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AFRICAN DEVELOPMENT BANK GROUP

**PROJECT : FOOD SECURITY SUPPORT PROJECT IN LOUGA,
MATAM AND KAFFRINE REGIONS (PASA/Lou-Ma-Kaf)**

COUNTRY : SENEGAL

APPRAISAL REPORT

Date: January 2013

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Currency Equivalents
(December 2012)

Currency Unit	=	CFAF
UA 1	=	CFAF 775.276
UA 1	=	USD 1.53481
UA 1	=	EUR 1.18190

Fiscal Year

1 January – 31 December

Weights and Measures

1 metric ton	=	2 204 pounds
1 kilogramme (kg)	=	2.200 pounds
1 metre (m)	=	3.28 feet
1 millimetre (mm)	=	0.03937 inch
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres

Acronyms and Abbreviations

ANIDA	National Integration and Agricultural Development Agency
ASUFOR	Borehole Users' Association
CES/DRS	Water and Soil Conservation/Land Preservation and Restoration
DAPSA	Department of Agricultural Analysis, Forecasts and Statistics
DBRLA	Department of Catchment Basins and Artificial Lakes
DCEF	Department of Technical and Financial Cooperation
DEPA	Department of Livestock Breeding and Production
ECOWAS	Economic Community of West African States
ERR	Economic Rate of Return
GAFSP	Global Agriculture and Food Security Programme
IP	Investment Plan (of PNIA)
MAER	Ministry of Agriculture and Rural Equipment
NESDS	National Economic and Social Development Strategy
NGO	Non-Governmental Organization
NPV	Net Present Value
PADERCA	Casamance Rural Development Support Project
PAPEL II	Livestock Breeding Support Project - Phase II
PAPIL	Local Small-scale Irrigation Support Project
PMIA	Agricultural Modernization and Intensification Project
PMU	Project Management Unit
PNIA	National Agricultural Investment Programme
PU	Pastoral Unit
TFP	Technical and Financial Partner
WFP	World Food Programme

Project Information Sheet

Client Information Sheet

BORROWER: Republic of Senegal

EXECUTING AGENCY: Ministry of Agriculture and Rural Equipment

Financing Plan

Source of Financing	Amount (UA)	Instrument
GAFSP	26.06 million	Grant
ADF	2.00 million	Loan
Government	3.80 million	-
Beneficiaries	0.46 million	-
TOTAL COST	32.32 million	

ADB Key Financing Information

ADF Loan Currency	USD 3.07 million or EUR 2.36 million or CFAF 1.55 billion
ERR (baseline scenario)	21%
NPV	CFAF 14.80 billion

Time Frame - Key Milestones (expected)

Concept Note Approval	6 December 2012
Project Approval	April 2013
Effectiveness	June 2013
Last Disbursement	4 th quarter of 2018
Completion	31 December 2018
Last Repayment	December 2063

Executive Summary

Project Overview: The Food Security Support Project in Louga, Matam and Kaffrine Regions has received a USD 40 million grant from the Global Agriculture and Food Security Programme (GAFSP). The project seeks to improve food security as well as rural incomes by targeting three weather hazard-prone regions of Senegal. It will ease access by small producers, women and their organizations to a wide range of agricultural and livestock infrastructure, particularly in terms of water control, storage and access to remote areas, as well as suitable technologies, services and training. The key expected outcomes are: (i) support for the development of 2 110 hectares of land through water control (1 600 hectares of lowland, 450 hectares of irrigation areas, and 60 hectares of gardens); (ii) establishment of 25 pastoral units around eight new and ten rehabilitated boreholes; (iii) construction of various kinds of buildings (18 farm buildings, 30 inoculation centres, 25 fodder storage sheds, 120 goat/sheep barns, and 60 poultry houses); (iv) construction of 120 km of rural roads; and (v) training and organization of more than 30 000 producers. The project will be implemented using a participatory approach and cover 390 000 people (60% of them women). It will pay particular attention to youth employment (2 900 direct jobs) and build resilience to climate change. It will generate crop and livestock production estimated at more than 22 000 tonnes and 5 000 tonnes respectively, and incomes exceeding CFAF 3 million/year per farm.

Needs Assessment: Although the primary sector accounts for only about 14.6% of GDP (2012), it employs more than three out of every five Senegalese and four out of every five poor people in rural areas. Less than 2% of farmland is irrigated, despite a significant surface water and runoff potential. The livestock sub-sector employs about three million people and accounts for about 35% of agricultural sector GDP. Local cereal production covers only half of basic food needs, and the deficit is covered mainly by massive white rice imports (about 700 000 tonnes annually). To satisfy national demand by 2015 without increasing imports, it will be necessary to increase cereal production by 1 million tonnes and meat production by more than 40 000 tonnes.

Value Added for the African Development Bank: Senegalese authorities have designated the Bank as the GAFSP supervisory entity. This choice is justified by the fact that the Bank has a long history of collaboration with Senegal in the rural sector, particularly in the livestock and irrigation sub-sectors. In particular, it financed two livestock support projects from 1992 to 2009 which helped, among other outcomes, to initiate the modernization of the sector and the development of livestock infrastructure. Regarding agricultural production, the Bank is currently implementing two operations (PAPIL and PADERCA) which seek to improve water control through small-scale irrigation schemes and to safeguard productive capital. PAPIL's positive performance has contributed particularly to formulating a National Surface Water Harnessing and Development Vision, and defining operations to build resilience to climate change.

Knowledge Management: PASA/Lou-Ma-Kaf will contribute to training producers and stockbreeders, and consolidating their know-how. It will also help youths and women to build their technical and entrepreneurial capacity by setting themselves up on farms with modern infrastructure and means of production. Concerning boreholes management, the project will contribute to enhancing national reflection on the cost of water for agricultural and livestock production.

Results-Based Logical Framework

Senegal: Food Security Support Project in Louga, Matam and Kaffrine Regions (PASA/Lou-Ma-Kaf). Project Goal: Increase crop and livestock production in a sustainable manner and improve the incomes of small producers.						
	<i>OUTPUTS CHAIN</i>	<i>PERFORMANCE INDICATORS</i>			<i>MEANS OF VERIFICATION</i>	<i>RISK/MITIGATION MEASURES</i>
		<i>Indicator</i>	<i>Baseline Case</i>	<i>Target</i>		
<i>IMPACT</i>	Food security is improved Poverty is reduced	<ul style="list-style-type: none"> Annual national cereal production Proportion of population whose annual income is below the poverty line 	<ul style="list-style-type: none"> 1 580 000 tonnes (average for 2009-2011) 46% in 2011 (poverty monitoring survey) 	<ul style="list-style-type: none"> 2 795 000 tonnes in 2017 (NESDS) 3 270 000 tonnes (by 2020) 37.9% in 2017 (NESDS) 34% (by 2020) 	Plan, NESDS, MAER and PNIA reports and statistics	
	<i>OUTCOMES</i>	Agricultural and livestock production is increased	National cereal production (KSI) National market garden production (KSI) National meat production Collected milk production	1 100 000 tonnes (2012) 860.000 tonnes (2012) 177.000 tonnes (2010) 181 million liters (2010)	+5 800 tonnes/year (2018) +13 000 tonnes/year (2018) +5 300 tonnes (2018) +1.04 million liters of milk (2018)	- Reports and statistics of the Ministry of Livestock and Agriculture
Incomes are improved		Incomes of producers in lowlands Incomes of women in gardens Incomes of women/youths in small-scale irrigation areas Value-added of beef production Value-added of mutton/goat meat production Value added of milk production	CFAF 75 000/year (2012) CFAF 40 000/year (2012) 0 (not installed) - - -	CFAF 250 000 to 1 000 000/year (2018) CFAF 80 000 to 240 000/year (2018) CFAF 1.9 to 3.1 million/year (2018) CFAF 715 million (2018) CFAF 225 million (2018) CFAF 470 million (2018)	- Monitoring and evaluation reports - Impact surveys - Mid-term and completion reports	<u>Mitigation measures</u> - Carry out activities to ease access to markets (opening up remote areas, storage facilities, organization) - Support farms in selecting crops and in produce marketing
	1. Development of Agricultural and Livestock Infrastructure <u>Agricultural Infrastructure</u> 1.1 Rice lowlands are developed 1.2 Land is treated using CES/DRS techniques 1.3 Local points are constructed 1.4 Women's market gardens are developed 1.5 Small-scale irrigation schemes (5 hectares) are developed from existing boreholes 1.6 Small-scale irrigation schemes (20 hectares) are developed from new boreholes 1.7 Farm buildings (20 hectares) are built 1.8 Rural roads and curb ramps are constructed <u>Livestock Infrastructure</u> 1.9 New pastoral boreholes are built 1.10 Existing pastoral boreholes are rehabilitated 1.11 Drinking troughs are built 1.12 Existing DWS networks are extended	<u>Agricultural Infrastructure</u> 1.1 Area developed (KSI) 1.2 Area treated 1.3 Number of local points 1.4 Area of gardens (KSI) 1.5 Acreage of irrigation areas (KSI) 1.6 Acreage of irrigation areas (KSI) 1.7 Number of buildings 1.8 Stretch of rural roads (KSI) <u>Livestock Infrastructure</u> 1.9 Number of new boreholes 1.10 Number of boreholes rehabilitated 1.11 Number of drinking troughs 1.12 Stretch of additional water supply piping	<u>Agricultural Infrastructure</u> 1.1 362 hectares 1.2 30 hectares 1.3 0 1.4 180 hectares 1.5 22 hectares 1.6 500 hectares 1.7 0 1.8 NA <u>Livestock Infrastructure</u> 1.9 213 (existing) 1.10 0 1.11 687 1.12 0	<u>Agricultural Infrastructure</u> 1.1 1 962 hectares (+1 600 hectares) 1.2 330 hectares (+300 hectares) 1.3 5 local points 1.4 240 hectares (+60 hectares) 1.5 112 hectares (+90 hectares) 1.6 860 hectares (+360 hectares) 1.7 18 farm buildings 1.8 +60 km <u>Livestock Infrastructure</u> 1.9 221 (+8 new boreholes) 1.10 10 boreholes rehabilitated 1.11 705 (+18 triple drinking troughs) 1.12 90 km	Progress reports of implementing agencies Contracts signed Reports of control firms Project progress reports	<u>Risks</u> - Difficulties faced by women in having access to land - Farmer-grazier conflicts <u>Mitigation measures</u> - Affirmative action (quotas), involvement of FVCs and prior issuance of land titles - Concerted organization of agro-pastoral space, establishment of water points and cattle litter alleys

OUTPUTS	1.13 Inoculation centers are built	1.13 Number of inoculation centers	1.13 196	1.13 226 (+30 inoculation centers)			
	1.14 Animal feed sales points are built	1.14 Number of sale points	1.14 30	1.14 42 (+12 sales points)			
	1.15 Fodder storage shed are built	1.15 Number of sheds	1.15 20	1.15 45 sheds (+25 sheds)			
	1.16 Fire control roads are developed	1.16 Stretch of fire control roads	1.16 NA	1.16 +500 km			
	1.17 Rural roads in pastoral areas are constructed	1.17 Stretch of rural roads (KSI)	1.17 NA	1.17 +60 km			
	1.18 Goat /sheep barns are modernized	1.18 Number of sheep/goat barns	1.18 1	1.18 121 (+120 sheep/goat barns)			
	1.19 Poultry houses are built	1.19 Number of poultry houses built	1.19 47	1.19 107 (+ 60 poultry houses)			
	2. Support for Development and Capacity Building						
	<u>Agricultural Sector</u>						
	2.1 Irrigation infra. mgt committees are trained	2.1 Number of committees trained	2.1 0	2.1 125 committees (min. 25% women)	Progress reports of implementing agencies	Risks - Weak capacity of the most vulnerable rural actors	
	2.2 Market gardeners are trained	2.2 Number of gardens organized	2.2 NA	2.2 +14 gardens (100% women)			
	2.3 Producers are organized and trained	2.3 Number of farms structured	2.3 0	2.3 +36 farms (100% women /youths)			
	2.4 Agric. support and advisory activities are carried out.	2.4 Number of farmers supported (KSI)	2.4 0	2.4 10 500 farmers (5.600 women)			
	2.5 Small-scale processing units are established	2.5 Number of units supported	2.5 0	2.5 +64 units (70% for women)			
	2.6 Direct employment is created in the agricultural sector	2.6 Number of jobs created (agri.)	2.6 0	2.6 2 400 jobs (40% women)			
	<u>Livestock Sector</u>						
	2.7 ASUFORs are established and empowered	2.7 Number of ASUFORs (KSI)	2.7 400	2.7 425 (+25 ASUFORs)	Contracts signed	Mitigation Measures - Adoption of a participatory approach	
	2.8 PUs in sylvo-pastoral zones are supervised	2.8 Number of PUs supervised	2.8 31	2.8 56 (+25 PUs)			
	2.9 Poultry inoculation officers are trained	2.9 Number of inoculation officers trained	2.9 4 450	2.9 5 950 (+1 500 inoculation officers)	Reports of control firms	- Use of qualified NGOs and operators to provide capacity building services	
	2.10 Recruitment operations are promoted	2.10 Number of employment operations	2.10 0	2.10 500 operations (80% women)			
2.11 Stockbreeder support and advisory activities are carried out	2.11 Number of stockbreeders supported (KSI)	2.11 NA	2.11 +19 700 stockbreeders (20% women)	Project progress reports	- Mechanisms for integrating the value chains implemented		
2.12 Cattle feed supplementation is supported	2.12 Tonnes of feed	2.12 NA	2.12 +840 tonnes				
2.13 Mini-dairy plants are supported	2.13 Number of mini-dairy plants supported	2.13 5	2.13 15 (+10 dairy plants / 90% women)				
2.14 Direct jobs are created in the livestock sector	2.14 Number of jobs created (livestock)	2.14 0	2.14 500 jobs (50% for women)				
<u>All sectors</u>							
2.15 Persons sensitized (HIV, resilience, etc.)	2.15 Number of persons sensitized	2.15 0	2.15 12 000 people (60% women)				
3. Project Management							
3.1 Procurement activities are carried out	3.1 PPM are held and complied with	3.1 Prepared (2013)	3.1 PPM updated and complied with	PPM SAP system Audit reports Progress reports Task checklist	Risks - Inadequate coordination between the PMU and the three implementing agencies		
3.2 Project activities are carried out	3.2 Conformity with disbursement rate	3.2 0% (2013)	3.2 About 18% annually				
3.3 Financial management is ensured	3.3 Audit reports are produced	3.3 Firm recruited (2013)	3.3 Six audit reports are validated				
3.4 Monitoring and evaluation are conducted	3.4 The monitoring and evaluation system is operational	3.4 System established (2013)	3.4 Provided during implementation				
3.5 Monitoring and evaluation are conducted	3.5 Gender mainstreaming is ensured	3.5 Promoted (2013)	3.5 Gender disaggregated data are available				
					Mitigation Measures - Procedure manual, agreements, support by SNFO		

KEY ACTIVITIES	COMPONENTS	RESOURCES
	<p>Component 1: Development of Agricultural and Livestock Infrastructure Conduct of additional studies on some infrastructure Implementation of irrigation schemes (small-scale irrigation areas, gardens, lowlands, CES/DRS, etc.). Construction of livestock infrastructure (boreholes, ponds, inoculation centers, etc.) and livestock buildings Construction of rural roads, warehouses and other agricultural and livestock buildings</p> <p>Component 2: Support for Development and Capacity Building Support for the organization and structuring of infrastructure management bodies Training and extension activities for farmers and graziers Support for the settlement and training of youths and women on developed farms Support for the establishment of produce storage, processing and marketing units Sensitization on HIV/AIDS, nutrition, resilience and adaptation to climate change</p> <p>Component 3: Project Management Coordination, procurement, management, audit, monitoring and evaluation and communication activities Training of staff, gender mainstreaming promotion and monitoring, compilation of disaggregated data</p>	<p><u>Components</u></p> <p>Component 1 : UA 26.3 million Component 2 : UA 3.7 million Component 3 : UA 2.3 million</p> <p><u>Sources of Financing:</u></p> <p>GAFSP (grant) : UA 26.06 M ADF (loan) : UA 2.00 M GVT/Ben. : UA 4.26 M</p> <p>TOTAL : UA 32.32 M</p>

NB: KSI = Key Sector Indicators of the Bank

SENEGAL
FOOD SECURITY SUPPORT PROJECT IN LOUGA, MATAM AND
KAFFRINE REGIONS (PASA/Lou-Ma-Kaf)
APPRAISAL REPORT

Management hereby submits this report and recommendation concerning a proposal to grant a *UA 2 million ADF loan* and award a *USD 40 million (UA 26.06 million) GAFSP grant* to the Republic of Senegal to finance the **Food Security Support Project in Louga, Matam and Kaffrine Regions (PASA/Lou-Ma-Kaf)**.

I – STRATEGIC THRUST AND RATIONALE

1.1 Project Linkages with Country Strategy and Objectives

The reference document in Senegal, which is a follow-up to PRSP II, is the National Economic and Social Development Strategy (NESDS 2013-2017). Senegal's CSP 2010-2015, for which a mid-term review has been undertaken, is aligned with this strategy. In particular, the NESDS seeks, in its first component, to create opportunities for economic growth and wealth generation so as to promote productive employment and structural transformation of the economy. The development of agriculture, livestock breeding and the rural economy has emerged as a priority option owing to the strong growth potential (irrigation, agri-food processing, farm modernization, etc.). The intervention of PASA/Lou-Ma-Kaf is in line with the strategic orientations of the Agro-sylvo-pastoral Law (LOASP) prepared in 2004 (food security, resilience to weather hazards, access to infrastructure, water control, etc.). Indeed, it is consistent with the priorities of the National Agricultural Investment Plan (PNIA) formulated in 2010 in line with the ECOWAS Common Agricultural Policy, which mainly seeks to securitize the productive base and combat land degradation. Specifically, the PNIA has targeted specific activities in water control, erosion control and access to markets, which are included in this project.

1.2 Rationale for the Bank's Involvement

In July 2010, the Government of Senegal requested the Bank's assistance in examining the application for this project submitted to GAFSP. This choice is justified by the fact that the Bank has a long history of collaboration with Senegal in the rural sector in general, and in livestock and intensification of agricultural production through irrigation, in particular. The Bank financed two livestock support projects (PAPEL I and II) from 1992 to 2009 which, among other outcomes, helped to initiate the modernization of the sector and development of livestock infrastructure (establishment of pastoral units, support for the management of boreholes, genetic improvement, etc.) and to strengthen strategic reflection in the livestock sub-sector. Regarding agricultural production, the Bank financed the Agricultural Modernization and Intensification Project (PMIA) from 1999 to 2007 which promoted the emergence of modern farms with irrigation areas using groundwater. It is currently implementing two operations in the southern part of the country, namely the Local Small-scale Irrigation Support Project (PAPIL) and the Casamance Rural Development Support Project (PADERCA) which seek to improve water control through small-scale irrigation schemes and to safeguard productive capital so as to improve food security and foster the emergence of production poles. PADERCA also carried out major initiatives in structuring sub-sectors and promoting gender mainstreaming.

The outcomes of PAPIL, which is considered in the country and at the Bank as a "successful project" and a model for building resilience to weather hazards, contributed to formulating a National Surface Water Harnessing and Development Vision. The Bank's achievements as regards livestock breeding and water control will be fully enhanced through the implementation of PASA/Lou-Ma-Kaf. The project is also consistent with the Bank's new long-term strategy which focuses on inclusive growth and transition to green growth. Lastly, the Bank's involvement is also justified by the level of vulnerability of the rural populations of this Sahel zone to food and nutritional insecurity; in 2012, the Bank provided emergency humanitarian assistance to Senegal for the rural population affected by the 2011-2012 poor crop year.

1.3 Aid Coordination

Development partners are involved in many domains in Senegal. Consultations take place through the Technical and Financial Partners Consultative Committee (CCPTF) comprising twelve bilateral and multilateral TFPs, including the Bank. The 2013-2017 National Economic and Social Development Strategy is the reference document used by TFPs to support the country's development and poverty reduction efforts. It should also be noted that there are fifteen thematic groups in various sectors, which bring together technical and financial partners, including the Bank, and help, through regular meetings, to share information and strengthen strategic reflection. The Food Security and Rural Development Group, led by WFP and JICA, focuses more specifically on the activities of this project. The group has exchanged views, was involved in the preparation of the request submitted to GAFSP, and was regularly updated on developments at all stages of the preparation of this project. This consultation will continue during the implementation of the project. Overall, the Department of Economic and Financial Cooperation (DCEF) of the Ministry of the Economy and Finance coordinates the actions of the various donors. The table below presents the key amounts currently committed in the agricultural sector in Senegal.

Sector or Sub-sector*	Size		
	GDP	Exports	Labour
Agricultural Sector	14.6% (2012)	19% (2011)	About 70%
Stakeholders – Public Spending (ongoing programmes or projects)			
Government	Donors	Amount (USD million)	Period
USD 100 to 112 million (annually: 2009-2011)	WB	65	<i>Active Portfolio 2012</i>
	IFAD	60.8	<i>Active Portfolio 2012</i>
	USAID	45	<i>Active Portfolio 2012</i>
	ADB	43.6	<i>Active Portfolio 2013</i>
	CIDA	34.8	<i>2011-2013</i>
	IsDB	16	<i>2011-2015</i>
	WADB	35.5	<i>Active Portfolio 2012</i>
	JICA	14	<i>Active Portfolio 2012</i>
	FAO	6.85	<i>2012-2013</i>
Level of Aid Coordination			
Existence of thematic working groups			Yes
Existence of a comprehensive sector programme			No

II. PROJECT DESCRIPTION

2.1 Project Components

Table 2.1
Project Components

No.	Component Name	Total Cost Estimates	Component Description
1.	Development of Agricultural and Livestock Infrastructure	UA 26.34 Million (81.5%)	<i>The activities in this component will seek to develop agricultural and livestock infrastructure in a participatory and sustainable manner so as to promote securitization, growth, storage, marketing and use of plant and animal products. Targeted activities will be carried out particularly in agricultural and pastoral water management: 450 hectares of irrigation areas using drip irrigation through boreholes; 60 hectares of market gardens (mini-boreholes, wells); 1,600 hectares of lowland for rice and horticultural farming developed through the establishment of impounding sills and anti-salt dams; construction or rehabilitation of 18 livestock boreholes equipped with drinking troughs, etc. This infrastructure will be constructed to strengthen resilience to climate change and ensure transition to green growth, integrating land tenure issues (prior deliberation by farm and village councils) and taking into account lessons and best practices learned from similar programmes. The project will also seek to improve livestock habitats (120 sheep/goat barns, 60 poultry houses), storage of produce (25 sheds, 18 warehouses, 4 cereal banks, etc.) and opening up of remote areas (construction of 120 km of rural roads).</i>
2.	Support for Development and Capacity Building	UA 3.65 Million (11.3%)	<i>The objective of this component is to strengthen mechanisms for extension services and support-advisory service in developed sites, the creation of jobs for youths in 36 farms, the organization of producers (farmers and breeders), and the processing and marketing of produce (12 sales points, 5 local points, etc.). Women will be amply taken into account in all activities (rice cultivation, market gardening, small-scale livestock farming, milk production, etc.). The main objective will be to build the capacity of public, private and community institutions in the agricultural sector to ensure efficient and sustainable management of infrastructure and production sub-sectors concerned, including sensitization on resilient practices.</i>
3.	Project Management	UA 2.33 Million (7.2%)	<i>This component comprises all project coordination and monitoring activities, including those relating to procurement and administrative and financial management. It will seek to ensure efficient project implementation through monitoring and evaluation of project outcomes and impacts.</i>

2.2 Technical Solutions Adopted and Alternatives Explored

The technical solutions were adopted on the basis of criteria and standards that help to better ensure sustainability of investments and proper ownership by beneficiaries. They also took into account lessons learned from similar projects based on design patterns adapted to local conditions (balanced link between water points, development of available surface and ground water resources, etc.). Regarding the boreholes to be constructed, the techniques to be used will take into account the characteristics of the aquifers concerned and the geology of the sites. Concerning related infrastructure (elevated water tanks, standpipes, drinking troughs, irrigation systems, etc.), best practices in terms of design and sizing were used. Plans for the development of drip irrigation systems for farms were based on sizing standards tested by ANIDA that are broken down into standalone units, ensuring the rational management of

water resources. The development of lowlands will draw on the experience acquired by PAPIL in the sizing and design of structures, giving priority to reservoir dams that also serve as road crossings to ease the movement of people and transportation of agricultural produce. The technical solutions adopted for livestock buildings were based on experiences and practices in the zone, incorporating efficient improvements identified by stockbreeders (mixed cattle/sheep inoculation centres, separate buildings, compartmentalization of sheep barns, incorporation of brooder houses in poultry houses, etc.).

Table 2.2
Alternative Solutions Explored and Reasons for their Rejection

Alternative Solution	Brief Description	Reason for Rejection
Selection of few but larger irrigable sites	Establish and develop few but larger farms and lowlands	Larger developed areas would pose more management problems and would not match local capacity. Too many producer groups would impede the proper development and management of facilities. The excess flow observed in boreholes also calls for development of fairly large areas (5 hectares) so as to prevent negative competition with drinking water supply to communities.
Use of different dewatering and irrigation techniques	Well dewatering techniques and gravity and sprinkler irrigation methods	Well construction on a large-scale has not been retained due to the depth of aquifers that would increase the cost of reaching the water table. Livestock infrastructure also used to provide drinking water to villages and wells would increase flow and reduce water quality. Concerning farms, gravity or spray irrigation schemes are less suitable for market garden products and not water-efficient.
Approach targeting a single sub-sector (livestock or irrigation)	Target only livestock production or irrigation farming through the project	This approach would not meet the overall needs expressed by the producers of the regions concerned (agro-pastoral zone) and the spirit of GAFSP which targets vulnerable producers, youths and women, in an inclusive manner. Targeting both sub-sectors also helps to better address issues relating to the integration of agriculture and livestock activities.

2.3 Project Type

PASA/Lou-Ma-Kaf is an investment operation to be financed with GAFSP grant and ADF loan resources. At this juncture, the project approach is the most appropriate considering a number of factors, particularly the specificity of GAFSP which requires a clear definition of operations and zones proposed for financing, as well as the absence of a comprehensive sector programme.

2.4 Project Cost and Financing Arrangements

The total project cost, net of taxes and customs duties, is estimated at UA 32.32 million, comprising a GAFSP grant of UA 26.06 million (USD 40 million) and an ADF loan of UA 2 million. The Government will contribute about UA 3.8 million for salaries, inputs and some infrastructure, while rural communities and beneficiaries will contribute to the construction of some infrastructure (livestock buildings, grain banks, firebreaks, CES/DRS activities, etc.) through financial resources and/or unskilled labour amounting to about UA 0.46 million. The breakdown of the project cost by component, expenditure category and source of financing is presented in the tables below. An expenditure schedule by component is also provided. The detailed table of project cost is included in Annex B2 of Volume II and the list of goods and services in Annex B10.

Table 2.3
Summary Project Cost Estimates by Component

Components	CFAF Million			UA Million			% F.E.
	L.C.	F.E.	Total	L.C	F.E.	Total	
Development of Agricultural and Livestock Infrastructure	7 390.96	10 222.03	17 612.99	9.53	13.19	22.72	58.0 %
Support for Development and Capacity Building	763.75	163.25	927.00	0.99	0.21	1.20	17.6 %
Project Management	1 418.33	229.44	1 647.77	1.83	0.30	2.13	13.9 %
Total Base Cost	10 230.43	11 590.76	21 821.19	13.20	14.95	26.04	53.1 %
Provision for Physical Contingencies	369.30	883.62	1 252.92	0.48	1.14	1.62	70.5 %
Provision for Price Escalation	961.63	1 024.97	1 986.60	1.24	1.32	2.56	51.6 %
Total Project Cost	11 561.36	13 499.35	25 060.71	14.91	17.41	32.32	53.9 %

Table 2.4
Summary Project Cost Estimates by Expenditure Category

Expenditure Category	CFAF Million			UA Million			% F.E.
	L.C.	F.E.	Total	L.C	F.E.	Total	
Works	3 757.92	8 726.23	12 484.15	4.85	11.26	16.10	69.9 %
Goods	542.08	1 366.65	1 908.73	0.70	1.76	2.46	71.6 %
Services	3 298.39	1 052.27	4 350.67	4.25	1.36	5.61	24.2 %
Operating Costs	683.00	445.60	1 128.60	0.88	0.57	1.46	39.5 %
Staff	1 949.04	0.00	1 949.04	2.51	0.00	2.51	0.0 %
Total Base Cost	10 230.43	11 590.76	21 821.19	13.20	14.95	28.15	53.1 %
Provision for Physical Contingencies	369.30	883.62	1 252.92	0.48	1.14	1.62	70.5 %
Provision for Price Escalation	961.63	1 024.97	1 986.60	1.24	1.32	2.56	51.6 %
Total Project Cost	11 561.36	13 499.35	25 060.71	14.91	17.41	32.32	53.9 %

Table 2.5
Sources of Financing (in UA million)

Sources of Financing	Cost in L.C.	Cost in F.E.	Total Cost	% Total
GAFFSP	10.49	15.57	26.06	80.6 %
ADF	1.05	0.95	2.00	6.2 %
Government	2.91	0.89	3.80	11.8 %
Beneficiaries	0.46	0.00	0.46	1.4 %
Total Project Cost	14.91	17.41	32.32	100 %

Table 2.6
Expenditure Schedule by Component (in UA million)

Components	2013	2014	2015	2016	2017	2018	Total
Development of Agricultural and Livestock Infrastructure	1.382	5.866	7.647	7.301	3.209	0.937	26.342
Support for Development and Capacity Building	0.005	0.831	1.039	0.764	0.579	0.435	3.653
Project Management	0.351	0.354	0.377	0.415	0.367	0.466	2.330
Total Project Cost	1.738	7.051	9.063	8.480	4.155	1.838	32.325

2.5 Project Area and Beneficiaries

2.5.1 The project area covers three administrative regions (Louga, Matam and Kaffrine) situated in the Centre/North of Senegal, which represent one-third of the national territory and comprise 10 departments and 83 rural communities. This area was chosen because of its poverty (poverty incidence of between 45.2% and 63.8%), recurrent food insecurity (overall severe malnutrition rate of between 11% and 14% in late 2011), the absence of major operations in the agricultural sector, and lack of infrastructure. It has little and often erratic

rainfall, causing recurrent droughts. Average rainfall rarely exceeds 350 mm in the North (Matam) and 750 mm in the South (Kaffrine), and is concentrated in the rainy season (June to October). The vegetation is generally sparse and often prone to drought and bushfires, which are a constraint on pasture management.

2.5.2 The total population of the three regions is estimated at about 1 960 000, or slightly more than 15% of the country's population. It is very unevenly distributed spatially, with a density of about 30 inhabitants per km². Youths under 20 years old make up about 57% of the population. The area experiences major population movements due to transhumance, rural-urban migration and emigration to Matam Region. The main activities are agriculture, mostly rain-fed farming, and extensive livestock farming, with an estimated population of over 800 000 cattle and 2 500 000 sheep/goats. The main constraints on these sectors are little and erratic rainfall, poor water control, insufficient number of permanent water points for livestock watering, gradual degradation of pastoral ecosystems, inaccessibility of production areas, post-harvest losses, and limited access to inputs and markets.

2.5.3 The priority targets of the project will be small producers (men and women) living in the three project intervention regions, with particular focus on Louga and Kaffrine Regions, in view of ongoing actions and those planned by IFAD in Matam Region. In total, the project will directly affect more than 30 000 farmers and stockbreeders, including about 13 000 women and 5 000 youths. This will include the 14 000 producers in Kaffrine Region, who will benefit from facilities built in the valleys, 2 000 women and youths in Louga and Kaffrine Regions, who will be settled in 36 equipped modern farms, about 14 000 stockbreeders in the sylvo-pastoral zone, who will be organized and supported within pastoral units that will be created or revitalized. The project beneficiaries will not only include the families of farmers and stockbreeders directly affected by the activities promoted to increase production, but also the populations of neighbouring villages whose living conditions will be improved thanks to greater availability of food, access roads and more drinking water points. It is estimated that 390 000 people will benefit from project spin-offs.

2.6 Participatory Approach for Project Identification, Design and Implementation

2.6.1 The project design is the outcome of the comprehensive participatory process for the PNIA formulation, which enabled all actors involved in the country's economic development (sector Ministries, research institutes, farmer organizations, civil society, private sector, TFPs, etc.) to carry out a detailed review and analysis of past and ongoing efforts in agriculture and rural development in 2010. The proposed PASA/Lou-Ma-Kaf activities are consistent with the priority options defined in a participatory manner during formulation of the PNIA and its Investment Plan (IP). The project, including its detailed targeted activities, was formulated by the Government under the coordination of DAPSA, which is responsible for PNIA implementation, in consultation with the Department of Economic and Financial Cooperation (DCEF), with the support of the sector agencies and ministries concerned (Agriculture and Livestock), and based on proposals contained in the IP. The technical and financial partners were involved in the project formulation, and have endorsed it (as required by GAFSP).

2.6.2 The project activities concern the zones and communities already identified for which many consultations have already been carried out to define, in a participatory and decentralized manner, the priority operations that are most often included in local development plans. For three weeks, the project preparation team visited the various regions to discuss with local stakeholders, technical services and the population in order to more precisely define the activities to be carried out and the operating procedures to be followed. Thus, many visits were organized on the ground and discussions held with producers and project managers to understand the local realities. The sites proposed for the operations were selected through this participatory approach and on the basis of technical, equity and

profitability criteria. During the appraisal mission, three participatory workshops were held in the regions concerned to validate the proposed project and fine-tune its implementation conditions. These workshops underscored in particular the need to: (i) inform and closely involve all local stakeholders throughout project implementation; (ii) ensure a fair geographical distribution of operations; (iii) give a sense of responsibility to beneficiaries by systematically demanding that they contribute, even symbolically, in cash or in kind; and (iv) ensure decentralized management of project activities.

2.6.3 All the concerns emanating from the grassroots were taken into account. Accordingly, during project implementation, regional consultation committees will be established and rural communities closely involved in the final selection of sites and monitoring of activities. These bodies will ensure the involvement of all stakeholders and also guard against the risk of confiscation by the local elite or entities that are not recognized by representative bodies. Beneficiary communities will be required to fulfil preconditions, taking into account their ability to contribute. The implementation of project activities will be decentralized through branch offices to be established on the ground (Kaffrine, Louga and Linguère) and through protocols involving regional technical services. All these operational arrangements will, during project implementation, help to pursue the participatory approach and place local stakeholders at the core of decision-making.

2.7 Bank Group Experience and Lessons Reflected in Project Design

2.7.1 The PASA/LouMaKaf design largely took into account lessons learned in the implementation of previous Bank operations in the Sahel and particularly in the rural sector in Senegal (PMIA, PAPEL, PAPIL, etc.). Emphasis has thus been placed on the local development approach by focusing on small-scale, technically simple and affordable infrastructure and facilities that can be managed by the communities directly concerned. Hence, farms, pastoral units, developed lowlands and their associated infrastructure will involve people from the same locality willing and able to organize themselves and ensure their sustainable management. Some experiences related to the mitigation of the effects of climate change have been considered, namely the construction of anti-salt dams in Kaffrine Region, the use of the drip irrigation system on farms, better integration of agriculture and livestock, etc. Past experience has clearly shown that the development of innovations and support for restructuring in the various sectors also require sustained support over time, necessitating the intervention of operators and specialized NGOs on the ground which are familiar with local realities and that must also closely involve relevant Government services.

2.7.2 The close involvement of decentralized technical services has thus been retained (signature of protocols) as it guarantees better ownership at the regional level and close presence in intervention sites. To avoid start-up delays, which often characterize this type of operation, special efforts have been made to ensure good quality at project entry assessment by identifying priority actions and preparing many procurement documents beforehand. These measures will help to rapidly build the first infrastructure and effectively upgrade them in the medium term. Project duration (5.5 years) also took into account the time needed to apply the participatory approach advocated by the project. The issue of monitoring and evaluation of project activities was also specifically taken into account by laying special emphasis on decentralized operational management from three branch offices (Kaffrine, Louga and Linguère), periodic assessment of impacts and outcomes, and the obligation of accountability for each entity involved.

2.8 Key Performance Indicators

The internal monitoring and evaluation of project activities and logical framework indicators will be conducted by the Monitoring and Evaluation Expert of the Project Management Unit (PMU), in close collaboration with all the partners involved, including the three implementing agencies and their associated services (monitoring and evaluation, gender, etc.). Special emphasis will be laid on targeting parameters that can be monitored and collected internally and those relating specifically to women (systematic disaggregation of data). From the baseline case, monitoring will cover especially: (i) the level of additional output (tonnes) and crop yields (t/ha); (ii) increase in farmers' incomes by type of activity, with special focus on youths and women; (iii) the number of jobs created in each sub-sector (settlement of youths in new farms, small-scale livestock activities related to modernization of housing, revitalization of rice farms through developed lowlands, marketing activities related to the establishment of local sales points, etc.); (iv) agriculture and livestock infrastructure implementation rate (number of facilities built by type, kilometres of rural roads and firebreaks constructed, etc.); (v) irrigated areas (hectares); (vi) effective organization of supervision and training (number of entities and persons trained, considering gender mainstreaming); (vii) involvement of women in decision-making bodies and their rate of access to land (percentage); (viii) overall project social impacts with special focus on benefits to vulnerable groups and women. All project indicators will be aligned with those used at a broader level under PNIA and GAFSP. Various supervision missions and periodic progress reports will reflect the level of achievement of indicators.

III. PROJECT FEASIBILITY

3.1 Economic and Financial Performance

*Table 3.1
Key Economic and Financial Data*

NPV (baseline scenario)	NPV CFAF 14.80 billion at a 12% discount rate
ERR (baseline scenario)	21%

3.1.1 Financial Performance: The financial profitability of farms was estimated by comparing the outcomes of operation in "with project" and "without project" situations over a 20-year period. The analysis focused on different farm models that were specified taking into account the nature of the project, particularly market gardening sustained by modern farms and development of gardens, rice farming in lowlands and livestock activities promoted through livestock infrastructure. For market gardening, three farm models were specified: (i) 5-hectare farm developed and irrigated using surplus water from an existing borehole; (ii) 20-hectare farm equipped with a drip irrigation network using water from a new borehole; (iii) 5-hectare market garden developed in lowlands. Additional project incomes derived from the 5-hectare farm irrigated using surplus water will range from CFAF 5 330 000/ha in the first year to CFAF 12 500 000/ha at full development (5th year). Additional incomes for the 20-hectare farm model with a new borehole will vary from CFAF 1 200 000/ha in the first year to CFAF 7 800 000/ha at full development. The additional incomes generated by lowland rice farms will be about CFAF 2 000 000/ha at full development (5th year). Concerning livestock production, the financial analysis refers to the two farm models specified in the project area characterized by a transhumance system and an extensive agro-pastoral system with improved health-care coverage. For the first system, additional incomes will be CFAF 620 000 for the cattle model and CFAF 460 000 for the small ruminants model. For the extensive agro-pastoral system, additional incomes are estimated at CFAF 560 000, that is an increase of 28.5% compared to the "without project" situation.

3.1.2 Economic Performance: An economic analysis was conducted using the reference price method which is based on comparing the "without project" and "with project" situations. All project investment costs, as well as operating costs, were taken into account and estimated on the basis of economic prices. Regarding project benefits, the production of (husked) rice, market garden crops, milk, beef, mutton, goat meat and chicken were taken into account. Market prices were considered as economic prices, except for the economic price of rice which was calculated.

3.1.3 On the basis of defined assumptions, the project's economic rate of return (ERR) is estimated at 21%. On this basis, therefore, the overall rate of return of the project is deemed satisfactory. It is the outcome of realistic assumptions, and the project benefits were estimated on the basis of a minimalist approach. Sensitivity tests were conducted based on several assumptions: (i) an increase in project cost due to the rising cost of infrastructure, equipment and activities; (ii) less additional project benefits due to a drop in incomes or commodity prices; and (iii) a combination of the two aforementioned assumptions, namely increased costs and reduced benefits. The results of the sensitivity analysis are as follows: (i) 10% increase in spending, ERR = 19%; (ii) 10% decrease in additional incomes, ERR = 18%; (iii) 10% increase in costs and 10% decrease in incomes, ERR = 16%. The assumptions and detailed calculations of economic and financial analysis are presented in Annex B7 of Volume II. Furthermore, in view of an increase in market garden and rice production, the project will help to improve the country's trade balance, as demand for these products is still being satisfied largely by imports. It will also generate other significant non-quantifiable social benefits.

3.2 Environmental and Social Impact

3.2.1 Environment: In view of its scope and largely positive environmental and social impacts, PASA/Lou-Ma-Kaf is classified in the Bank's environmental category II. The project will have overall positive impacts on the environment and on the preservation of natural resources. Indeed, it will contribute significantly to biodiversity conservation, the fight against desertification, and regeneration of the natural environment. At the social level, it will improve the living conditions of the most vulnerable populations through increased incomes and measures to provide access roads and improve drinking water supply and environmental protection. However, some secondary impacts, particularly those related to the new infrastructure and increase in production, have been identified and will be addressed in terms of mitigation measures in the Environmental and Social Management Plan. The major negative impacts include: (i) site nuisances (noise, dust, safety, etc.) during the construction of rural infrastructure (boreholes, irrigation structures, rural roads, buildings, etc.); (ii) increased risk of surface and ground water pollution due to increased use of fertilizers and pesticides owing to the intensification of agricultural production; (iii) increased prevalence of waterborne diseases due to the creation of temporary, but limited, water bodies (ponds, lowlands); and (iv) the possibility of renewed conflicts between farmers and graziers regarding access to new water or fodder resources.

3.2.2 In accordance with the Bank's guidelines and policies, an Environmental and Social Management Plan (ESMP) has been prepared and will be implemented concurrently with the project to mitigate any negative impacts. This plan clearly describes: (i) the project impacts; (ii) the mitigation programme and measures; (iii) the environmental and social monitoring programme; (iv) the institutional implementation arrangements and related costs; and (v) the activities implementation schedule. The cost of the ESMP is estimated at about CFAF 215 million, excluding improvement activities (CES/DRS, deferred grazing, etc.). A summary of the ESMP is presented in Annex B8 of Volume II. Environmental monitoring will be conducted periodically by a specialized consultant as well as the focal points of the implementing agencies and the Ecological Monitoring Centre (CSE), while environmental

surveillance will be conducted by the Department of the Environment and Classified Establishments (DEEC), which is the competent body in Senegal.

3.2.3 Climate Change: Senegal is a Sahelian country with highly variable spatial and temporal climate parameters, especially rainfall. This accounts for recurring rainfall deficits, resulting in severe droughts. The decline in agricultural and pastoral potential due to high climate variability and fragile ecosystems has forced farmers to cultivate marginal lands which are particularly sensitive to erosion and graziers to overexploit grazing land, particularly around water points and areas of animal concentration. The sites selected for lowland development under PASA/Lou-Ma-Kaf are sometimes located in wooded depressions. In addition, the flooding of vegetation cover after the opening of sills and micro-dams could cause its destruction and decay and, subsequently, the emission of greenhouse gases (GHG). To mitigate this risk, the vegetation cover will be cleared beforehand and the wood collected for domestic use, with the assistance of the communities concerned. As regards local climate change, the small water bodies (ponds, lowlands) to be created and the plantations (windbreaks, agro-forestry) to be developed under the project will have a positive impact on temperature and moisture around developed areas and zones. Indeed, average temperatures will reduce, while air humidity will increase. Overall, considering the small size of facilities, the project's contribution to global warming will be very negligible. However, given the local climate, the implementation of the project will constitute a kind of barrier against desert encroachment in the project area.

3.2.4 Gender Issues: The project will prioritize rural activities generally preferred by women and for which they have proven expertise (market gardening, rice cultivation, small-scale stockbreeding, traditional poultry farming, processing activities, marketing, etc.) and from which they can generate income. It will also apply affirmative action in favour of women and vulnerable groups wherever local traditions tend to exclude them from decision-making bodies or certain benefits. The project will particularly ensure that women gain access to developed lands (farms, gardens, lowlands) and are involved in the organization and management of new infrastructures (boreholes, farms, poultry houses, local sale points, etc.), as well as access to training and new production tools. The project will therefore contribute to strengthening women's economic empowerment and role in decision-making. It will, through water points and processing units, also contribute to reducing time devoted to household chores. The establishment of small-scale irrigation schemes downstream boreholes will also help to create jobs specifically for youths (2 000 rural jobs are targeted). The project's priority targets will be small producers (men and women) living in the three regions that make up the project area. In total, the project will directly affect over 30 000 agricultural and livestock farms, of which about 13 000 for women and 5 000 for youths. About 390 000 people will benefit from project spin-offs. During project implementation, the PMU will draw on the gender-expertise of the three implementing agencies and their supervisory Ministries to ensure the proper mainstreaming of gender issues. Periodic technical assistance missions and surveys will also be undertaken to strengthen the management and evaluation of this theme.

3.2.5 Social Impact: The project will enable the population to better secure and diversify agricultural (rice, market garden crops, etc.) and animal (cattle, sheep, goats, poultry, milk) production. The strengthening of food security through the facilities built will help to improve the nutritional status of the population. Increasing the purchasing power of the population through the operation of facilities and farms will enable households, particularly women, to have easier access to curative and preventive therapies for diseases. The construction or rehabilitation of boreholes that will be equipped with antennas and standpipes will ease access to drinking water. Overall, the project will contribute to reducing rural-urban migration by keeping the population, especially youths, in production sites. The rehabilitation of rural roads, the construction of cereal banks and livestock-feed stores will help to reduce post-harvest losses, thus increasing agricultural production and household incomes. New access

roads to the sites being exploited will facilitate the marketing of agro-pastoral products and, in general, improve trade in the areas concerned. By promoting participation and access by beneficiaries to decision-making processes, the project will also play a strategic role in the development of social capital and in efforts to ensure long-lasting satisfaction of the economic needs of the rural population of the three regions concerned. By closely involving farm and village councils (site selection, land allocation, organization of pastoral land, etc.), it will also contribute to significantly enhancing local development and promoting good governance.

3.2.6 Involuntary Resettlement: PASA/Lou-Ma-Kaf's activities will not entail any population displacement or resettlement.

IV. PROJECT IMPLEMENTATION

4.1. Implementation Arrangements

4.1.1 Implementation modalities: Project activities will be implemented by three existing State agencies, part of whose staff will be mobilized for the project, namely: (i) the Department of Livestock Breeding and Production (DEPA) for activities concerning the livestock component; (ii) the National Integration and Agricultural Development Agency (ANIDA) for the creation of farms using groundwater; and (iii) the Department of Catchment Basins and Artificial Lakes (DBRLA) for the development of lowlands and related activities. However, these three entities, which have experience in project management, will be strengthened and their operating mechanism adjusted to enable close monitoring and proper consultation on the ground (ANIDA branch office in Louga, DBRLA/ANIDA joint branch office in Kaffrine, and the livestock component implementation unit based in Linguère and attached to DEPA). They will implement and monitor activities within their scope of action, and work closely with decentralized services in charge of rural development and livestock farming. The Ministry of Agriculture and Rural Equipment (MAER) will coordinate all the components implemented by the agencies, and ensure financial management, procurement and monitoring and evaluation. To that end, it will set up a small national coordination team (Project Management Unit: PMU) comprising a Coordinator, a Monitoring and Evaluation Expert, an Administrative and Financial Officer, a Procurement Expert and an Accountant.

4.1.2 The PMU will conclude a partnership agreement with each of the agencies. Protocols will be signed with specialized technical entities and services, which will work in close collaboration with the agencies: DAPSA (monitoring and evaluation), WFP (food for CES/DRS activities), CSE (management of pastoral lands), etc. The project will be managed by an Inter-Ministerial Technical Committee established by Order of 23 March 2012 to monitor the PNIA. This Committee comprises about thirty members representing all the Ministries and entities involved in PNIA implementation, including the representatives of producers' organizations and civil society. It will be extended to include the representatives of the three regions. In each region, consultative committees comprising the representatives of services, local authorities, producers and actors concerned will meet twice every six months to monitor the progress of planned activities.

4.1.3 Procurements: Procurements financed with Bank and GAFSP resources will be made in accordance with national procedures for local competitive bidding (goods and works). This provision is one of the conclusions of the evaluation of Senegal's national procurement system by the Bank in 2011. It will facilitate the implementation of many planned facilities given that the Bank will carry out ex-post reviews. Procurements will comply with the Bank's rules and procedures (May 2008 edition, revised in July 2012) and use the Bank's standard documents for international competitive bidding (goods and works) and prudent shopping based on a short list (services). A summary of procurement procedures is included in Annex IV, while the details are presented in Annex B5 of Volume II.

4.1.4 **Financial Management:** The project implementation bodies will be the Steering Committee, the PMU and the three implementing agencies (DEPA, ANIDA and DBRLA). These agencies, according to arrangements ensuing from their evaluation, will be strengthened with the introduction of a procedures manual and an accounting software, as well as the recruitment or appointment of an accountant for each agency. The overall project budget will be based on a financing statement over six years. Each year, this statement will be broken down into annual work plans based on a forecast of activity prepared by the PMU, in consultation with the three agencies, and approved by the Steering Committee. The project will keep computerized central accounts at the PMU, including GAFSP and ADF resources, and accounts in each of the implementing agencies. The accounting system will include budgetary, cost-accounting and general modules for producing the financial statements and reports required by the Bank, in particular quarterly financial reports and annual financial statements. The accounting staff of the PMU and implementing agencies will be trained in the use of the accounting software.

4.1.5 The PASA/Lou-Ma-Kaf internal control system will, in addition to the design documents and project financing agreements and conventions, include an administrative, financial and accounting procedures manual. This manual will define the organization and operation of organs, the project information system, profiles of key positions, key operational management procedures, as well as financial and accounting procedures. The project's financial information system is based on daily bookkeeping. Apart from Bank disbursement statements and position and bank statements, the project will produce monthly bank accounts reconciliation statements, quarterly budget execution reports or financial reports and annual financial statements, including balance sheets, statement of source and application of funds and the budget execution status. The Bank will conduct at least two supervision missions and one support mission in the first year, and then at least one mission each year.

4.1.6 **Disbursements:** The disbursement methods to be used under the project are the direct payment, the special account (only for the GAFSP grant) and the repayment methods. The Department of Investment (DI) of MEF will open a special account in a commercial bank acceptable to the Bank to manage the GAFSP grant. The Director of DI or his/her deputy will be signatory to the account. This account will fund another account opened by the PMU and to which the PMU Coordinator and Financial Officer are signatories. Both accounts will, in turn, fund an account opened in each implementing agency. The direct payment method will be used for ADF loan resources. Disbursement requests, as well as evidence of expenditure, will be submitted to the Bank through the DI. The financial management and disbursement arrangements are provided in Annex B4 of Volume II.

4.1.7 **Auditing:** The project's accounts will be audited annually by independent external auditors recruited on a competitive basis and in accordance with the Bank's terms of reference. They will verify the reliability of consolidated annual financial statements prepared by the PMU and evaluate the operation of the internal control system of the entire project. The auditing will be financed with ADF loan resources. The audit report will be submitted to the Bank no later than six months following the close of the fiscal year under review. The Bank will regularly monitor the implementation of audit recommendations.

4.2 Monitoring

4.2.1 To monitor project implementation and ensure that progress is made towards achieving the set objectives, a monitoring and evaluation system will be established and a specialist recruited to ensure its implementation. He/she will work in close collaboration with each of the implementing agencies, which will also have monitoring mechanisms specific to the activities entrusted to them. A protocol will be signed with DAPSA to assist in developing a comprehensive monitoring system for the PNIA in which the project will be included. The

common target indicators selected at the global level for the five GAFSP programme components will be taken into account so as to allow for homogeneous and regular (semi-annual basis) information on the progress of operations financed through the GAFSP. A baseline case will be established to obtain information on the initial level of the key indicators to be monitored. The monitoring and evaluation framework will systematically include gender-disaggregated data so as to make the impact of outcomes on women and the most vulnerable groups more visible. Specific surveys will also be conducted to better assess issues related to income, job creation, gender mainstreaming, vulnerability and resilience. Periodic reports will be prepared, two of which will be submitted annually to the GAFSP. WFP will provide special assistance for food security and nutrition monitoring data through annual assessments.

4.2.2 External monitoring and evaluation missions involving the relevant sector Ministries will also be regularly organized by the Government to back up the two annual supervision missions organized by the Bank and close monitoring by SNFO. Several participatory workshops will also be organized to enable local stakeholders to assess the activities. A mid-term review and a final evaluation will also be conducted to introduce readjustments, if needed, and build on achievements. Below is a summary of the provisional project implementation schedule.

<u>Activities</u>	<u>Date /Period</u>	<u>Entity in Charge</u>
Appraisal	December 2012	ADF
Preparation of priority PDs and BDs	1 st half of 2013	GVT/Agencies (IA)
Recruitment of PMU	1 st half of 2013	GVT/ADF
Selection of IA Coordinators	1 st half of 2013	GVT/ADF/IA
Negotiation	March 2013	GVT /ADF
Validation of CSP mid-term review	Mid- April 2013	Bank
Loan and Grant approval	Late April 2013	ADF
Signing of agreements/conventions/protocols	May 2013	ADF/GVT
Authorization of 1 st disbursement	Mid-July 2013	ADF
Launching of the project	August 2013	ADF/GVT/PMU
Conclusion of agreements	July-September 2013	GVT/PMU/IA
Preparation of remaining PDs and BDs	July 2013-July 2014	PMU/IA
Execution of works and provision of services	2013 – 2018	Contractors/Firms/PMU/IA
Mid-term review	June 2016	ADF/GVT/PMU
Project closing date	31 December 2018	PMU/GVT/ADF
Completion report	4 th quarter of 2018	ADF/GVT

4.3 Governance

Senegal is still at the bottom (ranked 154th in the 2012) of "Doing Business" ranking, despite the reforms undertaken over the past decade. The Bank's experience in Senegal has shown that project governance practices and existing control systems are generally satisfactory. The positive trends noted during recent portfolio reviews and the CPIA rating, as well as the analysis of the national procurement system, are testimony to the quality of efforts made in this domain. In 2012, the new Senegalese authorities made a commitment to improve the situation and consolidate governance in the country as a whole. The project will help to strengthen local governance by focusing on grassroots and decentralized development.

4.4 Sustainability

4.4.1 The issue of sustainability of actions carried out, especially the maintenance and management of infrastructure built or rehabilitated, is a key concern in project design, which is reflected particularly by the adoption of two inseparable components, namely "physical infrastructure" and "capacity building". The project will use the most effective mechanisms for each operation to collect facility maintenance and renewal fees: the management of pastoral boreholes by ASUFOR, the organization of pastoral areas through PUs, the

maintenance of lowland dam reservoirs by management committees that have been set up and trained, farm management by producers' associations or economic interest groups, etc. All these entities will benefit from project supervision and have bank accounts to receive user contributions for the management and maintenance of the infrastructures built. To ensure maintenance of rural roads and firebreaks, the project will develop mechanisms to ensure sustainability by empowering the rural communities concerned (involvement in project ownership). The mechanisms will be incorporated into strategic options developed at national (case of the Autonomous Rural Maintenance Fund for rural roads) and regional (case of firebreaks maintenance brigades) levels.

4.4.2 All activities will be implemented by existing common interest groups, associations and organizations or those to be set up with the support of the project. These communities will be closely involved in the participatory planning process and, depending on the type of infrastructure and its capacity, contribute in kind and/or in cash. Priority will be given to activities based on the prior commitment and actual participation of the population concerned, as well as the local authorities and decentralized technical services. These different actors will benefit from project support to build their technical and organizational capacity and skills. Support will also be given to umbrella organizations in the area (PUs, ASUFORs, etc.), thus rendering the actions undertaken more solid and consistent. This development approach, which is based on empowerment, ownership, promotion of local governance, use of simple and proven techniques, capacity building, stakeholder professionalization, private sector involvement and close monitoring and control, seeks to ensure sustainability of project activities and achievements.

4.5 Risk Management

4.5.1 The implementation of this project will pose no specific risks inasmuch as fairly similar operations have already been carried out and the lessons learned have been taken into account in its design. With the sensitization of farmers and graziers, concerted organization of the agro-pastoral space and demarcation of grazing land, conflicts between nomadic graziers and sedentary farmers should be avoided. The risk that women will have limited access to land has been taken into account as this concern will be an integral part of intervention criteria (affirmative action) and the land issue systematically clarified before any intervention (prior issuance of land titles by farm and village councils).

4.5.2 The modernization of farms and development of the sub-sector approach could be a major challenge given the weak capacity of the most vulnerable rural population. The project will ensure that the poorest segments of the population are not excluded by integrating them into an inclusive process whereby the development of private entrepreneurship will lead to an overall revitalization of all sectors. Capacity building activities will also enable the various stakeholders, including women, to better manage the innovations introduced and assume the responsibilities inherent in the development of sub-sectors. Risks associated with difficulties in marketing market garden products are limited because they will benefit from easy access to markets (improvement of access, storage, etc.), and targeted support will be provided by ANIDA for the selection of crops, sequencing of crops and search for new markets.

4.5.3 Concerning project implementation and in order to avoid risks related to insufficient synergy between the PMU and the three agencies, clarification will be given through a procedures manual that will detail the processes and rules in force, as well as the conclusion of partnership agreements. A launching workshop will be organized at project start-up involving the Bank, implementation entities and relevant government services, as well as the representatives of beneficiaries and local communities. The Bank's Regional Office in Senegal (SNFO) will facilitate the implementation and monitoring of the various activities.

4.6 Knowledge Building

PASA/Lou-Ma-Kaf will, particularly through its "Support for Development and Capacity Building" component, contribute to training and building the knowledge of various stakeholders, particularly farmers and graziers, thanks mainly to the support and training to be provided by technical services in extension work and by NGOs specialized in structuring and organization. It will also, in an inclusive manner, help youths and women to build their technical and entrepreneurial capacity by establishing themselves on farms with modern infrastructure and means of production. Regarding borehole management, the project will enhance national reflection on the cost of water for agricultural production. Concerning resilience to climate change, the project will develop and disseminate innovative actions to promote local know-how and reduce constraints on food security.

V. LEGAL FRAMEWORK

5.1 Legal Instrument

The legal framework of the project will be a Loan Agreement and a Memorandum of Understanding to be concluded between the Republic of Senegal and the Bank/Fund.

5.2 Conditions Associated with Bank and Fund Involvement

5.2.1 Conditions Precedent to Grant and Loan Effectiveness: The effectiveness of the grant shall be subject to signature, by the Recipient, of the Memorandum of Understanding related thereto. The effectiveness of the loan shall be subject to fulfilment by the Borrower of the conditions set out in Section 12.01 of the Fund's *General Conditions Applicable to Loan Agreements and Guarantee Agreements* (Sovereign Entities).

5.2.2 Conditions Precedent to First Disbursement of the Grant and Loan: The first disbursement of the grant and loan by the Bank and the Fund shall be subject to effectiveness of the Memorandum of Understanding and the Loan Agreement, in accordance with the provisions of paragraph 5.2.1 above, and evidence of fulfilment of the following conditions, to the satisfaction of the Bank and the Fund, as regards the form and the substance:

- (i) Provide the Bank and the Fund with evidence of the recruitment of the Project Management Unit (PMU) senior officers, namely a coordinator, a monitoring and evaluation expert, an administrative and financial officer, and a procurement expert, whose qualifications and experience shall be submitted to the Bank and Fund for prior approval, and;
- (ii) Provide the Bank and the Fund with evidence of opening an account in a commercial bank acceptable to the Fund into which grant resources shall be deposited.

5.2.3 Other Conditions: The Borrower/Recipient shall also submit to the Bank and the Fund, no later than the three (3) months following the first disbursement of the loan and the grant:

- (i) the Project's administrative, financial and accounting procedures manual detailing all interactions between the PMU and the three implementing agencies (Department of Retention Basins and Artificial Lakes - DBRLA; National Integration and Agricultural Development Agency – ANIDA; and Department of Livestock Breeding and Production - DEPA);

- (ii) the agreements concluded between the project and the three implementing agencies (DBRLA, ANIDA and DEPA).

5.3 Compliance with Bank Policies

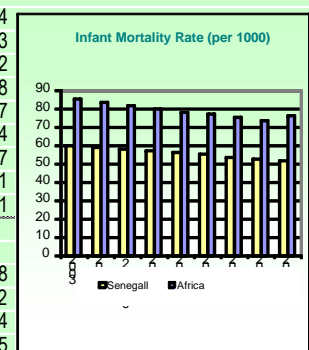
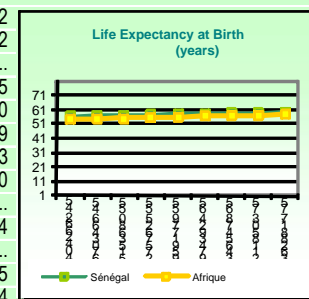
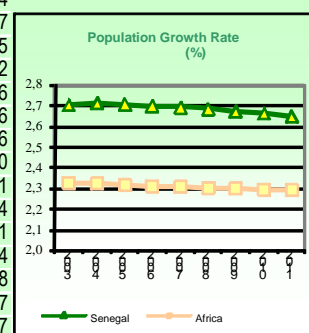
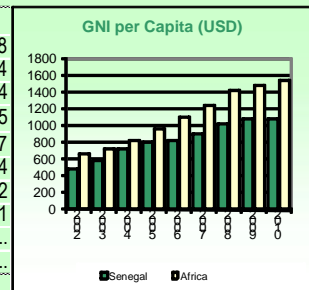
This project is in line with all applicable Bank policies as well as the intervention criteria defined in the Global Agriculture and Food Security Programme (GAFSP). It will be implemented within the framework of the Bank's intervention strategy in Senegal defined in the CSP (2010-2015), taking into account the conclusions of the mid-term review conducted at end-2012.

VI. RECOMMENDATION

Management recommends that the Board of Directors approve the proposal to award a UA 26.06 million GAFSP grant and an ADF loan not exceeding UA 2 million to the Government of the Republic of Senegal to finance the project described above.

Annex I. Senegal's Comparative Socio-economic Indicators

	Year	Senegal	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)	2011	197	30 323	80 976	54 658
Total Population (million)	2011	12.8	1 044,3	5 733,7	1 240,4
Urban Population (% of Total)	2011	42,7	40,4	45,5	75,4
Population Density (per Km ²)	2011	66,3	36,1	59,9	36,5
GNI per Capita (USD)	2010	1 090	1 549	3 304	38 657
Labour Force Participation - Total (%)	2011	58,5	74,7	65,0	60,4
Labour Force Participation - Female (%)	2011	43,8	42,5	49,2	50,2
Gender-Related Development Index Value	2007	0,457	0,502	0,694	0,911
Human Development Index (Rank Among 187 Countries)	2011	155
Population Living Below USD 1.25 a Day (%)	2007-09	33,5	40,0	22,4	...
Demographic Indicators					
Population Growth Rate - Total (%)	2011	2,6	2,3	1,3	0,4
Population Growth Rate - Urban (%)	2011	3,4	3,4	2,3	0,7
Population < 15 years (%)	2011	43,5	40,4	28,7	16,5
Population > 65 years (%)	2011	2,4	3,4	5,9	16,2
Dependency Ratio (%)	2011	85,0	78,1	53,0	48,6
Sex Ratio (per 100 female)	2011	98,4	99,5	103,4	94,6
Female Population 15-49 years (% of Total Population)	2011	24,5	24,4	26,2	23,6
Life Expectancy At Birth - Total (years)	2011	59,3	57,7	77,7	67,0
Life Expectancy At Birth - Female (years)	2011	60,4	58,9	68,9	81,1
Crude Birth Rate (per 1000)	2011	36,8	34,5	21,1	11,4
Crude Death Rate (per 1000)	2011	8,8	11,1	7,8	10,1
Infant Mortality Rate (per 1000)	2011	51,4	76,0	44,7	5,4
Under-5 Mortality Rate (per 1000)	2011	87,7	119,5	67,8	7,8
Total Fertility Rate (per woman)	2011	4,7	4,4	2,6	1,7
Maternal Mortality Rate (per 100000)	2010	370,0	530,7	230,0	13,7
Women Using Contraceptives (%)	2007-09	11,8	28,6	61,2	72,4
Health and Nutrition Indicators					
Physicians (per 100 000 people)	2008	5,9	57,8	112,0	276,2
Nurses (per 100 000 people)	2008	42,0	134,7	186,8	708,2
Births Attended by Trained Personnel (%)	2007-09	51,9	53,7	65,3	...
Access to Safe Water (% of Population)	2010	72,0	65,7	86,3	99,5
Access to Health Services (% of Population)	2007-09	...	65,2	80,0	100,0
Access to Sanitation (% of Population)	2010	52,0	39,8	56,1	99,9
Percent. of Adults (aged 15-49) Living With HIV/AIDS	2009	0,9	4,3	0,9	0,3
Incidence of Tuberculosis (per 100 000)	2010	288,0	241,9	150,0	14,0
Child Immunization Against Tuberculosis (%)	2010	80,0	85,5	95,4	...
Child Immunization Against Measles (%)	2010	60,0	78,5	84,3	93,4
Underweight Children (% of children under 5 years)	2007-09	14,5	30,9	17,9	...
Daily Calorie Intake per Capita	2007	2 348	2 462	2 675	3 285
Public Expenditure on Health (as % of GDP)	2009	3,1	2,4	2,9	7,4
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2010	86,8	101,4	107,8	101,4
Primary School - Female	2010	89,3	97,6	105,6	101,3
Secondary School - Total	2010	37,4	47,5	64,0	100,2
Secondary School - Female	2010	34,9	44,3	62,6	99,8
Primary School Female Teaching Staff (% of Total)	2010	30,6	44,3	60,7	81,7
Adult Illiteracy Rate - Total (%)	2009	49,7	67,0	80,3	98,4
Adult Illiteracy Rate - Male (%)	2009	61,8	75,8	86,0	98,7
Adult Illiteracy Rate - Female (%)	2009	38,7	58,3	74,9	98,1
Percentage of GDP Spending on Education	2010	5,6	4,6	4,1	5,1
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2009	20,0	7,6	10,7	10,8
Annual Rate of Deforestation (%)	2007-09	0,7	0,6	0,4	-0,2
Annual Rate of Reforestation (%)	2010	44,0	23,0	28,7	40,4
Per Capita CO2 Emissions (metric tons)	2009	0,5	1,1	2,9	12,5



Source: ADB Statistics Department Database;

Last update:

June 2012

World Bank WDI; UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP, Country Reports.

Notes: n.a. Not Applicable; ... : Data Not Available

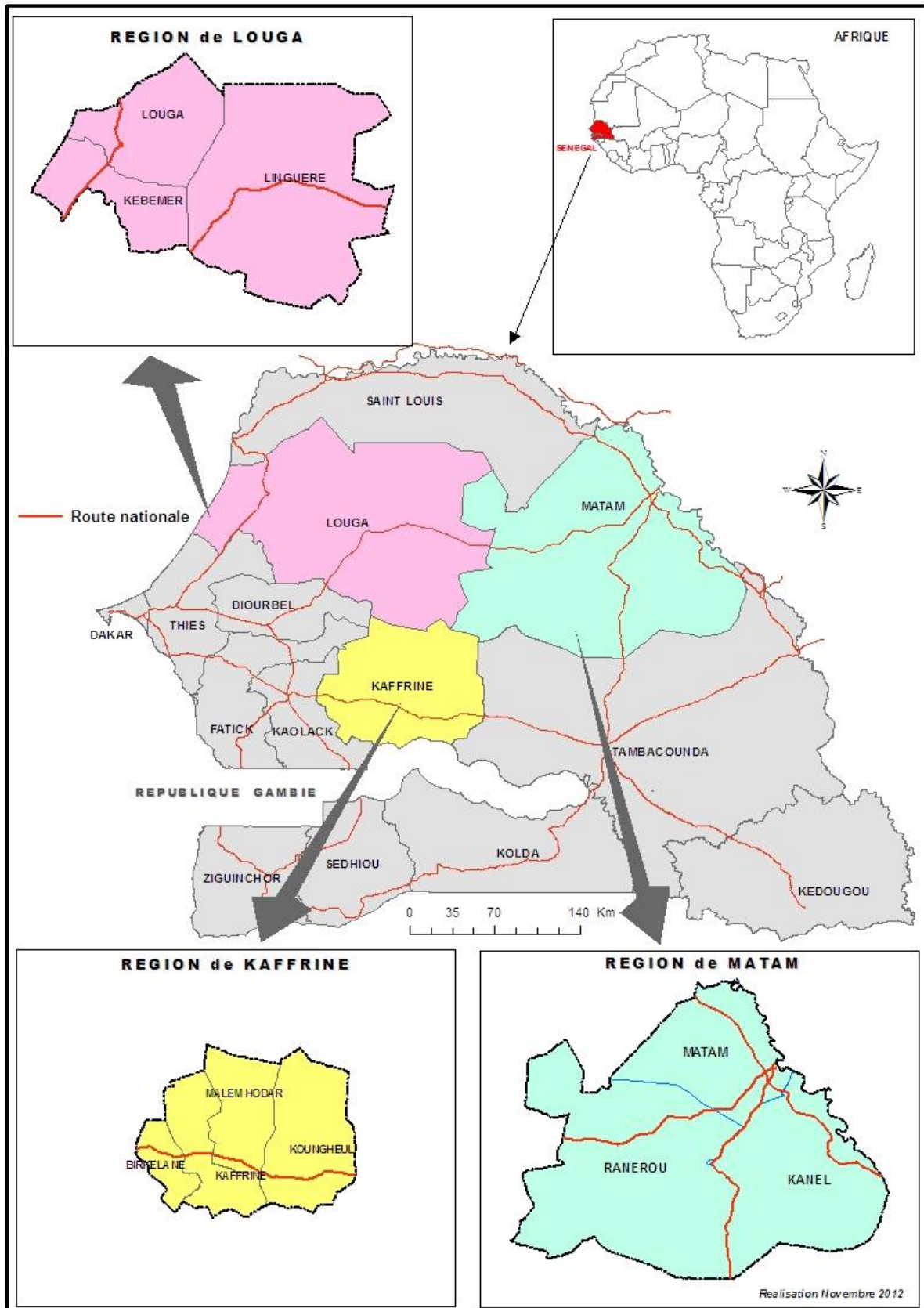
Annex II. Table of ADB Portfolio in Senegal
(Portfolio of Active National Projects as at 13/2/2013)

<i>Sector Project Name</i>	<i>Approv. Date</i>	<i>Closing Date</i>	<i>Amount (UA)</i>	<i>Type</i>	<i>Disbur. Rate (%)</i>	<i>Status*</i>
AGRICULTURE						
• Local Small-scale Irrigation Support Project (PAPIL - additional loan)	31/1/2011	31/12/2013	8 400 000	Loan	45.3	None
• Casamance Rural Development Support Project (PADERCA)	19/10/2005	20/12/2013	20 000 000	Loan	62.0	None
• Emergency Rural Support	10/9/2012	30/6/2013	650 144	Grant	100.0	None
TRANSPORT						
• Dakar – Diamniadio Highway	15/7/2009	31/12/2014	45 000 000	Loan	96.9	None
WATER AND SANITATION						
• Second Rural DWSS Sub-programme	18/2/2009	31/12/2013	30 000 000	Loan	56.4	None
ENERGY						
• Rural Electrification Project	13/10/2004	31/10/2013	9 580 000	Loan	32.2	PPP
GOVERNANCE						
• Economic Reform Support Programme	6/6/2011	30/9/2013	27 000 000	Loan	100.0	None
• Private Sector Development Support Project	10/9/2012	30/6/2016	4 040 000	Loan	0.0	None
TOTAL			144 670 144		73.8	1 RP/8

* Classification (culled from SAP):
 PP Problematic project
 PPP Potentially problematic project
 None None-PPP and none-PP project
 PAR Project at Risky (project classified as PP or PPP)

Rating of Supervision Missions of Ongoing Agricultural Sector Projects		
PAPIL:	2.6 (out of 3)	
PADERCA:	2.1 (out of 3)	
Status of Project Completion Reports (PCR) of Recently Closed Agricultural Sector Projects		
PMIA (Agric. Modernization)	Closure : June 2006	PCR : September 2008
PAPEL II (Livestock)	Closure : June 2009	PCR : August 2009
PPC/PNIR (Rural Roads)	Closure : September 2009	PCR : January 2010
PADERBA (Anambe Basin)	Closure : December 2010	PCR : June 2011

Annex III: Map of Project Area



Annex IV: Summary of Procurement Arrangements
(amounts in UA million)

ITEM	International Competitive Bidding (ICB)	Local Competitive Bidding (LCB)	Short List	OTHER	Fin. other than ADF and GAFSP		TOTAL
					BEN	GVT	
WORKS							
Pastoral and farm boreholes		4.746 (4.746)					4.746 (4.746)
Establishment of irrigation systems		1.680 (1.680)					1.680 (1.680)
Development of market gardens		0.615 (0.615)					0.615 (0.615)
Development of lowlands		4.309 (3.851)				0.458	4.309 (3.851)
Development of ponds		0.620 (0.591)			0.030	0.000	0.620 (0.591)
Construction of buildings		2.695 (2.265)		0.077 (0.077)	0.083	0.347	2.772 (2.342)
Construction of rural roads		4.310 (4.310)					4.310 (4.310)
GOODS							
Vehicles	0.462 (0.462)						0.462 (0.462)
Motorcycles		0.148 (0.148)					0.148 (0.148)
IT equipment				0.042 (0.042)			0.042 (0.042)
Office furniture				0.035 (0.035)			0.035 (0.035)
Agricultural equipment		0.562 (0.352)		0.082 (0.082)	0.023	0.186	0.644 (0.434)
Other equipment				0.141 (0.045)		0.096	0.141 (0.045)
Breeding stock		0.057 (0.051)		0.019 (0.017)	0.007		0.076 (0.068)
Agricultural inputs		1.139 (0.363)		0.011 (0.000)	0.321	0.466	1.150 (0.363)
SERVICES							
Training activities			0.653 (0.653)	0.093 (0.093)			0.745 (0.745)
Works studies and control			1.469 (1.469)				1.469 (1.469)
Services provided by individual consultants			0.306 (0.306)				0.306 (0.306)
Protocols/conventions Tech. Serv.				3.259 (2.458)		0.801	3.259 (2.458)
Monitoring and evaluation activities			0.305 (0.305)				0.305 (0.305)
Financial management audit			0.137 (0.137)				0.137 (0.137)
OPERATING COSTS				1.596 (1.446)		0.150	1.596 (1.446)
STAFF				2.758 (1.464)		1.294	2.758 (1.464)
TOTAL	0.462 (0.462)	20.882 (18.972)	2.870 (2.870)	8.111 (5.758)			32.325 (28.062)

NB: The short list applies only to the use of consultants
"OTHER" refers to prudent shopping, contractors' short list, negotiated contract
The figures in brackets concern amounts financed by ADF or GAFSP

Annex V: Photographs of Project Area



Photo 1: Example of a pastoral borehole



Photo 2: Example of a developed pond



Photo 3: Example of a sheep barn



Photo 4: Example of an irrigation area combined with a farm



Photo 5: Example of rice lowland



Photo 6: Water fetching chore by women



Photo 7: Public consultation during project preparation



Photo 8: Participatory workshop during project appraisal