the Agricultural Research Center for Agricultural Development (*Centre de Coopération Internationale en Recherche Agronomique pour le Développement*, CIRAD); various university centers, e.g. *Université Cheikh Anta Diop* (UCAD), *Laboratoire d'Etudes et de Recherches Géophysique* (LERG),

Centre de Suivi Ecologique, (CSE) Université de Thiès; and other rural development partners, e.g. Direction des Eaux, Forêts, Chasse et Conservation des Sols, ANCAR, ASPRODED, etc., according to their specific mandate and comparative advantage.

II. Component B - Strengthening Agricultural Advisory Services (US\$ 0.7 million)

10. In PSAOP2, this component is aimed at supporting the extension of the agricultural advisory system and the consolidation of a pluralistic network of service providers. The GEF-supported Project would complement these interventions by: (a) strengthening the capacity of the agricultural extension system to specifically deliver SLM packages and provide adequate technical backstopping on SLM to farmers; and (b) supporting the actual delivery of SLM packages to producers through the agricultural extension system. This component comprises two sub-components:

B.1 Strengthening the capacity of the agricultural extension system in SLM (US\$ 0.27 million). This sub-component aims at strengthening the capacity of ANCAR, farmer intermediaries, and service providers to deliver SLM packages and provide adequate technical backstopping on SLM. Main activities of this sub-component would include the development and delivery of a training program on SLM technologies and practices; integration of SLM approaches in existing farmer production systems, land use planning, etc. to service providers. The training program will be elaborated in consultation with other technical partners, including la *Direction des Eaux et Forêts, l'Institut National de Pédologie, l'ISRA*, etc. The Agricultural and Rural Technological Information System (*Système d'Information Technologique Agricole et Rurale, SITAR*), under development under the PSAOP2, will be used in the training activities as a training tool and as a source of technical and statistical information and data.

B.2 Delivering SLM packages (US\$ 0.43 million). This sub-component aims at developing and delivering demand-driven, customer-tailored SLM advisory programs through the agricultural extension system. Main activities of this sub-component would include: (i) The creation of a database on SLM technologies and practices, and conditions for their applicability; (ii) farmers' sensitization and awareness creation activities; (iii) activities aiming at disseminating SLM technologies and sharing lessons/best practices, including set-up of demonstration sites, organization of field trips, farmer-to-farmer exchange events, SLM fairs, and specific training events; and (iv) provision of technical support and backstopping on SLM.

11. This component would finance vehicles; supplies and equipment (including maintenance); technical assistance; trainings; workshops; study-tours and production and dissemination of informative material on SLM best practices and technologies; and costs necessary to set up demonstration sites.

12. ANCAR will be responsible for the implementation of this component. ANCAR will work in partnership with public service providers (decentralized departments, and regional rural development companies), private service providers, research institutions (e.g. ISRA, IRD), and public and private training institutions.

III. Component C - Support to Producer Organizations (US\$ 2.8 million)

13. Producer organizations are the main channel of access to the program's resources. As a result, their inclusiveness and their effectiveness are key factors in ensuring that producers really benefit from the program. In PSAOP2, this component is aimed at strengthening the capacity of producer organizations (POs) to access technical and economic services, and participate in policy formulation. The GEF-supported Project would provide additional resources to: (a) improve the awareness of POs on SLM and strengthen the capacity of their members to integrate SLM in their production systems; (b) strengthen the capacity of POs' leaders and local political leaders to integrate SLM in the formulation of sectoral policies and local development plans; and (c) facilitate the adoption and replication of SLM on-the-ground. This component is comprised of three sub-components:

C.1 Strengthening the capacity of POs to integrate SLM in their production systems (US\$ 0.4 million). This sub-component will help mobilize POs and strengthen their capacity to integrate SLM in their production systems. Main activities of this sub-component would include: (i) training and other capacity building activities (e.g. workshops, animation activities, study tours, etc.) to Producer Organizations' Local Consultation Fora (*Cadre Local de Consultation des Organisations de Producteurs*, CLCOPs), and cooperatives on SLM; (ii) advocacy and other communication and awareness raising activities (e.g. developing and disseminating information material: posters, radio and audiovisual products, etc.) targeting the rural population about SLM, and how to get access to available resources and services; and (iii) training and other capacity building activities for the staff of ASPRODEB to enable them to provide adequate support to POs.

C.2 Strengthening the capacity of POs' leaders and of local political leaders to integrate SLM in the formulation of sectoral policies and in local development plans (US\$ 0.3 million). This component will finance training and other capacity building activities to POs' leaders and local representatives to improve their awareness on SLM and strengthen their capacity to integrate SLM in the formulation of local development plans and sectoral policies (e.g. formulate proposals and negotiate with other rural development actors).

C.3 Supporting the adoption of SLM practices (US\$ 2.1 million). This sub-component will provide financial resources to implement SLM sub-projects (ref. Table 4.3). CLCOPs, and cooperatives identify suitable POs²⁰ that could present proposals to adopt SLM practices. With the technical support of ISRA, INP, and ANCAR, the identified Producer Organizations prepare the proposals. The proposals are assessed and approved by local assemblies (rural councils). To be selected, the proposals for SLM sub-projects should satisfy the following eligibility criteria: (i) the SLM sub-project shall be implemented by a Producer Organization; (ii) the SLM sub-project shall not fall within any of the negative list of ineligible activities set forth in the Project Implementation Manual, including without limitation activities that would adversely affect forest areas and/or natural habitats; (iii) the sub-grants will support activities promoting SLM in the Target Area. The selected proposals are financed

²⁰ To be selected, POs should satisfy the eligibility criteria defined in the Project Implementing Manual, i.e. (i) to be a legal entity pursuant to the law; (ii) to be constituted at least with twenty members; (iii) to be a member of CLOP.

through this sub-component. ASPRODEB will sign a contract with the selected POs. The producer organizations will implement their activities in close collaboration with other institutions, including ANCAR, ISRA, and local governments. The component will finance the operating costs of the SLM sub-projects, particularly (small) equipment and supplies, and the wages of short-term contract workers (for the life of the sub-project). This sub-component will in addition cover the costs ASPRODEB will bear to implement this activity (e.g. travel costs of staff, technical assistance and consultancy services, and the costs related to monitoring and evaluation of the sub-projects).

14. Producers and producer organizations are the main beneficiaries of this component, as both direct beneficiaries of the activities and actors in implementing the proposed activities. Consistent with PSAOP, the approach of this component will be based on: (i) accountability of producers, their organizations, and their leaders in defining and implementing the activities; and (ii) strong partnership between POs and local governments (particularly rural councils).

15. ASPRODEB will be responsible for the implementation of this component.

IV. Component D - Support to Sectoral Coordination (US\$ 0.7 million)

16. In PSAOP2, this component is aimed at strengthening the capacity of sectoral ministries (e.g. Agriculture and Livestock) in policy formulation, planning, coordination, monitoring and evaluation. The GEF-supported Project would be used to strengthen the enabling conditions to allow the Government to move towards a more cross-sectoral and programmatic approach to SLM, and to support incremental costs of project management. This component comprises two sub-components:

D.1 Strengthening cross-sectoral coordination (US\$ 0.6 million). This sub-component aims at improving cross-sectoral coordination in the SLM sector with the objective of improving the efficiency and effectiveness of SLM activities in the country, and ultimately better integrates SLM in the development plans of Senegal. An expected outcome is an increased budget allocation to SLM activities in the Government's Medium-Term Expenditure Framework. Main activities within this sub-component include:

- (i) **The institutionalization of the** (already existing) **SLM Committee** (*Groupe Fonctionnel GDT*) as a national multi-sectoral forum in charge of promoting, coordinating and overseeing the development and implementation of SLM activities in the country. This would involve the development of detailed Terms of Reference (ToRs), organization, coordination mechanisms, budget, work plan, etc. and capacity building activities for its members (including training and participation in regional workshops and other knowledge sharing events). It is expected that by the end of the Project the SLM Committee will be formally established by decree.
- (ii) **The formulation and adoption of a National SLM Investment Framework** (*Cadre National d'Investissement en Gestion Durable des Terres*). This framework would help: (a) set objectives as well as thematic and geographic priorities and investment needs; (b) prioritize and cost them; and (c) identify and select the most appropriate mechanisms to achieve them, thus facilitating alignment and harmonization of SLM interventions. This would involve studies and other activities

necessary to the formulation and validation of the SLM Investment Framework, i.e. stocktaking, diagnostics, consultative and validation workshops, etc.

(iii) **The development of a Knowledge Base on SLM**, i.e. a national database collecting key information concerning SLM technologies and approaches (the WOCAT methodology is proposed) and other SLM geo-referenced data and information (e.g. extension and severity of land degradation, soil fertility, vegetation cover, land use and land use change, etc.), including the data collected during the preparation of the SLM Investment Framework.

This sub-component would finance operational costs associated with the establishment of an SLM Platform (technical assistance and consultancy services, workshops, etc.), the activities included in the SLM Platform's annual work program (e.g. advocacy and communication activities, training and technical assistance, retreats, workshops, organization and/or participation in regional workshops and other knowledge sharing events, reporting to the UNCCD, etc.), the studies and activities necessary for the formulation and validation of the SLM Investment Framework (technical assistance and consultancy services, workshops), and the costs necessary for the establishment of a database (e.g. equipment and software, purchase of maps, etc.), including training to build the capacity in database management.

D.2 Technical and fiduciary coordination and M&E (US\$ 0.1 million). As per PSAOP, day-to-day coordination of the Project will be handled by the Technical and Fiduciary Coordination Unit (TFCU) housed at the Ministry of Agriculture. Specific functions are detailed in Annex 6. This sub-component will support incremental operational costs of the team responsible for coordinating and monitoring the overall activities of the Project.

17. INP will be responsible for the implementation of sub-component D1, while the Technical and Fiduciary Coordination Unit will be responsible for the implementation of component D2.

Table 4.3 - Possible SLM interventions

Zone/Department	Rural Community	Form and severity of degradation	Causes of degradation	Possible SLM solutions
Northern Groundnut Basin (Louga, Kébémér, Tivaouane Departments)	Notto Djobass	<ul style="list-style-type: none"> Strong water erosion 	<ul style="list-style-type: none"> Deforestation/Strong pressure on forest resources 	<ul style="list-style-type: none"> Gabions Stone lines, half pipes Small dikes Live fences against erosion Village reforestation
		<ul style="list-style-type: none"> Low fertility 	<ul style="list-style-type: none"> Continuous cropping/No fallow 	<ul style="list-style-type: none"> Good practices (techniques of soil preparation, of sowing, of organic and mineral fertilization)
	Mewane	<ul style="list-style-type: none"> Severely low fertility 	<ul style="list-style-type: none"> No fallow/Low use of organic matter/Industrial pollution 	<ul style="list-style-type: none"> Assisted natural regeneration Good practices (organic and inorganic fertilizer, recycling of crop residues, composting)
		<ul style="list-style-type: none"> Strong wind erosion 	<ul style="list-style-type: none"> Deforestation/Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> Windbreaks Live fences Village reforestation Assisted natural regeneration
		<ul style="list-style-type: none"> Severely low fertility 	<ul style="list-style-type: none"> Continuous cropping/No fallow/Low use of organic matter 	<ul style="list-style-type: none"> Assisted natural regeneration Good practices (techniques of soil preparation, organic and mineral fertilization, recycling of crop residues, composting)
		<ul style="list-style-type: none"> Medium/Strong wind erosion 	<ul style="list-style-type: none"> Deforestation/Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> Windbreaks Live fences Village reforestation Assisted natural regeneration
Central Groundnut Basin (Thiés, Diourbel, Goassas, Nord Fatick)	Dealy	<ul style="list-style-type: none"> Severely low fertility 	<ul style="list-style-type: none"> No fallow/Lack of use of organic matter and fertilizer 	<ul style="list-style-type: none"> Assisted natural regeneration Good practices (organic and mineral fertilization, recycling of crop residues, composting)
		<ul style="list-style-type: none"> Medium/Strong wind erosion 	<ul style="list-style-type: none"> Deforestation/Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> Windbreaks Live fences Village reforestation Assisted natural regeneration
	Touba Mosque	<ul style="list-style-type: none"> Severely low fertility 	<ul style="list-style-type: none"> No fallow/Lack of use of organic matter and fertilizer 	<ul style="list-style-type: none"> Assisted natural regeneration Good practices (organic and mineral fertilization, recycling of crop residues, composting)
Southern Groundnut Basin (Kaolack, Sud Fatick, Kaffrine)	Fimela	<ul style="list-style-type: none"> Medium/Strong wind erosion 	<ul style="list-style-type: none"> Deforestation/Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> Windbreaks Live fences Assisted natural regeneration
		<ul style="list-style-type: none"> Severely low fertility 	<ul style="list-style-type: none"> No fallow/Lack of use of organic matter and fertilizer 	<ul style="list-style-type: none"> Assisted natural regeneration Good practices (organic and mineral fertilization, recycling of crop residues, composting)
		<ul style="list-style-type: none"> Medium/Strong salinization 	<ul style="list-style-type: none"> Destruction of mangroves and strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> Restoration of mangroves/reafforestation with halophyte plants Phosphogypsum amendment Irrigation schemes (containment, drainage)

				<ul style="list-style-type: none"> • Ridge planting • Use of well adapted rice varieties • Assisted natural regeneration • Village reforestation • Good practices (organic and mineral fertilization, recycling of crop residues, composting) • Mangroves restoration/reafforestation with halophyte species • Phosphogypsum amendment • Irrigation schemes (containment, drainage) • Ridge planting • Use of adapted rice varieties • Peanut shells • Assisted natural regeneration • Good practices (composting, production of manure, rotation, recycling of crop residues) • Gabions • Stone lines, half pipes • "Djiguettes en cadre" • Live fences against erosion • Village reforestation • Peanut shells • Assisted natural regeneration • Good agricultural practices (composting, production of manure, rotation, recycling of crop residues)
		<ul style="list-style-type: none"> • No fallow/Lack of use of organic matter and fertilizer • Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> • Severely low fertility 	
	Niakhar	<ul style="list-style-type: none"> • The upstream ascent of salt water as a result of anthropic pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> • Medium/Strong salinization 	
		<ul style="list-style-type: none"> • No fallow and lack of use of organic matter and fertilizer 	<ul style="list-style-type: none"> • Severe low fertility 	
	Nganda	<ul style="list-style-type: none"> • Deforestation/Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> • Strong water erosion 	
		<ul style="list-style-type: none"> • No fallow and lack of use of organic matter and fertilizer • Overgrazing 	<ul style="list-style-type: none"> • Severe low fertility 	
	Latmingue	<ul style="list-style-type: none"> • Upstream ascent of salted water • Deforestation/Strong pressure on agro-sylvo-pastoral resources 	<ul style="list-style-type: none"> • Salinization • Strong water erosion 	

Annex 5: Project costs
SENEGAL: Sustainable Land Management Project

Project Cost By Component and/or Activity	Local US\$ million	Foreign US\$ million	Total US\$ million
A. Support to Agricultural Research System	0.30	0.30	0.60
B. Strengthening Agricultural Advisory Services	0.30	0.40	0.70
C. Support to Producer Organizations	2.10	0.70	2.80
D. Support to Sectoral Coordination	0.30	0.40	0.70
Total Baseline Cost	3.00	1.80	4.80
Total Project Costs¹	3.00	1.80	4.80
Total Financing Required	3.00	1.80	4.80

¹Identifiable taxes and duties are US\$m 0.41, and the total project cost, net of taxes, is US\$m 4.39. Therefore, the share of project cost net of taxes is 91.45 percent.

Annex 6: Implementation arrangements
SENEGAL: Sustainable Land Management Project

A. Partnership arrangements

1. **Coordination with UNDP under the GEF-SIP.** The proposed operation is one of two operations developed under the GEF-SIP in Senegal, together with the UNDP's *Innovation in Micro-Irrigation for Dryland Farmers* Project. The two operations will use the same approach and will be strongly coordinated with one another. Both would focus on improving the enabling environment for SLM adoption. They would however target two different geographical areas of the country: The proposed operation would focus on the Groundnut Basin, while UNDP's operation will be implemented in the Bakel Region, situated in the Senegal River Valley.

2. **Partnership with IFAD.** PSAOP2 is co-financed by the International Fund for Agricultural Development (IFAD). IFAD contributes to PSAOP2 with a loan of US\$ 6.0 million. IFAD has been closely involved in definition of the content of PSAOP2, from preparation to negotiations. IFAD funds are pooled into the Project's designated account. IFAD also plays a role in the learning processes of PSAOP by testing, in the context of its other projects in Senegal, a number of pro-poor approaches that can both benefit from and feed into the institutional reform process through flexible mechanisms, including exchange visits and thematic workshops.

3. **Coordination with other DPs' initiatives.** USAID and JICA have recently started a dialogue with the Government for the preparation of an Agricultural Productivity and of a Land Restoration operation, respectively. The cross-sectoral coordination mechanism for SLM that this operation supports (Component D) will ensure coordination with these two proposed operations. French Cooperation continues to support some activities linked to PSAOP. In particular, French Cooperation supports the professional evolution of POs through its Project 'Promotion of Competitive and Sustainable Agriculture' (PACD).

4. **Partnership with Israeli Embassy.** Within the framework of PSAOP2 and PDMAS, the Bank is developing a partnership initiative with the Israeli Embassy to support the scale-up of the TIPA irrigation system. TIPA is well adapted to smallholders' community production systems while contributing to sustainable land and water management.

B. Institutional and implementation arrangements

5. **Institutional set-up and implementation arrangements.** The operation will adopt the same institutional framework and the same implementation arrangements as PSAOP2, which include: (a) a Steering Committee; (b) a Technical and Fiduciary Coordination Unit; and (c) one implementing agency per component or sub-component.

(a) *Steering Committee (Comité de Pilotage;* the same for PSAOP2²¹): This includes representatives of the implementing agencies, representatives of POs, and representatives of the Ministries in charge of agriculture, livestock, environment, economy and finance, fisheries, local government, women and social development, and scientific research. It is

²¹ INP will be included as an observer.

responsible for: (i) approving the work program and consolidated budget, and (ii) assessing project performance.

(b) *Technical and Fiduciary Coordination Unit (Unité de Coordination Technique et Fiduciaire - UCTF)*: This unit is responsible for: (i) monitoring the overall implementation of the Project; (ii) promoting and facilitating the exchange of information and cooperation between implementing agencies; (iii) preparing quarterly progress reports by consolidating the components' reports; (iv) consolidating, supervising, and monitoring the procurement plans prepared by the different components; (v) managing the designated account, in liaison with the *Direction de la Dette et de l'Investissement* (DDI) of the Ministry of Finance; (vi) supporting the components as needed; and (vii) liaising regularly with the World Bank. The Coordination Unit is located at the Ministry of Agriculture.

(c) *Implementing agency per component or sub-component*:

- (i) Component A - Support to the Agricultural Research System: This will be implemented by ISRA.
- (ii) Component B - Strengthening Agricultural Advisory Services: This will be implemented by ANCAR (whose legal status is a *Société à participation publique minoritaire*).
- (iii) Component C - Support to Producer Organizations: This will be implemented by ASPRODEB (an NGO which represents 19 national federations of producers).
- (iv) Component D - Support to Sectoral Coordination: This will be implemented by: (i) The National Institute of Pedology (*Institut National de Pédologie, INP*), which reports to the Ministry in charge of Agriculture, for the sub-component D1 (Sectoral Coordination); and (ii) the Technical and Fiduciary Coordination Unit for the sub-component D2 (Technical and Fiduciary Coordination).

6. The only difference with respect to PSAOP2 is the addition of the INP, which will play a key role in coordinating the activities aimed at strengthening cross-sectoral coordination mechanisms and building a national coalition for SLM (Component D).

Annex 7: Financial management and disbursement arrangements

SENEGAL: Sustainable Land Management Project

1. As part of the preparation phase of the Sustainable Land Management Project a financial management assessment was carried out in accordance with the Financial Management Practices Manual issued by the Financial Management Board on November 3, 2005. The objective of the assessment was to determine whether the implementing entity TFCU has acceptable financial management arrangements, which will ensure that: (a) funds are used only for the intended purposes in an efficient and economic way, (b) the preparation of accurate, reliable and timely periodic financial reports, and (c) the entities' assets are safeguarded.

A. Summary of implementation and financial management arrangements

2. **Implementation arrangements.** The operation will adopt the same institutional framework and implementation arrangements as PSAOP2 which include: (a) a Steering Committee; (b) a Technical and Fiduciary Coordination Unit; and (c) one implementing agency per component or sub-component (ref. Annex 6). The only difference with PSAOP2 is the addition of INP, which will play a key role in coordinating the activities aiming at strengthening cross-sectoral coordination mechanisms and building a national coalition for SLM (Component D).

3. **Financial management.** The Ministry of Agriculture will expand the financial arrangement to the TFCU to manage the financial arrangement of this project. The staff and the auditor will be recruited in a competitive basis, while the system of information installed in the TFCU and the manual of procedures elaborated will be updated. For the sub component: *Supporting the adoption of SLM practices*, ASPRODEB manages its funds directly through a management services contract. This contract is signed between ASPRODEB and the TFCU. Funds are withdrawn from the designated account or from the credit (in the case of the proposed project, the grant) following the disbursement and financial management provisions of the management services contract. The other implementing agencies send their funding requests to the TFCU. Each implementing agency has its own financial and accounting system in place, certified by an independent auditor. Procedures concerning coordination, implementation, management, monitoring and evaluation, procurement, and administration are detailed in the Project Implementation Manual (PIM).

B. Country Accountability Issues

4. The Country Financial Accountability Assessment (CFAA) of Senegal was conducted in 2003. Since that exercise, the Government has created an Executive Secretariat under the Ministry of Economy and Finance to monitor the implementation of the CFAA action plan. The Heavily Indebted Poor Country (HIPC) Assessment and Action Plan by the Bank and the IMF was prepared in November 2004.

C. Assessment of risks

5. The CFAA of Senegal was conducted in 2003. The overall risk rating of the public financial management system was high. Since that exercise, the Government has created an Executive Secretariat under the Ministry of Economy and Finance to monitor the implementation of the CFAA action plan. The HIPC Country Assessment and Action Plan by the Bank and the IMF in November 2004 showed significant improvements in the areas of public expenditure tracking, notably internal control and budget preparation which was the priority area defined in the PRSP. However, significant progress is still needed in internal and external controls of budget execution and state-owned enterprises.

6. The Government has given priority to improvements in these areas as well as local governance finance reforms. A Multi-Donor Trust Fund (MDTF) was set up to follow up on implementation of the reforms. A new Procurement Code has been adopted and entered in force in January 2008. A PEFA exercise has been undertaken in 2007, and the report concluded that there has been some improvement in PFM reform implementation, additional improvements are still necessary in areas such as: (i) effectiveness of the internal audit system by the SAI (*Cour des Comptes*); (ii) reliability of data for monitoring the stock of arrears; and (iii) addressing the backlog of State accounts. In dialogue with external partners, the Government will implement the action plan resulting from the last Public Expenditure and Financial Assessment (PEFA) framework to track progress in strengthening public financial management and identify areas where country fiduciary systems are not yet in line with international standards.

7. The Government is committed to conduct the Public Financial Management (PFM) reform through the creation of a specific body the PFM Reform Steering Committee under the Ministry of Finance, with representation by all Government departments responsible for specific reforms. The role of the Steering Committee is to: (a) Coordinate the reforms to be undertaken; (b) harmonize Government actions; (c) monitor the implementation of the action plan; and (d) hold different actors accountable for progress.

8. The use of country systems, notably the Treasury Department and the *Cour des Comptes*, will be implemented progressively. In the meantime, implementation of Project will be coordinated by TFCU under the Directorate for Agriculture (DA) of the Minister of Agriculture (MA).

Table 7.1 - Summary of Risk Analysis and Mitigation Measures

Risk	Risk Rating	Risk Mitigation Measure	Conditionality	Rating of residual risk
I. Inherent Risks:	Substantial			Moderate
I. Country: Despite substantial improvements of the legal and regulatory framework, some provisions affect the transparency of the system.	Substantial	The MA will expand the financial arrangement to the TFCU to manage the financial arrangement of this project. The Staff and the auditor will be recruited in a competitive basis, the system of information installed in the TFCU and the manual of procedures elaborated will be updated.	No	Moderate

2. Entity Levels: Low capacity of MA to implement and monitor the Project.	Substantial	The Project will be implemented by TFCU, and the Bank will pay a special attention during the supervision mission to the adequacy of the financial management system for Project implementation.		Moderate
3. Project level: Implementation depends not only on TFCU, but on activities of participating entities, not all of which have strong capacity.	Moderate	The Project is not complex even if it is intended to involve several implementing agencies but they already have experience in the management of World Bank-supported projects.		Moderate
II. Control Risks:	Moderate			Low
1. Accounting: An administrative and accounting manual of procedures has been developed and provides all the required details on accounting and financial procedures. However this manual does not take in account the new project. The financial management is computerized. However knowledge of Bank FM and disbursement procedures is still weak.	Moderate	The manual and the existing software will be update in order to take in account the specificities of the new project and the Bank will organize a workshop on the Bank FM, Disbursement and Procurement Procedures for the staff of TFCU.	None	Low
2. Budget Execution Annual budget are regularly prepared but approved late.	Moderate	Annual work plans will be prepared and submitted to the Bank by November 30 of each year.		Low
3. Internal Control The internal control is weak, and doesn't operate effectively to ensure proper authorization of expenditures in accordance with budget and proper authorization of payment	Moderate	The Bank will pay attention to the effectiveness of the internal control system during supervision missions and the review of the annual audit reports as well the auditor's management letter. In addition, the Administrative and Financial Procedures Manual will give a clear description of the approval and authorization processes.		Moderate

4. External Audit Lack of strong system of external audit. External control by the “Cour des Comptes” is not yet effective	Substantial	An external auditor with qualification and experience satisfactory to the World Bank will conduct an annual audit of the Project’s financial statements. This audit should be carried out in accordance with International Standards on Auditing (ISA), and will include such tests and controls as the auditor considers necessary under the circumstances. The external audit firm will be selected under a competitive basis and TORs acceptable to the Bank.	Yes	Moderate
5. Funds Flow Risk of mingling funds with those of other projects	Moderate	A Separate Designated Account (DA) will be opened in a commercial bank by the DDI and will finance activities of the Project.	Yes	Low
6. Reporting The reporting system is not consistent in the MA	Moderate	The TFCU will prepare quarterly IFRs project in format and substance acceptable to the Bank and Annual Financial Statements of the project in comply with International Accounting Standards	None	Low
Overall Risk	Moderate			Moderate

9. In view of the general country financial management issues and the issues peculiar to the Project, the overall financial management risk rating for this project is Moderate

D. Strengths and Weaknesses

10. **Strengths.** The financial management capacity built in the TFCU under the PSAOP2 will be consolidated and used to manage the Financial Management System of the SLM Project. Under the WAAPP also implemented by the TFCU of the PSAOP, an Accountant with strong experience in accountability will be recruited in a competitive basis and will reinforce the Financial Department. He or she will receive training on World Bank procedures.

Table 7.2 - Weaknesses

Weaknesses	Action	Responsible Body	Completion Date
(a) No specific information system for the Project	<ul style="list-style-type: none"> ▪ Update existing software TOMPRO to host the Project. 	TFCU	By effectiveness
(b) No specific information in the PSAOP financial and Administrative Manual for the project	<ul style="list-style-type: none"> ▪ Update the PSAOP Financial and Administrative Manual to conform with the GEF financed project 	TFCU	By effectiveness
(c) Absence of an External Auditor	<ul style="list-style-type: none"> ▪ Prepare TOR for External Auditor satisfactory to the Bank. 	TFCU	By negotiation
	<ul style="list-style-type: none"> ▪ Appointment of the auditor. 	TFCU	First quarter after effectiveness

E. Financial and management arrangements

11. **Staffing arrangements.** The existing staff of the TFCU (one Financial Management Specialist and one Accountant), soon strengthened by an experienced Accountant recruited on a competitive basis under the West African Agricultural Productivity Program (WAAPP), will manage the funds of this operation. The existing staff has relevant experience in accounting, auditing, disbursement and financial management procedures of the Bank.

12. **Accounting policies and procedures.** The current accounting standards in use in Senegal for on-going Bank-financed projects will be applicable. SYSCOHADA is the assigned accounting system in West African Francophone countries. The Grant will be accounted by the Project on a cash or accrual basis. This system will be documented with appropriate records and procedures to track commitments and to safeguard assets. Accounting records will be maintained in local currency (FCFA). The Chart of Accounts will facilitate the preparation of relevant quarterly and financial statements including information on the total project expenditures, the financial contribution from IDA and other Donors and expenditure by component/category. The existing Financial and Administrative Manual describes the budgeting process. The Financial team will finalize the Entity Action Plan and Budget, which will be submitted to a steering committee for approval. Also, a ‘no objection’ of the Bank will be required before implementation the annual action plan.

13. **Accounting software.** The existing Information System in the TFCU allows production of all accounting and financial data required: Financial Statements, Bank Reconciliation Statements, all the books of accounts and all financial reports including the Interim un-audited Financial Reports (IFR). Accounting procedures are documented in the existing Financial and Accounting Manual.

14. **Internal audit and internal control.** The existing Administrative and Financial Manual of PSAOP2 provides a description of the approval and authorization processes. The Bank will pay attention to the adequacy of internal control during supervision mission. At the national level,

the Direction de la Dette et de l'Investissement (DDI) controls *ex ante* all expenditures and withdrawal applications before sending them to the Bank.

15. **External audit.** External auditors with experience and qualifications satisfactory to the Bank will conduct an annual audit of the Project's financial statements. This audit should be carried out in accordance with International Standards on Auditing (ISA), and will include such tests and controls, as the auditor considers necessary under the circumstances. Besides expressing an opinion on the Project's financial statements in accordance with ISA, the auditors will be expected to prepare report on internal controls, management letters giving observations and comments, and providing recommendations for improvements in accounting records, systems, controls and compliance with financial covenants in the Financing Agreement of the Bank. The audit report and opinions on the financial statements including the management letter and management response shall be submitted to IDA within six months of the end of the Senegal fiscal year. Since the auditor for the PSAOP2 has been appointed, this auditor could also audit the financial statements of the SLM Project. The Recipient will elaborate ToRs acceptable to the Bank for the appointment of the auditor. The table below summarizes the auditing requirements under the Project.

Audit report	Entity	Due Date
Project's financial statements	TFCU	June 30
Financial Statements	ASPRODEB	June 30

16. All audit reports will be submitted to the Bank within six months after December 31 each year.

17. **Reporting and monitoring.** The TFCU will prepare and provide to the World Bank a quarterly un-audited Interim Financial Report (IFR), in form and substance satisfactory to the World Bank. The report will:

- (a) set forth sources and uses of funds for the Project, both cumulatively and for the period covered by said report, showing separately funds provided under the Grant, and explain variances between the actual and planned uses of such funds; and
- (b) describe use of funds by activity/components, both cumulatively and for the period covered by said report, and explain variances between the actual and planned Project implementation.

18. The TFCU will produce Annual Financial Statements for these statements which comply with International Accounting Standards (IAS) and World Bank requirements. The Financial Statements²² will consist of:

- (a) a Statement of Sources and Uses of Funds;
- (b) a Statement of Commitments; and
- (c) Accounting Policies Adopted and Explanatory Notes;

²² It should be noted that the project financial statements should be all inclusive and cover all sources and uses of funds and not only those provided through World Bank funding. They thus reflect all program activities, financing, and expenditures, including funds from other development partners.

- (d) A Management Assertion that Project funds have been expended for the intended purposes as specified in the relevant Grant agreements.

19. The first IFR shall be furnished to the Association not later than 30 days after the end of the first calendar quarter after the Effectiveness Date. It shall cover the period from the incurrence of the first expenditure under the Project through the end of such first calendar quarter; thereafter, each IFR shall be furnished to the Association not later than 30 days after each subsequent calendar quarter, and shall cover such calendar quarter. Formats for the IFR and financial statements will be defined before negotiations and will be attached to the disbursement letter.

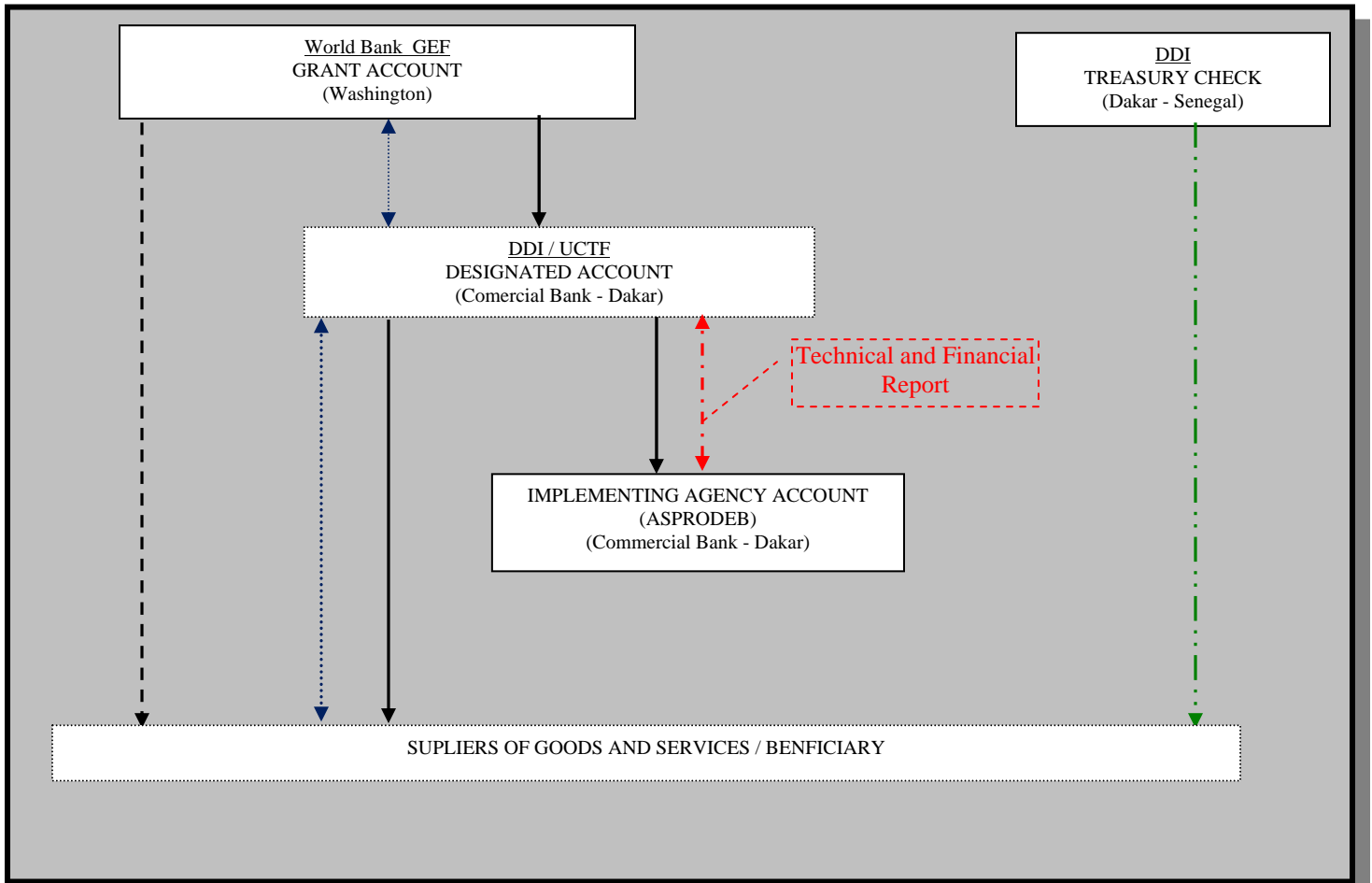
20. The TFCU will also be required to produce, no later than June 30 of the following fiscal year, audited annual financial statements. These financial statements will be subject to periodic audits (see paragraph on audits).

21. ASPRODEB will also produce and submit to the TFCU, in a quarterly basis a technical and financial report.

F. Disbursement and flow of funds arrangements

22. Disbursements will be made in accordance with procedures outlined in the Disbursement Handbook for World Bank Clients. The proceeds of the grant will be disbursed over a four year period or less depending on the implementation speed. On Project closure, a period of four (4) months grace period after the closing date, as agreed with the Bank, will be allowed to complete processing of disbursements for eligible expenditures incurred up to and until the closing date of the grant. The figure below shows the flow of funds and information.

Figure 7.1 - Flow of Funds and Information



Legend:

	Payment
	Direct Payment
	Replenishment Application (SOE: statement of expenditures)
	Technical and Financial Report
	Treasury check in contribution to VAT

23. The disbursement methods (Statement of Expenditures (SOE), reimbursement and direct payment) will be used. All replenishment or reimbursement applications will be submitted monthly. All replenishment or reimbursement applications will be fully documented except for contracts under the prior review threshold to be determined during the procurement assessment. SOE documentation will be retained at the TFCU for review by Bank staff and auditors.

24. A separate Designated Account (DA) in FCFA will be opened in a commercial bank on terms and condition acceptable to the Bank. This Account will be managed by the director of DDI in coordination with the TFCU. The DA will be used for all payments financed by the grant as indicated in the specific terms and condition of the Grant Agreement. Transaction-supporting documentation for SOE will be retained and kept in a safe place by the TFCU, which has the primary responsibility for maintaining all documentation. The Disbursement

Letter, which will form an integral part of the Grant Agreement, will provide details of the disbursement methods, required documentation, DA ceiling and minimum application size. These will also be discussed and agreed during negotiations of the Grant Agreement.

25. ASPRODEB will bear to implement the sub-component: *Supporting the adoption of SLM practices*. ASPRODEB, manage their funds directly through a management services contract. This contract is signed between ASPRODEB and the TFCU. The first advance to ASPRODEB will be subject to the disbursement and financial management provisions of the management services contract. The others advances are withdrawn from the designated account following the submission by ASPODEB of a technical and financial report.

Table 7.3 - Allocation of Grant Proceeds by Component

Components	Amount Allocated (Expressed in US\$)	Percentage of Expenditures to be financed (inclusive of taxes)
A. Support to the Agricultural Research System	600,000	100 %
B. Strengthening Agricultural Advisory Services	700,000	100 %
C. Support to Producer Organizations	2,800,000	100 %
D. Support to Sectoral Coordination	700,000	100 %
Total	4,800,000	

G. Loan condition and other financial covenants

26. *Effectiveness conditions*. The following effectiveness conditions are required:
- (a) the Recipient has revised the Financial and Accounting Procedures Manual and the Project Implementation Manual for the purposes of the Project, in a manner satisfactory to the World Bank;
 - (b) the Recipient has revised the PSAOP II Arrêté to expand the role of the TFCU and the Steering Committee for the purposes of the Project;
 - (c) the TOMPRO software has been updated for the purposes of the Project;
 - (d) the Recipient shall have entered into the Subsidiary Agreement with ASPRODEB and into agreements, in form and substance acceptable to the World Bank, with ISRA, ANCAR, and INP for the implementation of the Project.

H. Supervision Plan

27. Supervision of the financial management arrangements will be risk based. In this regard, in view of the overall financial management residual risk rated for the project, the financial system will be reviewed and assessed and the supervision strategy will be two-site supervisions will be complemented by desk review of the quarterly IFRs submitted to IDA at the end of each calendar quarter. In addition, the FM will annually also review the audited project annual financial statements and the auditor's report and management letter thereon.

Annex 8: Procurement arrangements
SENEGAL: Sustainable Land Management Project

A. General

1. **Procurement in the context of the country.** Following the Government's approval of the 2003 CPAR action plan, the Government adopted in 2007 a new Procurement Code (decree n° 2007-545 dated April 25th, 2007) which complies with the WAEMU Procurement Directives and best international practices. In accordance with this code: (i) A Public Procurement Directorate was created in 2007 (decree N° 2007-547 dated April 25, 2007) for controlling procurement transactions of any public contracting authority; and (ii) a Public Procurement Regulatory Authority (*Autorité de Régulation des Marchés Publics* - ARMP) was set up in 2007 (decree n° 2007-546 dated April 25, 2007) for handling policies, complaints, and audits. These two entities are operational. In addition, the Government has prepared main national bidding documents and is in the process of validating and adopting them. There is no major deviation of the national Code from the Bank's Guidelines, but to allow a full application of the provisions of the World Bank's procurement and selection and employment guidelines, IDA will provide to the Recipient the list of national procurement clauses that are partially or wholly inconsistent with World Bank guidelines.

B. Applicable guidelines

2. Procurement for the proposed Project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004 and revised in October 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004 and revised in October 2006, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Recipient and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

3. **Procurement documents.** Procurement will be carried out using the World Bank's Standard Bidding Documents (SBDs) or Standard Request for Proposal (RFP), respectively, for all ICB for goods and works and recruitment of consultants. For National Competitive Bidding (NCB), while waiting for the Government and the Bank to respectively validate and give the 'no objection' to the national bidding documents in preparation, the Recipient will use the World Bank's SBD for ICB for goods and works, and the Bank's RFP for recruitment of consultants. In the same vein, the Sample Form of Evaluation Reports developed by the World Bank, will be used until the new national samples are reviewed and cleared as satisfactory to the Bank.

4. **Procurement methods.** General Procurement Notices (GPN), Specific Procurement Notices (SPN), Requests for Expression of Interest, and results of the evaluation and contracts award should be published in accordance with advertising provisions in the following guidelines: "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004 and revised by

October 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004 and revised in October 2006.

5. **Procurement of Goods.** Goods procured under this Project would include, but not be limited to, the acquisition of computer hardware, office supplies, equipment, and vehicles. The procurement would be done using the Bank's SBD for all ICB and National SBD agreed with or satisfactory to the Bank.

6. **Selection of Consultants.** Activities needing selection of consultants include, but are not limited to, the update of the Information System for Monitoring & Evaluation, dissemination of competences and technical transfers for Sustainable Land Management in relevant areas, and cartography of targeted areas. Shortlists of consultants for services estimated to cost less than US\$ 200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

7. **Training, Workshops, Study Tours, and Conferences.** The training (including training material and support), workshops, conference attendance and study tours, will be carried out on the basis of approved annual training or activities plans. A detailed training or workshop plan indicating the objectives of the training/workshop, number of trainees/participants, duration, staff months, timing, and estimated costs will be submitted to IDA for review and approval prior to initiating the process. The appropriate methods of selection will be derived from the detailed schedule. After the training, the beneficiaries will be requested to submit a brief report indicating what skill have been acquired and how these skills will contribute to enhance his/her performance and contribute to the attainment of the project objective.

8. The procurement procedures and SBDs to be used for each procurement method, as well as model contracts for works and goods procured, are presented in the Project Implementation Manual.

C. Assessment of the agency's capacity to implement procurement

9. An assessment of the capacity of the procurement staff within the INP and the TFCU was conducted during the period November 14-19, 2008. The assessment reviewed the organizational structure of the INP and the interaction between the project staff responsible for procurement. The objective of the assessment was to update the previous procurement assessment conducted in November 2005 and determine whether the implementing entity (TFCU) continues to offer an acceptable arrangement in line with Bank procedures. Based on the experience with the current PSAOP2 and WAAP projects' implementation, adequate capacity exists within the UCTF (*Unité de Coordination Technique et Fiduciaire*) for procurement reporting requirements. The TFCU team is well versed in the IDA procedures and has handled satisfactorily the procurement under previous and ongoing IDA programs.

10. The key issues and risks concerning procurement for implementation of the Project have been identified and include lack of capacity and insufficient experience of the procurement officer of INP, as well as in procurement and World Bank procedures. The corrective measures which have been agreed are: (i) closer support of the INP procurement officer by the procurement specialist of TFCU who will be designated to provide quality control on all procurement issues including those who are not subject to prior approval by the World Bank; and (ii) training in World Bank procedures for the INP staff involved in procurement.

11. The overall project risk for procurement is moderate.

D. Procurement Plan

12. The Recipient, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Recipient and the Project Team in February 2009 and is available from the TFCU. It will also be available in the Project's database and on the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

E. Frequency of Procurement Supervision

13. In addition to the prior review supervision to be carried out from the Bank's Senegal office, the capacity assessment of the Implementing Agency has recommended supervision missions every six months to visit the field to carry out ex post review of procurement actions.

F. Details of the Procurement Arrangements Involving International Competition

I. Goods, Works, and Non Consulting Services

(a) List of contract packages to be procured following NCB, Quotation and direct contracting:

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior/Post)	Expected Bid-Opening Date	Comments
01	Vehicles and motorcycles	117,600	AON	NO	NO	POST	27/02/09	
02	Office supplies and computer hardware, digital camera, video projector and accessories	211,466	AON	NO	NO	POST	30/01/09	
03	Office furniture	11,620	QUOTA-TION	NO	NO	POST	30/01/09	

(b) ICB contracts estimated to cost above US\$ 500,000 per contract and all direct contracting will be subject to prior review by the Bank.

II. Consulting Services

(a) List of consulting assignments with short list of international firms.

1	2	3	4	5	6	7
Ref. No.	Description of Assignment	Estimated Cost	Selection Method	Review by Bank (Prior/Post)	Expected Proposals Submission Date	Comments
01	Setting the parameters of accounting software	1,100	Direct contracting	PRIOR	30/01/09	TFCU
02	Updating monitoring and evaluation information system	13,400	Direct contracting	PRIOR	30/01/09	Technical and Fiduciary coordination subcomponent (D2): TFCU
03	Selection of an auditor of the accounts for duration of Project	19,500	QCBS	PRIOR	30/03/09	TFCU
04	Development of SLM/CIS	75,000	QCBS	POST	30/05/09	Sectoral coordination sub-component (D1)
05	Mapping of intervention areas	40,000	IC	POST	30/03/09	D1
06	Support to identifying public and private services providers	14,420	QCBS	POST	30/02/09	D1
07	Development of training plan on SLM practices and techniques	38,460	QCBS	POST	30/06/09	D1
08	Support to dissemination and transfer of appropriate SLM techniques and practices in each area and for type of degradation	14,4230	QCBS	POST	30/08/09	D1
09	Capitalization of SLM experiences	3,360	QCBS	POST	30/07/09	D1
10	Production of a manual of standards adapted to SLM	2,884	IC	POST	30/04/09	ASPRODEB
11	Development of training modules	1,730	IC	POST	30/03/09	ASPRODEB
12	Monitoring of training	7,000	IC	POST	30/11/09	ASPRODEB
13	Identification and listings of SLM practices and techniques	24,000	IC	POST	30/07/09	D1

(b) Consultancy services estimated to cost above US\$ 200,000 per contract and single source selection of consultants will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US\$ 200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Annex 9: Economic and financial analysis
SENEGAL: Sustainable Land Management Project

1. This operation aims at increasing the productivity of land resources in the Senegal Groundnut Basin by promoting the use of sustainable land management technologies and practices among farmers. This economic and financial analysis assesses whether the investment of this operation is economically and financially profitable. The same approach and methodology used to assess the economic and financial soundness of PSAOP2 is used to assess the economic and financial soundness of this operation in the sub-agro-ecological zones in the Senegal Groundnut Basin (ref. Table 9.1).

A. Economic analysis and financial analysis: Assumptions and methodology

2. **Economic analysis** (ref. Tables 9.2 and 9.3): A cost-benefit approach is used for the economic analysis. The analysis compares the additional investment and recurrent costs for farmers in adopting new technologies with expected benefits. The analysis assesses trends in the cost and benefit parameters "with" and "without" the Project. The profits resulting from the project come from the increase in agricultural yields and cultivated land achieved by introducing the technologies proposed in the Project. The estimated production levels in the "with project" (ref. Table 9.3) scenario are the increase in cultivated land and yield induced by Project as compared to "without Project" levels (ref. Table 9.2). Through research and extension efforts the Project will make available new/improved SLM technologies to farmers. This will result in an increase in cultivated areas and output. Thus, the Project impacts on production levels (or real production) are driven by the estimated SLM technologies adoption rate patterns. The impacts are only effective with farmers adopting new technologies. The probability of a farmer adopting SLM technologies is estimated on the basis of the complexity and feasibility of the technology proposed and the farmer's experience and willingness. The incremental production is, thus, the sum of improved production levels due to increase in land and yield induced by SLM technologies adopters. Three different types of costs are considered: SLM "public investments" (in the collective agricultural support sector and producer organizations), "private investments" (individual investment in agricultural equipment to maximize available opportunities) and "additional costs of production" caused by the adoption of new technologies. Economic prices are considered in this assessment and are obtained by adjusting observed distortions in financial prices (taxes, export duties, etc.). Three sub-agro-ecological zones in the Groundnut Basin (i.e. North, Center and South) are chosen to assess incremental production over years with and without project. The key assumption made is that the technology adoption rate would vary between 20 and 45 percent, depending on the zones and crop under the technologies used.

3. **Financial analysis:** For the financial analysis, a "with" and "without" assessment (ref. Table 9.4) was made on the basis of the standard farm model and cultivated crops within each of the three above-mentioned sub-agro-ecological zones (ref. Table 9.1). For each farm model/agricultural crop, the rates of change in land area, yield and production over the fifteen last years (1994-2008) at the department and regional level were calculated. The "without project" scenario is developed using the current fluctuating trends in land area and average yields. The "with project" scenario takes into account the option for improving yields and

cultivated land with the support of project components, using an estimated technology adoption rate.

B. Results

4. The results of the analysis show the economic and financial soundness of the project.

5. **Economic analysis:** Under the above-described assumptions, the economic assessment shows the economic viability of the SLM operation from the perspective of the national economy. The economic Internal Rate of Return (IRR) calculated from the project is 35 percent, with a Net Present Value (NPV) of FCFA 1,772,090,620.15 billion (US\$ 3.5 million) over the three years of the operation, with an assumed capital opportunity cost of 20 percent. The IRR would be 93 percent, with a NVP of FCFA 19 billion (US\$ 38 million) for the horizon 2009-2013. The Project profitability (ref. Table 9.5) appears sensitive to decrease in targeted yields (switching value of -5 percent), to the rate of adoption (-10 percent), and extremely sensitive to decrease in market prices (-3 percent).

6. **Financial analysis:** The financial analysis shows an IRR of 27 percent over the opportunity cost of capital estimated at 20 percent and farmer NVP of FCFA 49,091,067 million (US\$ 98,000) (ref. Table 9.4).

Table 9.1: Standard type of farm by targeted sub-zone in the Peanut Basin of Senegal

Sub-zones	Administrative Districts	Household average cultivated area	Type of crops	Average cultivated area by crop
North of Peanut Basin (NPB)	LOUGA KEBEMER TIVAOUNE	5 ha	Peanut Millet Cowpeas	3 ha 1.5 ha 0.5 ha
Center of Peanut Basin (CPB)	THIES DIOURBEL GOSSAS NORD FATICK	4 ha	Peanut Millet/sorghum Cowpeas Cassava	2 ha 1.7 ha 0.15 ha 0.15 ha
South of Peanut Basin (SPB)	KAOLACK KAFFRINE SUD FATICK	4.5 ha	Peanut Millet Upland Rice Maize Cowpeas Cassava	2.5 ha 1 ha 0.25 ha 0.25 ha 0.50 ha 0.10 ha

Sources: PIGES (2007) ; ISRA/CNBA (2008)

Table 9.2: Economic Assessment of the Sustainable Land Management Project

WITHOUT PROJECT DATA IN THE PEANUT BASIN

Year	Peanut			Millet			Cowpea			Cassava			Rice			Maize		
	Areas cultivated (ha)	Production (t)	yield (t/ha)	Areas cultivated (ha)	Production (t)	yield (t/ha)	Areas cultivated (ha)	Production (t)	yield (t/ha)	Areas cultivated (ha)	Production (t)	yield (t/ha)	Areas cultivated (ha)	Production (t)	yield (t/ha)	Areas cultivated (ha)	Production (t)	yield (t/ha)
1994	720 639	505 248	0.701	838 888	481 696	0.574	82 308	27 089	0.329	30 659	76 915	2.509	1 721	2 802	1.628	39 549	35 341	0.894
1995	693 521	646 175	0.932	818 058	618 573	0.756	85 592	38 465	0.449	17 457	55 515	3.180	1 785	3 542	1.984	35 444	42 189	1.190
1996	709 287	458 878	0.647	921 722	588 986	0.639	75 772	13 477	0.178	14 011	36 985	2.640	3 713	6 486	1.747	38 320	42 151	1.100
1997	609 858	380 089	0.623	772 370	391 160	0.506	112 054	19 855	0.177	19 937	46 564	2.336	774	810	1.047	26 535	25 108	0.946
1998	384 601	382 968	0.996	687 614	380 413	0.553	109 738	35 462	0.323	13 247	65 608	4.953	1 760	3 127	1.777	20 246	20 089	0.992
1999	570 185	541 705	0.950	864 204	474 164	0.549	144 702	49 184	0.340	16 294	42 117	2.585	2 574	4 581	1.780	21 835	23 274	1.066
2000	692 686	625 597	0.903	662 349	458 601	0.692	121 846	37 956	0.312	27 179	132 859	4.888	704	1 039	1.476	26 140	30 106	1.152
2001	724 180	693 950	0.958	641 867	373 798	0.582	85 057	27 840	0.327	27 794	137 893	4.961	978	1 312	1.342	29 608	33 709	1.139
2002	677 432	165 887	0.245	692 596	357 326	0.516	121 421	11 360	0.094	29 184	107 298	3.677	1 123	1 302	1.159	42 167	24 784	0.588
2003	397 087	289 534	0.729	810 280	588 802	0.727	132 974	31 238	0.235	30 643	109 444	3.572	1 210	1 036	0.856	65 675	126 710	1.929
2004	571 790	402 230	0.703	632 970	253 059	0.400	165 807	8 792	0.053	32 175	111 633	3.470	722	387	0.536	59 842	157 463	2.631
2005	612 635	433 609	0.708	688 012	401 404	0.583	125 421	25 594	0.204	29 395	120 915	4.113	947	1 017	1.074	44 686	66 481	1.488
2006	596 625	398 964	0.669	693 145	389 294	0.562	126 136	23 029	0.183	29 838	118 114	3.959	996	989	0.993	48 396	75 252	1.555
2007	571 114	348 831	0.611	703 401	392 138	0.557	134 352	20 640	0.154	30 247	113 666	3.758	1 000	923	0.924	52 153	85 438	1.638
2008	549 850	376 083	0.684	705 562	399 208	0.566	136 938	22 683	0.166	30 460	114 961	3.774	975	855	0.877	54 150	100 087	1.848
2009	580 403	391 737	0.675	684 618	365 332	0.534	137 731	20 906	0.152	30 423	116 055	3.815	928	817	0.881	51 846	94 986	1.832
2010	582 125	389 580	0.669	694 948	389 446	0.560	132 116	22 663	0.172	30 072	116 795	3.884	969	920	0.950	50 246	84 025	1.672
2011	576 023	381 056	0.662	696 335	387 016	0.556	133 454	22 025	0.165	30 208	115 933	3.838	974	900	0.925	51 358	87 780	1.709
2012	571 903	377 510	0.660	696 972	386 556	0.555	134 918	21 793	0.162	30 282	115 486	3.814	969	883	0.911	51 951	90 395	1.740
2013	572 061	383 255	0.670	695 687	385 444	0.554	135 031	22 024	0.163	30 289	115 851	3.825	963	875	0.909	51 910	91 381	1.760

Table 9.3 : Economic Analysis

WITH PROJECT

Year	Peanut Areas cultivated	Yield (t/ha)	Adoption rate %	Production	Real Production	Millet Areas cultivated	Yield (t/ha)	Adoption rate %	Production	Real Production
2008	549 850	0,684		376 083		705 562	0,566		399 208	
2009	566 346	0,704	0,40	398 987	392 014	706 267	0,577	0,35	407 600	402 405
2010	588 999	0,740	0,50	435 694	425 320	720 393	0,618	0,46	444 854	428 993
2011	618 449	0,754	0,63	466 192	462 925	742 004	0,661	0,61	490 274	477 901
2012	624 634	0,829	0,84	517 940	510 583	749 424	0,681	0,77	510 032	506 583
2013	625 259	0,846	0,97	528 827	528 519	756 919	0,694	0,82	525 435	523 596
Year	Cowpea Areas cultivated	Yield (t/ha)	Adoption rate %	Production	Real Production	Cassava Areas cultivated	Yield (t/ha)	Adoption rate %	Production	Real Production
2008	136 938	0,166		22 683		30 460	3,774		114 961	
2009	141 046	0,176	0,45	24 765	23 994	31 373	4,001	0,30	125 514	120 541
2010	146 688	0,191	0,54	28 074	27 007	32 628	4,361	0,36	142 283	134 764
2011	154 022	0,214	0,65	33 015	31 769	34 260	4,884	0,50	167 325	158 433
2012	154 484	0,240	0,84	37 087	36 461	35 288	5,226	0,71	184 409	180 857
2013	156 029	0,245	0,99	38 207	38 203	35 640	5,330	0,85	189 978	189 407
Year	Rice Areas cultivated	Yield (t/ha)	Adoption rate %	Production	Real Production	Maize Areas cultivated	Yield (t/ha)	Adoption rate %	Production	Real Production
2008	975	0,877		855		54 150	1,848		100 087	
2009	1 004	0,929	0,25	933	894	55 775	1,959	0,27	109 275	104 759
2010	1 044	1,013	0,33	1 058	999	58 006	2,136	0,35	123 874	117 236
2011	1 097	1,134	0,49	1 244	1 176	60 906	2,392	0,53	145 676	138 285
2012	1 173	1,271	0,73	1 491	1 448	61 089	2,464	0,79	150 496	149 574
2013	1 185	1,296	0,88	1 536	1 532	61 150	2,468	0,87	150 948	150 908

Level of additional production increase induced by the project

Year	Peanut (tons)	Millet (tons)	Cowpea (tons)	Cassava (tons)	Rice (tons)	Maize (tons)
2009	277	37 072	3 088	4 486	76	9 773
2010	35 740	39 547	4 344	17 969	78	33 211
2011	81 868	90 885	9 745	42 499	275	50 506
2012	133 073	120 027	14 668	65 371	565	59 180
2013	145 264	138 153	16 178	73 556	657	59 527

Estimation of agricultural crops prices

Nominal Prices		Consumer Price Index		Manufactures Unit Value Index	
Year	FCFA/ton	Year	Base 2008	Year	Base 2008
2009	180 000	2009	1,058	2009	1,002
2010	181 800	2010	1,119	2010	1,008
2011	183 618	2011	1,177	2011	1,014
2012	185 454	2012	1,252	2012	1,021
2013	187 309	2013	1,324	2013	1,027

Year	Peanut FCFA/ton	Millet FCFA/ton	Cowpea FCFA/ton	Cassava FCFA/ton	Rice FCFA/ton	Maize FCFA/ton
2009	180 000	250 000	350 000	50 000	150 000	300 000
2010	181 800	250 000	353 500	50 500	160 000	300 000
2011	183 618	252 500	357 035	51 005	161 600	303 000
2012	185 454	255 025	360 605	51 515	163 216	306 030
2013	187 309	257 575	364 211	52 030	164 848	309 090

Additional income increase induced by by the project

Year	Additional income increase induced by by the project						Total induced income	
	Peanut	Millet	Cowpea	Cassava	Rice	Maize	Nominal FCFA	Real income FCFA
2009	49 876 793	9 268 088 723	1 080 887 745	224 286 443	11 437 721	2 931 946 989	13 566 524 414	12 827 491 956
2010	6 497 588 664	9 886 835 405	1 535 707 281	907 459 113	12 555 483	9 963 316 207	28 803 462 153	25 750 815 859
2011	15 032 509 659	22 948 551 940	3 479 249 840	2 167 681 931	44 493 254	15 303 180 127	58 975 666 751	50 119 772 866
2012	24 678 851 563	30 609 833 137	5 289 412 721	3 367 569 237	92 213 569	18 110 732 660	82 148 612 887	65 632 778 125
2013	27 209 174 330	35 584 685 340	5 892 345 571	3 827 131 898	108 346 285	18 399 245 325	91 020 928 749	68 752 521 084

Estimated investment and additional technology adoption costs

Year	Additional cost of production induced by technology adoption						Total cost of adoption	
	Peanut	Millet	Cowpea	Cassava	Rice	Maize	Nominal FCFA	Real costs FCFA
2009	9 967 682 830	6 797 821 770	2 583 259 300	541 190 493	12 879 971	956 261 912	20 859 096 276	19 722 803 093
2010	13 605 887 063	9 464 607 250	3 385 102 986	709 176 022	18 284 407	1 357 509 410	28 540 567 139	25 515 782 964
2011	18 750 613 109	13 818 563 200	4 478 491 251	1 094 613 190	30 237 838	2 244 981 186	40 417 499 775	34 348 334 154
2012	26 844 784 023	18 318 232 842	6 131 479 979	1 657 353 832	50 958 317	3 546 452 905	56 549 261 897	45 180 131 823
2013	32 447 491 785	20 786 339 944	7 672 872 731	2 109 148 486	64 849 554	4 100 249 258	67 180 951 758	50 745 030 463

Year	Investment costs				Private Agricultural costs		Real total investment	Total project costs	
	Public investment costs		Operating costs	Agricultural costs	Nominal total investment	Real investment		Nominal FCFA	Real FCFA
	Service	Equipment							
2009	190 503 077	178 896 462	642 245 000	0	1 011 644 539	965 854 209	21 870 740 814	20 688 657 302	
2010	89 630 000		1 035 135 000	14 100 000	1 138 865 000	1 018 165 898	29 679 432 139	26 533 948 861	
2011	77 600 000		324 340 000	126 900 000	528 840 000	449 428 419	40 946 339 775	34 797 762 573	
2012						0	56 549 261 897	45 180 131 823	
2013						0	67 180 951 758	50 745 030 463	

Project net return and economic indicators

Year	Ream income total	Real costs total	Net Margin
2009	12 827 491 956	20 688 657 302	-7 861 165 346
2010	25 750 815 859	26 533 948 861	-783 133 003
2011	50 119 772 866	34 797 762 573	15 322 010 293
2012	65 632 778 125	45 180 131 823	20 452 646 303
2013	68 752 521 084	50 745 030 463	18 007 490 621

IRR (2009-2011) **35 %** IRR (5 years) **93 %**
 NPV (3 years) **1 772 090 620.15 F** NPV (5 years) **18 872 249 034.09**

IRR= Internal Rate of Return; NPV= Net Present Value

Table 9.4 : Financial Analysis

WITHOUT PROJECT	LOUGA			THIES			KAOLACK			FATICK					
	NORTHERN PEANUT BASIN (NPP)			DIORBEL			CENTER OF PEANUT BASIN (CPB)			SOUTHERN PEANUT BASIN (SPB)					
	Peanut	Millet	Cowpea	Peanut	Millet	Cowpea	Millet	Cowpea	Cassava	Peanut	Millet	Upland rice	Maize	Cowpea	Cassava
Agricultural crops	3 ha	1.5ha	0.5 ha	2 ha	1.7 ha	0.15 ha	1 ha	0.25 ha	0.15 ha	2.5 ha	1 ha	0.25 ha	0.25 ha	0.50 ha	0.10 ha
Average household cultivated area (ha)	7 500	5 000	10 000	9 000	7 000	12 000	20 000	20 000	12 000	15 000	20 000	20 000	20 000	5 000	8 000
Crop budget /ha	8 000	4 200	10 000	9 375	4 200	60 000	4 200	9 000	60 000	10 000	9 000	3 000	3 000	10 000	40 000
Land Preparation	30 000	8 750	37 500	36 000	17 500	14 000	35 000	52 500	14 000	45 000	52 500	45 000	45 000	37 500	7 000
Seed/ha	2 000	9 000	2 000	3 000	6 000	1 000	10 500	5 000	1 000	3 000	10 500	5 000	5 000	7 000	1 000
Fertilizer	11 200	8 000	8 000	13 200	10 000	6 000	21 200	8 000	6 000	21 200	8 000	6 000	6 000	18 000	4 000
Organic manure	10 000	15 000	5 000	15 000	15 000	30 000	35 000	45 000	30 000	35 000	45 000	35 000	35 000	25 000	25 000
Phyto-sanitary Products	68 700	41 950	62 500	85 575	49 700	67 500	99 700	134 500	123 000	129 200	134 500	114 000	114 000	102 500	85 000
Labor (Harvest and post harvest labor)	464	271	241	607	404	260	727	1 470	5 000	915	1 470	1 300	1 300	396	3 524
Total Cost/ha	83 520	67 750	84 350	109 260	101 000	91 000	181 750	183 750	250 000	164 700	183 750	195 000	195 000	138 600	176 200
Actual average yield/zone (kg/ha)	54 820	25 800	21 850	63 685	51 300	23 500	82 050	49 250	127 000	75 500	49 250	81 000	81 000	36 100	91 200
Production Income															
Gross Margin															
WITH PROJECT															
Land Preparation	7 500	5 000	5 000	20 000	9 000	10 000	20 000	30 000	18 000	20 000	30 000	30 000	30 000	7 000	18 000
Seed/ha	12 800	4 550	12 500	13 600	4 550	12 500	4 550	12 000	65 000	16 000	12 000	3 000	3 000	12 500	60 000
Fertilizer	45 000	67 500	52 500	52 500	75 000	61 250	87 500	132 500	52 500	82 500	132 500	92 500	92 500	52 500	43 750
Organic manure	2 000	4 000	5 000	7 000	5 000	8 000	12 000	7 000	10 000	5 000	12 000	7 000	7 000	10 000	14 000
Phyto-sanitary Products	21 200	6 000	20 250	28 200	10 000	18 000	11 250	34 500	20 250	46 200	34 500	6 750	6 750	20 250	15 750
Labor (Harvest and post)	15 000	22 500	15 000	35 000	45 000	37 500	45 000	45 000	70 000	40 000	45 000	45 000	45 000	25 500	65 000
Total Cost/ha	103 500	109 550	110 250	156 300	148 550	147 250	180 300	254 000	235 750	209 700	254 000	184 250	184 250	127 750	216 500
Expected yield (Kg/ha)	700	700	500	1 100	1 200	600	1 400	2 500	8 000	1 500	2 500	2 500	2 500	600	7 500
Production Income FCFA	126 000	175 000	175 000	198 000	300 000	210 000	350 000	312 500	400 000	270 000	312 500	375 000	375 000	180 000	375 000
GROSS MARGIN	67 500	65 450	64 750	86 700	151 450	62 750	169 700	58 500	164 250	105 300	58 500	190 750	190 750	52 250	158 500

WITHOUT PROJECT	North of Peanut Basin	Center of Peanut Basin	South of Peanut Basin
Total household production			
Cost/Zone	300 275	284 215	544 575
Gross household revenue/zone	394 360	441 370	775 108
Gross household margin/zone	214 085	237 155	330 533
WITH PROJECT			
Total household production			
Cost/zone	529 950	622 585	899 638
Gross household revenue/zone	728 000	997 500	1 324 375
Gross household margin /zone	333 050	464 915	537 238
Types of technologies	land preparation+fertilizer+rehabilitation	stone lines+live fences	organic manure+stone lines+Reafforestation
Estimated Cost per technology	30 000	95 000	202 500
	55 000	140 000	72 000
Total technology Cost/household	85 000	235 000	274 500
% Targeted producers by zone (Total of 2000 targeted producers)	500	700	800
	Benefit	Cost	
2009	921 755 500	1 518 564 500	-596 809 000
2010	1 751 335 450	1 556 529 083	194 806 367
2011	2 189 169 313	1 478 702 629	710 466 683
2012	2 232 952 699	1 330 832 366	902 120 333
2013	2 235 185 651	998 124 275	1 237 061 377
		IRR (3 years)	27 %
		NPV (3 years)	49 091 067

Table 9.5 : Sensitivity Analysis

Factors of sensitivity	Level of IRR = Cost of Capital opportunity Rate (20 %)	NPV (FCFA)
Decrease in agricultural crop prices by 3 %	20 %	44,199,505
Decrease in level of yield by 5 %	20 %	-28,411,401
Decrease in Adoption Technology Rate by 10 %	20 %	30,114,979

Annex 10: Safeguard policy issues

SENEGAL: Sustainable Land Management Project

1. PSAOP2 is a national program covering activities in agriculture and animal husbandry. The scope of the ESMF for the program and the SLM is not only national but also local in order to take into account the specific impacts of sub-projects at the local level regardless of their eco-geographical location. While PSAOP2 is concerned with four safeguard policies namely, Environmental Assessment (OP/BP 4.01); Pest Management (OP 4.09); Involuntary Resettlement (OP/BP 4.12); and Projects on International Waterways (OP/BP 7.50). The Project is concerned with only the first three policies. The OP/BP 7.50 on International Waterways is not triggered as the areas covered by the SLM project are not concerned at all by International Waterways. The OP/BP4.04 (Natural Habitats) and OP/BP4.36 (Forests) are not triggered, because the project will only intervene in degraded agricultural lands. No sub-project will be approved if forests or natural habitats are affected. An important aspect of the ESMF is the screening of sub-projects under SLM. This process includes norms and standards set forth under PSAOP2.
2. The environmental screening process supplements national procedures, which do not include the screening and classification of sub-projects. Thus, each sub-project will be categorized as a result of the screening. This will be an important factor in making approval decisions on sub-projects at the local level. This selection process will determine: (i) The activities likely to have negative impacts on the environment as well as negative social impacts such as taking land from a poor household; (ii) the mitigation measures for those activities if possible; (iii) the activities requiring a specific environmental assessment; (iv) the roles and institutional responsibilities for analyzing and approving sub-projects and implementing and following up corrective measures and the preparation of specific EAs.
3. The ESMF will allow institutions such as ANCAR and ASPRODEB as well decentralized technical services of agriculture, animal husbandry, environment, and local government to assess prospectively the potential social and environmental impacts of proposed sub-projects on the basis of a checklist and formulate mitigation or compensation measures. If there is a need for capacity building, provision has been made for such activities.
4. Although the Project is expected to have positive environmental impacts because it will finance interventions to reduce land degradation, some localized negative environmental (construction of small scale agricultural infrastructure e.g. small dams, storage tanks, etc.) and social impacts (land conflicts, conflicts between farmers and herders) may be possible and will be addressed through the environmental screening process of sub-projects.
5. Under PSAOP2, the costs of implementing the ESMF including technical measures, capacity building, information, sensitization and communication were estimated at US\$ 480,000. The SLM being a package of pilot activities mainstreaming sustainable agricultural management techniques as well as environmental and social safeguards, it is proposed to increase this budget slightly to US\$ 500,000 in order to cover additional sub-projects related to mitigation measures.

Annex 11: Project preparation and supervision
SENEGAL: Sustainable Land Management Project

	Planned	Actual
PCN review	08/27/2008	08/27/2008
Initial PID to PIC	08/07/2008	08/27/2008
Initial ISDS to PIC	08/07/2008	08/27/2008
Appraisal	04/30/2008	02/25/2009
Negotiations	04/15/2009	05/08/2009
Board/RVP approval	05/28/2009	08/06/2009
Planned date of effectiveness	06/30/2009	09/16/2009
Planned date of mid-term review	Dec. 2010	01/23/2011
Planned closing date	June 2012	06/30/2012

1. Key institutions responsible for preparation of the project are: Ministry of Agriculture, Ministry of Livestock, Ministry of Economy and Finance (*Direction de la Coopération Economique et Financière*: DCEF), Ministry of Environment (*Direction de l'Environnement et des Etablissements Classés*: DEEC), Technical and Fiduciary Coordination Unit of PSAOP2, ISRA, ITA, FNRAA, ANCAR, ASPRODEB, DAPS, DA, INP, and DEC.
2. Bank staff and consultants who worked on the project included:

Name	Title	Unit
Maniével Sène	Rural Development Specialist, Team Leader	AFTAR
Matteo Marchisio	Environmental Specialist	AFTEN
Soulemane Fofana	Operations Officer	AFTAR
Demba Baldé	Social Development Specialist	AFTCS
Osva Romao Rocha	Financial Management Specialist	AFTFM
Sidy Diop	Procurement Specialist	AFTPC
Nathalie S. Munzberg	Senior Counsel	LEGAF
Ronnie W. Hammad	Senior Operations Officer	AFTRL
Anta Tall Diallo	Team Assistant	AFCF1
Amadou Ablaye Fall	Senior Agro-Economist	ISRA
Jean Pierre Ndiaye	Senior Soil Scientist	ISRA
Elisabeth Mekonnen	Language Program Assistant	AFTAR

3. Bank funds expended to date on project preparation:
 1. Bank resources: US\$ 125,462.29
 2. Trust funds: NA
 3. Total: US\$ 125,462.29
4. Estimated Approval and Supervision costs:
 1. Remaining costs to approval: US\$ 1,000
 2. Estimated annual supervision cost: US\$ 33,000

Annex 12: Documents in the project file
SENEGAL: Sustainable Land Management Project

1. République du Sénégal (October 2006), *Document de Stratégie pour la Croissance et la Réduction de la Pauvreté 2006-2010*
2. The World Bank (May 25, 2006), *Project Appraisal Document for an Agricultural Services and Producer Organization Project 2 in support of the second phase of the Agricultural Services and Producer Organization Program*
3. The World Bank (June 29, 2008), *Country Environmental Analysis* (Final report)
4. The World Bank (June 29, 2008), *Country Environmental Analysis* (Brochure)
5. The World Bank (June 29, 2008), *Analyse Environnementale Pays* (Rapport final)
6. The World Bank (June 27, 2008), *Analyse Environnementale Pays* (Plaquette)
7. The World Bank (December 2008), *Aide Mémoire Mission de Préparation 10-22 Novembre 2008*
8. UCTF (December 2008), *Rapport – Composantes de Projet* (draft)
9. UCTF (December 2008), *Budget consolidé composantes* (draft)
10. UCTF (December 2008), *Rapport de Mission – Choix des Sites d’Intervention*
11. INP (November 2008), *Liste de Membres de Groupe GDT*
12. République du Sénégal, *Décret 2004-802 du 28 juin 2004 portant création, organisation et fonctionnement de l’Institut national de pédologie (I.N.P)*
13. Faye, Mbaye Mbengue (September 2008), *Actualisation du CADRE DE GESTION ENVIRONNEMENTALE ET SOCIALE (CGES)* (Rapport final)
14. Fall, Abdoulaye A. (January 2009), *Impact Economique et Financier du Projet de Gestion Durable de Terres*
15. Centre de Suivi Ecologique (February 2009), *Map of Areas targeted by the Project*
16. Centre de Suivi Ecologique (February 2009), *Carte du Couverture Végétale*
17. Centre de Suivi Ecologique (February 2009), *Map of Biomass values in the Groundnut Basin*
18. Centre de Suivi Ecologique (February 2009), *Average Values of Biomass in the Groundnut Basin*

19. CERDI-UGB (August 2008), *ANALYSE DE LA SITUATION DE REFERENCE DE L'ETUDE D'IMPACT DU PROGRAMME DES SERVICES AGRICOLES ET ORGANISATIONS DE PRODUCTEURS-PHASE 2 (PSAOP II)* (Rapport Provisoire)
20. AfDB, FAO (June 24, 2005), *PGIES - Programme de Gestion Intégrée des Eaux et des Sols* (Rapport de Préparation)
21. Terradigm (October 17, 2006), *Diagnostic Report on Land Degradation and Sustainable Land Management in Senegal* (draft)
22. Terradigm (October 17, 2006), *Diagnostic Report on Land Degradation and Sustainable Land Management in Senegal – Annexes* (draft)
23. Terradigm (March 27, 2007), *Annexe avec Options d'Investissement pour la mise en oeuvre et l'élargissement d'une Gestion Durable des Terres effective et efficace dans les zones prioritaires du Sénégal* (draft)
24. UNDP (March 2008), *Innovations in Micro Irrigation for Dryland Farmers – Project Document* (draft)
25. UNDP (September 2007), *PROGERT – Fiche Synoptique de Présentation*
26. UNDP, *PROGERT – Project Document*
27. UNDP (September 2007), *PGIES - Fiche synoptique de Présentation*
28. Israeli Embassy (2009), *TIPA : Techno-agricultural Innovation for Poverty Alleviation - Fiche synoptique de Présentation*

Annex 13: Statement of loans and credits
SENEGAL: Sustainable Land Management Project

Project ID	FY	Purpose	Original Amount in US\$ Millions				Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF			Orig.	Frm. Rev'd
P087304	2009	SN-Dakar -Diamniado Toll Highway Project	0.00	105.00	0.00	0.00	0.00	110.82	0.00	0.00
P105881	2009	SN-Sustainable Mgt of Fish Resources	0.00	3.50	0.00	0.00	0.00	3.55	0.00	0.00
P115938	2009	SN-Nutrition/Cash Transfer Proj	0.00	10.00	0.00	0.00	0.00	10.48	0.00	0.00
P107288	2009	SN-DPO fast-track-Public	0.00	60.00	0.00	0.00	0.00	62.63	0.00	0.00
P092062	2009	SN-GEF Sustainable Mngt of Fish Resources	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00
P105279	2008	SN-En. Sec. Recov. Dev Policy Financing	0.00	80.00	0.00	0.00	0.00	23.24	25.62	0.00
P097181	2007	SN-Nutr Enhanc. Prog II - APL	0.00	15.00	0.00	0.00	0.00	4.09	-1.34	0.00
P089254	2007	SN-Quality EFA APL 2	0.00	30.00	0.00	0.00	0.00	19.84	9.20	0.00
P084022	2007	SN-Local Authorities Development Program	0.00	80.00	0.00	0.00	0.00	65.31	28.14	0.00
P093622	2006	SN-Agr Svcs & Prod Orgs APL 2	0.00	20.00	0.00	0.00	0.00	9.51	3.26	0.00
P083609	2006	SN-Agr Markets & Agribus Dev	0.00	35.00	0.00	0.00	0.00	25.96	6.01	0.00
P088656	2006	SN-Participatory Loc Dev Prgm	0.00	50.05	0.00	0.00	0.00	34.31	30.32	0.00
P086480	2005	SN-GIRMAC SIL	0.00	10.00	0.00	0.00	0.00	3.27	1.85	0.00
P058367	2005	SN-GEF Intg Marine and Coastal Resources Management	0.00	0.00	0.00	5.34	0.34	2.13	0.00	0.00
P085708	2005	SN-Elec. Serv. for Rural Areas	0.00	29.90	0.00	0.00	0.00	19.08	17.41	0.41
P073477	2005	SN-Elec Sec Effi. Enhanc.Phase 1 APL-1	0.00	15.70	0.00	0.00	0.00	12.34	12.08	6.09
P069207	2005	SN-Casamance Emerg Reconstr Supt	0.00	20.00	0.00	0.00	0.00	4.51	3.53	0.00
P051609	2003	SN-Priv Inv Promotion SIL	0.00	46.00	0.00	0.00	0.00	15.87	11.15	3.91
P074059	2002	SN-HIV/AIDS Prevent & Control APL	0.00	30.00	0.00	0.00	0.00	9.10	3.85	3.85
Total:			0.00	640.15	0.00	11.34	0.34	436.04	153.76	14.26

SENEGAL
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

FY Approval	Company	Committed					Disbursed Outstanding				
		Loan	Equity	**Quasi Equity	*GT/RM	Partici pant	Loan	Equity	**Quasi Equity	*GT/RM	Partici pant
1980	Bhs	0	0.46	0	0	0	0	0.46	0	0	0
2008	Chain hotel	9.1	0	0	0	0	9.1	0	0	0	0
1999	Ciments du sahel	2.6	0.91	0	0	0	2.6	0.91	0	0	0
1997/98	Gti dakar	8.16	1.68	0	1.2	6.26	8.16	1.51	0	1.17	6.26
2005	Kounoune	18.63	0	0	0	0	16.57	0	0	0	0
2007	Sococim	26.01	0	0	0	0	26.01	0	0	0	0
Total Portfolio:		64.5	3.05	0	1.2	6.26	62.44	2.88	0	1.17	6.26

* Denotes Guarantee and Risk Management Products.

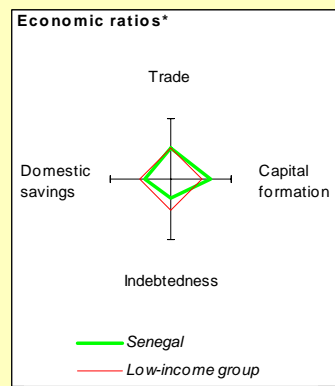
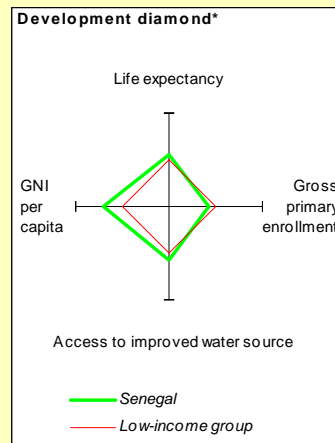
** Quasi Equity includes both loan and equity types.

Total pending commitment: 0.00 0.00 0.00 0.00

Annex 14: Country at a glance

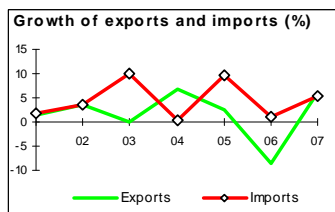
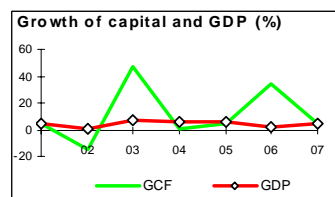
SENEGAL: Sustainable Land Management Project

POVERTY and SOCIAL	Sub-Saharan Africa				
	Senegal	Africa	Low-income		
2007					
Population, mid-year (millions)	12.4	800	1296		
GNI per capita (Atlas method, US\$)	820	952	578		
GNI (Atlas method, US\$ billions)	10.2	762	749		
Average annual growth, 2001-07					
Population (%)	2.6	2.5	2.2		
Labor force (%)	2.3	2.6	2.7		
Most recent estimate (latest year available, 2001-07)					
Poverty (% of population below national poverty line)		
Urban population (% of total population)	42	36	32		
Life expectancy at birth (years)	63	51	57		
Infant mortality (per 1,000 live births)	60	94	85		
Child malnutrition (% of children under 5)	15	27	29		
Access to an improved water source (% of population)	77	58	68		
Literacy (% of population age 15+)	39	59	61		
Gross primary enrollment (% of school-age population)	80	94	94		
Male	81	99	100		
Female	79	88	89		
KEY ECONOMIC RATIOS and LONG-TERM TRENDS					
	1987	1997	2006	2007	
GDP (US\$ billions)	5.0	4.7	9.3	11.2	
Gross capital formation/GDP	14.7	14.8	28.9	31.9	
Exports of goods and services/GDP	21.2	27.3	25.4	24.8	
Gross domestic savings/GDP	7.0	8.6	10.5	13.9	
Gross national savings/GDP	2.7	10.8	18.3	21.4	
Current account balance/GDP	-11.0	-4.0	-10.6	-9.0	
Interest payments/GDP	2.4	16	0.8	..	
Total debt/GDP	79.9	81.2	214	..	
Total debt service/exports	31.9	17.3	6.0	..	
Present value of debt/GDP	12.9	..	
Present value of debt/exports	35.4	..	
	1987-97	1997-07	2006	2007	2007-11
<i>(average annual growth)</i>					
GDP	1.8	4.5	2.3	4.8	7.1
GDP per capita	-1.0	1.8	-0.2	1.9	6.1
Exports of goods and services	3.0	2.1	-8.6	6.1	3.7



STRUCTURE of the ECONOMY

	1987	1997	2006	2007
<i>(% of GDP)</i>				
Agriculture	24.9	19.8	15.7	14.7
Industry	20.4	23.5	22.8	22.1
Manufacturing	13.7	16.5	13.8	13.2
Services	54.8	56.8	61.5	63.2
Household final consumption expenditure	75.5	78.0	79.9	76.2
General gov't final consumption expenditure	17.5	13.4	9.6	9.8
Imports of goods and services	29.0	33.6	43.8	42.7
<i>(average annual growth)</i>				
Agriculture	0.7	1.9	-2.9	3.1
Industry	2.9	4.0	-1.7	5.7
Manufacturing	2.6	2.2	-6.5	4.2
Services	1.8	5.4	4.8	8.4
Household final consumption expenditure	1.7	4.1	-3.6	3.7
General gov't final consumption expenditure	-0.1	4.0	3.2	12.0
Gross capital formation	-0.9	10.5	33.8	4.2
Imports of goods and services	0.7	5.2	10	5.5



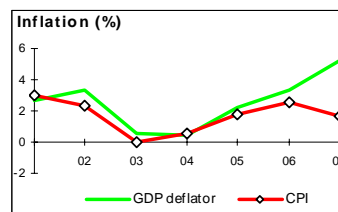
Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

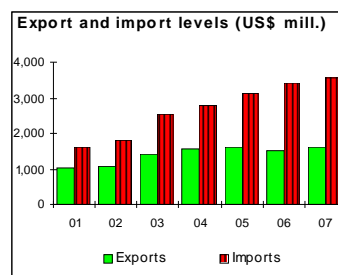
PRICES and GOVERNMENT FINANCE

	1987	1997	2006	2007
Domestic prices				
(% change)				
Consumer prices	-4.1	1.8	2.6	1.7
Implicit GDP deflator	-1.6	2.1	3.4	5.2
Government finance				
(% of GDP, includes current grants)				
Current revenue	17.0	16.3	20.4	21.1
Current budget balance	0.6	4.6	6.3	6.5
Overall surplus/deficit	-1.9	-1.5	-4.1	-6.1



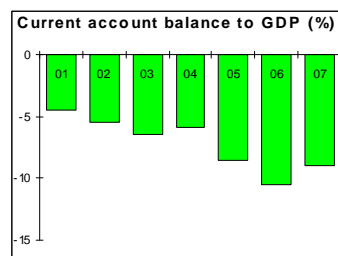
TRADE

	1987	1997	2006	2007
(US\$ millions)				
Total exports (fob)	671	904	1,519	1,628
Groundnut products	70	50	36	42
Phosphates	66	146	61	95
Manufactures	57	254	336	336
Total imports (cif)	1,119	1,306	3,437	3,574
Food	208	289	458	460
Fuel and energy	177	191	417	413
Capital goods	166	192	372	376
Export price index (2000=100)	68	98	106	99
Import price index (2000=100)	58	96	121	120
Terms of trade (2000=100)	18	102	87	83



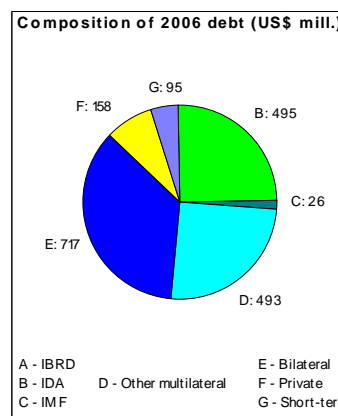
BALANCE of PAYMENTS

	1987	1997	2006	2007
(US\$ millions)				
Exports of goods and services	1,132	1,276	2,342	2,522
Imports of goods and services	1,474	1,568	4,045	4,351
Resource balance	-342	-291	-1,703	-1,829
Net income	-198	-72	-162	-186
Net current transfers	-16	178	886	1,013
Current account balance	-556	-185	-980	-1,002
Financing items (net)	582	168	805	1,135
Changes in net reserves	-26	17	175	-134
Memo:				
Reserves including gold (US\$ millions)	23	395	897	903
Conversion rate (DEC, local/US\$)	300.5	583.7	522.9	479.3



EXTERNAL DEBT and RESOURCE FLOWS

	1987	1997	2006	2007
(US\$ millions)				
Total debt outstanding and disbursed	4,027	3,795	1,984	..
IBRD	126	14	0	0
IDA	506	1,187	495	671
Total debt service	387	251	202	..
IBRD	20	9	0	0
IDA	5	17	26	5
Composition of net resource flows				
Official grants	206	238	2,408	..
Official creditors	298	142	114	..
Private creditors	-25	15	18	..
Foreign direct investment (net inflows)	-4	176	58	..
Portfolio equity (net inflows)	1	8	0	..
World Bank program				
Commitments	100	164	320	35
Disbursements	120	60	131	133
Principal repayments	12	15	15	1
Net flows	108	45	116	133
Interest payments	13	10	10	5
Net transfers	95	35	106	128



Note: This table was produced from the Development Economics LDB database.

9/24/08

Annex 15: Incremental cost analysis
SENEGAL: Sustainable Land Management Project

A. Business as usual scenario

1. ***The importance of land resources in Senegal.*** Land is a key resource in Senegal. Terrestrial ecosystems make up 99.7 percent of the country's natural capital (63 percent for croplands and herding land, 30 percent for forests and 6 percent for protected areas) and 13 percent of total national wealth (Where is the Wealth of Nations, 2006). Seventy percent of the rural population (which represents about 50 percent of the total population in Senegal) directly depends on land resources for their livelihoods. Despite the fact that the contribution of the agricultural sector to the GDP has declined in the last decades (from 17.3 percent in 1979 to about 9 percent at present), this sector still engages about 60 percent of the population (Senegal Land Action Plan, 1996) and, according to the Government's Poverty Reduction Strategy Paper (DRSP-II), still represents one of the major engines for shared growth. Because Senegal's Accelerated Growth Strategy confirms that a sustainable agricultural sector is one of the key drivers of economic growth, it is important to secure the services provided by ecosystems to rural production landscapes.

2. ***The impact of land degradation on ecosystem functions and services.*** Land degradation is however increasingly affecting land resources in Senegal (a description of the major forms and causes of land degradation is reported in Annex 1 and Annex 4, Table 4.1). According to the Senegal Country Environmental Analysis (SN-CEA, FY08) almost two-thirds of the arable lands in the country are degraded, i.e about 2.5 million hectares. The negative consequences of land degradation are manifold, including on: (i) The country's potential for growth; (ii) Poverty and vulnerability of rural people; (iii) Social costs; and (iv) Ecosystem functions and services. As far as the negative impact of land degradation on the ecosystem functions and services are concerned, Senegal's territorial ecosystems and their products are an important part of Senegal's natural wealth and essential to country's food security. Land degradation is considered one of the key factors of continuing imbalances in the ecosystems (including water resources) and worsening of wildlife habitats.

3. ***Land degradation in the Groundnut Basin.*** The Groundnut Basin and the sylvo-pastoral zone in the west and center of the country are the areas most affected by land degradation. About 1.15 million ha are degraded in the groundnut basin alone, about one-third of all arable land in the country. A LADA study (*L'évolution de la Dégradation des Terres au Sénégal, FAO/UNEP/CSE*) shows that 20 percent of the sylvo-agricultural zones has been affected by substantial degradation. In the agro-pastoral zone, land use characteristics have been changed on almost 65 percent of the area, notably with degradation of natural vegetation in just 11 years, with woody savannah evolving towards poorer types of scrub savannah. Detailed studies in Kaffrine between 1989 and 1999 show that land use on 64 percent of the study area became more degraded, while only 1 percent improved (LADA 2005).

4. ***Sustainable land management: Opportunities and constraints.*** Sustainable land management (SLM) offers a means to address land degradation and enhance rural land productivity on a long-term basis, thus supporting economic growth and improving food security, while preserving ecosystems' critical functions and services. However, despite some

isolated technical successes, the adoption and replication of SLM has remained relatively limited in Senegal. Some of the key reasons that have prevented the adoption and/or wide-scale replication of SLM include: (i) A weak enabling environment (characterized by inconsistent government policies and regulations, weak institutional capacity to support SLM adoption, and an unfavorable incentive system); and (ii) a single-sector/single-donor/project-specific approach to the problem. There is a growing consensus among the Government and Development Partners that, to effectively address land degradation and successfully promote SLM, a more cross-sectoral and programmatic approach to scale up SLM is needed.

5. ***What if business as usual continues.*** Unless the conditions for a more cross-sectoral and programmatic approach to SLM are created, and the enabling environment for SLM strengthened, the current approach to address land degradation characterized by scattered, fragmented, and un-coordinated interventions and supported by weak institutions would continue, and the issue of land degradation would not be effectively tackled.

B. Strategic fit

6. ***Consistency with GEF Strategies and the GEF-SIP.*** This Project is one of the operations under the regional GEF Strategic Investment Program for SLM in Sub-Saharan Africa (SIP), and it would contribute to the SIP's Program Goal (i.e. improving natural resource-based livelihoods in Sub-Saharan Africa by reducing land degradation) by specifically contributing to reduce land degradation in Senegal. It would in addition contribute to the SIP's objectives (i.e. to support Sub-Saharan countries in designing and managing programs and activities to advance SLM mainstreaming, governance and investments) as it would: (a) *Support Senegal in adopting a more programmatic approach to SLM* by addressing some of the weaknesses in the enabling environment that hinder SLM adoption and replication; and (b) *support Senegal in applying sustainable practices* that increase land productivity while securing ecosystem services in selected priority areas, and it will contribute to deliver on SIP IRs 1, 2, 3 and 4 (ref. to Section D - Project Components). As part of the GEF-SIP, this operation will directly contribute to the implementation of the GEF Land Degradation Focal Area Goal (i.e. arrest and reverse current trends in land degradation), and Strategy (i.e. Strategic Objectives 1: Creating an enabling environment for SLM; and 2: generating benefits for the global environment through the upscaling of SLM investments). More specifically, this operation will support the objective of LD-Strategic Program 1, i.e. support sustainable agriculture and rangeland management.

7. ***Consistency with Terrafrica.*** The proposed operation is consistent with the approach advocated under the Terrafrica partnership, as it focuses on creating the enabling conditions for SLM scale-up. More specifically, the proposed operation would contribute to the implementation of the Business Plan of Terrafrica, particularly Activity Line 3 (Country Investments), Objectives 6 and 7. The Government of Senegal has formally expressed its intention to work along these lines consistent with Terrafrica and the SIP.

8. ***Contribution to NEPAD's CAADP and EAP, UNCCD-NAP, new UNCCD 10 years Strategic Plan, and UNFCCC-NAPA objectives.*** Extending the area under sustainable land management is the key objective of pillar 1 of NEPAD's Comprehensive African Agriculture Development Program (CAADP) and one of the key objectives of program area 1 (degradation) of the Environmental Action Plan (EAP). The proposed operation would directly contribute to

these objectives. In addition, this Project is one of the instruments through which the UNCCD-NAP, the new UNCCD 10 years Strategic Plan, and the UNFCCC-NAPA will be implemented.

9. ***Expected global environmental benefits of the Project.*** The implementation of this operation is expected to generate the following national and global environmental benefits: (i) Help prevent and reduce the impact of land degradation on the health and integrity of the ecosystems (particularly agro-sylvo ecosystems) in the Groundnut Basin, the most seriously degraded area in Senegal; (ii) help fill the adaptation deficit being experienced by Senegal and its rural land users; and (iii) contribute to increased ground cover and soil quality, and reduced sedimentation in rivers and streams with the corresponding ability of terrestrial ecosystems to maintain carbon storage rates, biodiversity value, and hydrological cycles. Progress towards these objectives will be measured through: (a) An increase of the percentage of organic matter in the soil (organic matter is used as an indicator of soil fertility, which is considered as a proxy for land quality); (b) an increase in vegetation cover in target areas (vegetation cover is used as a proxy for ecosystems' health); and (c) an increase of the percentage of land with SLM practices.

C. Incremental reasoning

10. ***Baseline scenario.*** A number of development partners have directly or indirectly (through many agriculture, forestry and rural development projects) invested in NRM over the years, but these efforts have had limited impacts. This is due to the nature of the project-based, single-sector approach to the problem, and to a lack of attention to the factors that enable the adoption and replication of SLM (e.g. knowledge management, institutional capacity, financing, and cross-sectoral coordination mechanisms). Under the existing (baseline) scenario (characterized by weak knowledge generation and dissemination on SLM; inadequate capacity of service providers and land users to integrate SLM in their production systems; insufficient financing among land users to invest in SLM; and lack of cross-sectoral coordination mechanisms), current approaches to address land degradation will continue. As a result, the key factors leading to land degradation will not be substantively or comprehensively addressed. This would result in continued degradation of productive and non-productive landscapes with consequent damage to the ecosystem functions and services.

11. ***Value added of GEF involvement.*** GEF resources will be strategically and incrementally used to support activities aimed at creating the enabling conditions to allow Senegal to progressively adopt a more cross-sectoral and programmatic approach to SLM, e.g. by: (i) Strengthening the capacity of key research institutions to generate SLM applied knowledge; (ii) strengthening capacity of service providers and producer organizations to offer/adopt SLM technologies; (iii) facilitating SLM adoption on-the-ground; and (iv) establishing cross-sectoral coordination mechanisms and developing a common SLM investment framework (Ref. Annex 4.B for details on project design and on the specific activities of each component). By supporting the progressive shift towards a more programmatic approach to SLM scale-up, this Project would facilitate the alignment and harmonization of current and future interventions and the sharing of experiences, thus reducing transaction costs and increasing the impact of interventions. This is expected to eventually generate greater economies of scale and improve the cost-effectiveness of the interventions. As explained below, GEF resources, integrated to the PSAOP2, will in addition leverage and influence institutional support/reforms (including sectoral coordination), and policy dialogue.

12. Value added of GEF investment in relation to PSAOP2. Alternatives to reduce pressure on land and therefore land degradation would require a drastic shift of the Senegalese economy towards the secondary and tertiary sectors. However, given the high dependence of a large part of the population on the agricultural sector, particularly the poor, this shift cannot be realistically achieved in the short to medium term. The most effective approach to reduce the negative effects of unsustainable agricultural practices on land resources in a medium term horizon is therefore to mainstream sustainable land management in the agricultural sector, as proposed by this operation. GEF resources could have been used to finance a conventional operation on SLM. However, integrating this project to PSAOP2 offers an opportunity to leverage their impact to influence the wider policy dialogue and institutional reforms in the agricultural sector. This makes the use of GEF resources the most cost-effective. Thus, the proposed GEF operation will strategically leverage the impact of rural investments in Senegal, as it will provide an additional instrument to address land degradation and promote sustainable land and management in the sector. PSAOP2 recognizes the importance sustainable management of land resources in achieving intensification of production, but does not address land degradation and support SLM systematically. GEF resources would help cover this gap. In addition, as PSAOP2 is a well recognized instrument to promote institutional reforms and support the implementation of policy reforms in the agricultural sector, GEF resources would help mainstreaming SLM into the sectoral policy dialogue.

D. Cofinancing

Components	PSAOP2		GEF-SLM		Total
	IDA	IFAD, GoS, Farmer Org	GEF	GoS	
1. Support to the Agricultural Research System	5.5	4.5	0.6		10.60
2. Strengthening Agricultural Advisory Services	4.7	12.9	0.7		18.30
3. Support to Producer Organizations	5	3.3	2.8		11.60
4. Support to Sectoral Coordination	4.2	6.3	0.7		11.20
	19.4	27	4.8		51.2
	46.4		4.8		

SENEGAL

- SELECTED CITIES AND TOWNS
- ⊙ REGION CAPITALS
- ⊕ NATIONAL CAPITAL
- ~ RIVERS
- MAIN ROADS
- RAILROADS
- REGION BOUNDARIES
- - - INTERNATIONAL BOUNDARIES

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