



**AFRICAN DEVELOPMENT FUND**

**PROJECT: MARKALA SUGAR PROJECT – AGRICULTURAL COMPONENT**

**COUNTRY: REPUBLIC OF MALI**

**APPRAISAL REPORT**

*Date: November 2010*

Messrs. Aly ABOU-SAABA,	Director, OSAN		Ext. 2037
Frank PERRAULT,	Director, ORWB		Ext. 2036
Dougou KEITA,	Division Manager, OSAN.2		Ext. 2086
Mamadou A. KANE,	Chief Water Resources Engineer, OSAN.2	Head of Mission	Ext. 2390
Macky A. DIOUM,	Agricultural Economist, OSAN.2,	Mission Member	Ext. 3474
Hatem FELLAH,	Agronomist, OSAN.2,	Mission Member	Ext. 2262
Hany R. SHALABY,	Environmentalist, OSAN.4,	Mission Member	Ext. 3006
Abdoulaye DJIRO,	Agronomist, MLFO,	Mission Member	Ext. 6036
Mrs. Rita BA,	Gender Expert, OSAN.2		Ext. 2590
Mr. Fridolin ONDOBO,	Financial Management Expert		Ext. 2497
Mr Sébastien DELAHAYE	Agricultural économet		Ext. 2370

Peer Review:			
Messrs. M. Lahcen ENNAHLI	Resident Representative, MLFO,	Peer	Ext. 6031
Lamine KANE	Agricultural Economist, OSAN.2,	Peer	Ext. 2359
Léandre GBELI	Agricultural Economist, OSAN.4,	Peer	Ext. 3646
Théophile GUEZODIE	Economist, ORWB	Peer	Ext. 3646
Al Hamdou DORSOUMA	Climate Expert,	Peer	Ext. 3304

# TABLE OF CONTENTS

	<u>Page</u>
Equivalents, Fiscal Year, Weights and Measures, Acronyms and Abbreviations, Project Information Sheet, Project Matrix, Project Implementation Schedule.....	i – viii
<b>I - STRATEGIC THRUST AND RATIONALE .....</b>	<b>1</b>
1.1 Project Linkages with Country Strategy and Objectives .....	1
1.2 Rationale for Bank’s Involvement .....	1
1.3 Aid Coordination.....	2
<b>II - PROJECT DESCRIPTION.....</b>	<b>3</b>
2.1 Project Components .....	3
2.2 Technical Solutions Adopted and Alternative Solutions Explored .....	5
2.3 Project Type .....	5
2.4 Project Cost and Financing Arrangements .....	5
2.5 Project Target Area and Beneficiaries .....	8
2.6 Participatory Approach for Project Identification, Design and Implementation .....	9
2.7 Bank Group Experience and Lessons Reflected in Project Design .....	9
2.8 Key Performance Indicators .....	10
<b>III - PROJECT FEASIBILITY .....</b>	<b>10</b>
3.1 Economic and Financial Performance .....	10
3.2 Environmental and Social Impact.....	11
<b>IV - IMPLEMENTATION.....</b>	<b>13</b>
4.1 Implementation Arrangements .....	13
4.2 Project Monitoring/Evaluation.....	16
4.3 Governance .....	16
4.4 Sustainability.....	17
4.5 Risk Management .....	18
4.6 Knowledge Building .....	18
<b>V – LEGAL FRAMEWORK .....</b>	<b>19</b>
5.1 Legal Instrument.....	19
5.2 Conditions Associated with Bank Intervention .....	19
5.3 Compliance with Bank Policies .....	19
<b>VI – RECOMMENDATION .....</b>	<b>19</b>

## LIST OF ANNEXES

Map:	Map of the Project Area.....
ANNEX I:	Comparative Socio-economic Indicators of the Country.....
ANNEX II:	Mali - Ongoing Bank Group Operations.....
ANNEX III:	Major Projects Financed by the Bank and Other Development Partners.....
ANNEX IV:	Calculation of the Economic Rate of Return and Sensitivity Test.....

Volume II is a separate document containing the implementation report and technical annexes.

## CURRENCY EQUIVALENTS

(June 2010)

UA 1 = USD 1.47433 = CFAF 780.923 = EUR 1.10896

USD1 = CFAF 459.613

EUR 1 = CFAF 655.957

### Fiscal Year

1 January – 31 December

## WEIGHTS AND MEASURES

1 metric ton = 2,204 pounds

1 kilogram (kg) = 2.20 pounds

1 meter (m) = 3.28 feet

1 millimeter (mm) = 0.03937 inch

1 kilometer (km) = 0.62 mile

1 hectare (ha) = 2.471 acres

## ACRONYMS AND ABBREVIATIONS

### ACRONYMS

### DEFINITIONS

<b>ADB</b>	:	African Development Bank
<b>ADF</b>	:	African Development Fund
<b>BD</b>	:	Bidding Document
<b>BNDA</b>	:	National Agricultural Development Bank
<b>CANECO</b>	:	<i>Société d'exploitation de canne à sucre</i> [Sugarcane Development Corporation]
<b>CFAF M</b>	:	CFAF million
<b>CHC</b>	:	Community Health Center
<b>DNA</b>	:	National Directorate of Agriculture
<b>DNACPN</b>	:	National Directorate for Pollution and Environmental Nuisance Control
<b>DNGR</b>	:	National Directorate of Rural Engineering
<b>DRA</b>	:	Regional Directorate of Agriculture
<b>DRCN</b>	:	Regional Directorate for Nature Conservation
<b>DRGR</b>	:	Regional Directorate of Rural Engineering
<b>DRHE</b>	:	Regional Directorate of Water and Energy
<b>DRPIA</b>	:	Regional Directorate of Livestock Farming and Livestock Industries
<b>DRSV</b>	:	Regional Directorate of Veterinary Services
<b>EDEM</b>	:	Energie du Mali (Mali Electricity Company)
<b>EIG</b>	:	Economic Interest Group
<b>EME</b>	:	External monitoring/evaluation
<b>ESMP</b>	:	Environmental and Social Management Plan
<b>IER</b>	:	Institute of Rural Economics
<b>IGA</b>	:	Income generating activities
<b>IME</b>	:	Internal monitoring/evaluation
<b>MFI</b>	:	Micro-finance institution
<b>PDESC</b>	:	Economic, Social and Cultural Development Program
<b>PPP</b>	:	Public-Private Partnership
<b>SEDIZON</b>	:	Secretariat of State for Office du Niger Zone
<b>SOSUMAR</b>	:	Markala Sugar Corporation
<b>UA</b>	:	Unit of Account

## PROJECT INFORMATION SHEET

### Customer Data

<b>BORROWER</b>	:	Government of the Republic of Mali
<b>EXECUTING AGENCY</b>	:	Ministry of Industry, Investment and Trade

### Financing Plan

Source	Amount (UA million)	Instrument
ADF	28,97	Loan
IsDB	14,28	Loan/rate 0.75%/30 years
KFAED	11,53	Loan/rate TBC
SFD	11,12	Loan/rate 1%/30 years
KEX	14,60	Loan/rate 1%/30 years
OFID	10,90	Loan/rate 1%/30 years
BOAD	15,18	Loan/rate 2%/30 years
BIDC	13,50	Loan/rate 3%/30 years
Government	55,94	Own resources
<b>TOTAL COST</b>	<b>176,02</b>	

### Key ADB Financial Information

Loan amount	UA 28.97 million
Commitment charge*	0.5% of the undisbursed amount, effective 60 days following signature of the loan agreement
Service charge	0.75% per annum of the amount disbursed but not yet reimbursed.
Maturity	Half-yearly from the 11 <sup>th</sup> to the 50 <sup>th</sup> year
Grace period	10 years
FRR, NPV (baseline scenario)	N/A; USD 287.18 millions
ERR (baseline scenario)	22%

### Duration – Main Phases (projected)

Concept Note approval	February 2010
Project approval	December 2010
Effectiveness	March 2011
Final disbursement	December 2015
Completion	December 2016
Final reimbursement	

## **Project Summary**

### **1. General Overview of Project**

The Markala Sugar Project (MSP) is the first Public-Private Partnership (PPP) operation between Mali and the Bank in the agro-industrial sector. The strategic partner of the project is ILOVO Sugar of South Africa, the leading producer of sugar in Africa. The project objective is to ensure a sustainable increase in the income of sugar sector stakeholders. The project has two components: (i) the agricultural component concerns the development of 14,132 ha of spray-irrigation farms expected to produce an annual yield of 1.48 million tonnes of sugarcane, as well as the implementation of environmental and social management plans (ESMP), population resettlement action plans (RAP) and poverty control action plans (PAP); and (ii) the industrial component (which is the subject of a separate appraisal report from the Private Sector Department) concerns the construction of a processing plant with an annual output of 190,000 tonnes of sugar, 15 million litres of ethanol and the cogeneration of 30MW of electricity. The project will be implemented over a five-year period. The cost of the agricultural component is estimated at UA 176.02 million. The ADF will provide UA 28.97 million, the Government will provide UA 55.94 million and other co-financiers will contribute UA 91.11 million.

### **2. Project Beneficiaries and Impact**

Located within the Office du Niger Zone, the project will have considerable impact on the economy of Ségou Region and contribute to the creation of a regional development pole. The Sugarcane Development Corporation (*Société d'exploitation de canne à sucre*) (CANECO) will manage the sugarcane farming area. Independent sugarcane farmers (560) grouped together into a federation, will manage 40% of the sugarcane farms. Close to 2,450 households will take advantage of the improved lands to farm cereals and vegetables. On the whole, the project will benefit close to 156,000 inhabitants through the creation of 8,000 direct and 32,000 indirect jobs, capacity building and improved living conditions. Implementation of the project will require optimal management of water resources, especially during the dry season. Hence, it will encourage more efficient management of the irrigation networks within the Office du Niger Zone as well as the effective implementation of integrated water resource management in the Upper Niger River Basin (between Sélingué and Markala). The project will boost the development of biofuels and the creation of SMEs involved in the sugar sector and in vegetable farming.

### **3. Needs Assessment and Project Rationale**

The national sugar output (35,000 tons) is relatively low compared to needs (174,300 tonnes in 2009). Sugar markets remain fragmented and speculative, especially during the Ramadan month. The country has a high sugarcane development potential and substantial water resources that could be tapped. The sugarcane development potential is very high (190 tons/ha). The expected sugarcane output would be 105 tonnes/ha at start-up and 120 tonnes/ha when the project is fully operational. The project will help to cover the country's sugar needs and, in the long run, transform it into a sugar exporter (68,000 tonnes of sugar exports in 2015). It will generate high income for the beneficiaries, in addition to yielding tax revenue and foreign exchange savings for the State.

#### **4. Value-added for the Bank**

The Markala Sugar Project is in line with the Bank's action plan in Mali. The Bank supported the Government in preparing the project. It assisted in analysing issues related to environmental and social aspects, water management, sugar market regulation and the economic benefits of the project. It also played a catalytic role in mobilizing the financial resources needed for the agricultural and industrial components. Hence, the Bank was designated by the Government of Mali and private investors as the lead donor among project donors. It is the main financier of both the agricultural and industrial components. The assistance provided during project design was also a good opportunity for effective collaboration between various departments of the Bank involved (Agriculture and Agro-industry, Private Sector, Research and Country Programmes).

#### **5. Knowledge Management**

The setting-up and management of the Markala agro-industrial complex and the envisaged large-scale crop farms require diversified knowledge in civil engineering, agricultural engineering, agronomy, hydraulic and concerted water resource management, farm machinery, management of agricultural organizations, credit, environmental protection and agro-economics. The implementation and management of project infrastructure require that various stakeholders on the Borrower's side be knowledgeable on the management of similar projects. Study trips and training courses have been planned to enhance the skills of various teams and beneficiaries. The implementation of the Markala Sugar Project (MSP) provides a training framework and a learning opportunity for the country's experts. Experiences and best practices in agro-business, sugarcane production, composting, agro-industry, central pivot irrigation and cogeneration of electricity will be disseminated and shared.

**REPUBLIC OF MALI**  
**Markala Sugar Project – Agricultural Component**  
**PROJECT MATRIX (Results-Based)**

HIERARCHY OF OBJECTIVES	EXPECTED OUTCOMES	SCOPE/ BENEFICIARIES	PERFORMANCE INDICATORS	IMPLEMENTATION DEADLINES FOR TARGETED OBJECTIVES	ASSUMPTIONS/RISKS
<b>Long-term Results</b>					
<b>Goal</b> <b>1. Sector Objective:</b>  Contribute to equitable and sustainable economic growth in the country	<b>Impact:</b>  Increase in the agricultural sector growth rate	Country	Agricultural GDP growth rate	Increase in the average growth rate of the agricultural sector from 5% for the 2005-2009 period to 5.4% for the 2010-2015 period. Source: Reports of the Ministry of Economy and Finance	<b>Assumptions:</b> Political stability and steady improvement in the business environment; PRSF implemented <b>Country risks:</b> Mali is considered to be a moderate risk country <b>Mitigation:</b> Institutional framework favorable to good governance, democracy and the implementation of agricultural and agro-industrial strategies
<b>Medium-term Results</b>					
<b>Goal:</b> <b>II. Project Objectives:</b>  2.1 Ensure a sustainable increase in the income of sugar sector stakeholders.	<b>Impact</b>  2.1.1 <b>Increase in the income of beneficiary communities</b>	2.1. Population of about 156,000 inhabitants in the Sansanding and Sibila rural communities	2.1.1. <b>Increase in sugarcane, vegetables and rice yields (CANECO Crop Year Reports);</b>  2.1.2 <b>Number of direct jobs created, (Reports of the Project and of the Technical Ministries concerned);</b>	2.1.1 Farmers' income increases from 2009 to 2014 as follows: from CFAF 49,500/ha to CFAF 439,000/ha for sugarcane, CFAF 340,000/ha for rice and more than CFAF 1,200,000/ha for tomato and onion  2.1.2. 8,000 direct jobs created by the end of 2014	<b>Assumptions:</b> Good coordination of the agricultural and industrial components, and a win-win PPP partnership.  Market-related <b>risks:</b> A decline in demand will affect project income; Foreign exchange risk: the project will be financed mainly with foreign exchange while its revenue will be in CFAF.  <b>Mitigation:</b> Sugar market regulatory mechanisms will be put in place; part of the loans will be disbursed in CFAF

HIERARCHY OF OBJECTIVES	EXPECTED OUTCOMES	SCOPE/ BENEFICIARIES	PERFORMANCE INDICATORS	IMPLEMENTATION DEADLINES FOR TARGETED OBJECTIVES	ASSUMPTIONS/RISKS
<b>III. Activities:</b>					
<b>Short-term results</b>					
<b>3.1 Development of farming infrastructure</b> <b>3.1.1</b> Plan and develop sugarcane plantations  <b>3.1.2</b> Develop the zones between the pivots  <u>Cost:</u> <b>USD 226.00 million</b>  <b>3.2 Accommodating measures and capacity-building</b> <b>3.2.1</b> Implement the ESMP, the population resettlement plan and the poverty reduction support program  <b>3.2.2</b> Develop a rice-growing area  <u>Cost:</u> <b>USD 31.50 million</b>	<b>3.1.1</b> Increase in sugarcane yields;  <b>3.1.2</b> Increase of foodcrop and vegetable yields  <b>3.2.1</b> Effective and timely implementation of environmental and social actions and measures.  <b>3.2.2</b> Increase in cereal yields	Farmers Ségou Region  Project area communities and the rest of the country	<b>3.1.1.1</b> – Sugarcane cultivated area, yield and output (tonnes)  <b>3.1.1.2</b> – Tomato and onion cultivated areas, yield and output (tonnes)  <b>3.2.1.1</b> Dispensaries, schools, warehouses, boreholes and wells, training centers, multi-purpose centres constructed and equipped; pastoral and fish-farming infrastructure constructed and operational  <b>3.2.1.2</b> – Cultivated area, yields and output (tonnes) for rice	<b>3.1.1.1</b> 14,132 ha of farms cultivated in 2013 and irrigated by 210 pivots; equipment for farming (184 units), transport (60 units), irrigation (21 pumping stations) and sugarcane harvesting (92 units), procured by the end of 2012; sugarcane yield of 1,480,000 tonnes in 2015/16 at an average output of 120 t/ha <b>3.1.1.2</b> 1,250 ha between pivots farmed and planted with foodcrops and vegetables, and additional vegetable (tomato and onion) yields of 18,750 tonnes in 2015 at the rate of 15tonnes/ha.  Source: CANECO reports  <b>3.2.1.1</b> Implementation of the ESMP, resettlement plan for 127 households (1,644 individuals), one dispensary, 3 schools, 9 waterpoints, 10 training centres, 3 equipped multi-purpose centres, 200 km of pastureland, 10 cattle inoculation centers, 10 ha of fish-farming ponds, 10 village nurseries; 15 warehouses, 20 shea butter presses and 20 shellers fully built or procured by end 2013. <b>3.2.1.2</b> 1,000 ha developed for rice farming and an additional yield of 4,000 tonnes of rice at the rate of 4 tonnes/ha in 2015.  Source: ON and CANECO reports	<u>Assumptions</u> Construction of a plant with a daily output of 7,680 tonnes of sugar and a distillery by the end of 2012 in Markala with an annual output of 190,000 tonnes of sugar, 15 million tonnes of ethanol and cogeneration of 30 MW of electricity  Implementation <u>risks</u> : such risks would mainly result from construction delays, cost overruns and poor community ownership of the project  <u>Mitigation</u> Estimation of costs based on accepted norms and the experience of the strategic partner; 40% of the sugarcane farms managed by independent farmers from project area villages; community food security improved by the project; continuation of IEC missions to ensure community ownership and support.

HIERARCHY OF OBJECTIVES	EXPECTED OUTCOMES	SCOPE/ BENEFICIARIES	PERFORMANCE INDICATORS	IMPLEMENTATION DEADLINES FOR TARGETED OBJECTIVES	ASSUMPTIONS/RISKS
<p><b>D. Project Management</b></p> <p>Coordinate activities and manage staff, contracts/agreements, procurements and ensure monitoring/evaluation and communication within project teams</p> <p><b>Cost:</b></p> <p><b>USD 2.00 million</b></p>	<p>Management, implementation and monitoring/evaluation are conducted in accordance with the projected schedule and general conditions, and the Bank's procurement rules.</p> <p>Good communication with the Government, ON, SOSUMAR and beneficiaries</p>	<p>Project partners, rural communities, civil society, business community, decentralized communities and entities, women, youths, groups, technical services, consultants and local NGOs, etc.</p>	<p>CANECO and the ON team are operational;</p> <p>Efficient monitoring/evaluation system;</p> <p>Communication strategy and tools put in place;</p> <p>Quality and reports</p> <p><b>Sources:</b></p> <p>CANECO and ON documents and files;</p> <p>PPP agreement;</p> <p>Service provision and sugarcane sales contracts with SOSUMAR;</p> <p>Signed conventions and protocols;</p> <p>Supervision, mid-term review, completion and final appraisal reports</p>	<p><u>Early 2011</u>: CANECO and ON installed; agreements signed</p> <p><u>March 2011</u>: CANECO office equipment; Administrative, Accounting and Financial Procedures Manual prepared and functional; reference status and monitoring/evaluation system available</p> <p><u>Each year</u>: Steering Committee and active local technical committees; CANECO Board of Directors, General Assembly of the Federation of Independent Farmers; timely production of the account audit report, quarterly progress report, external monitoring/evaluation report and the supervision report.</p> <p>Mid-term review, final and completion reports available on time</p>	<p><b>Assumptions:</b></p> <p>Competent experts recruited;</p> <p>Counterpart resources effectively available</p> <p><b>Risk indicators:</b> Compliance with the projected implementation schedule;</p> <p>Disbursement rate;</p> <p>Audit;</p> <p>Compliance with the procurement arrangements</p> <p><b>Mitigative strategies:</b></p> <p>Prior review of the CVs of experts from the ON team</p> <p>Close monitoring by the Bank's Mali Field Office as well as regular and frequent supervision missions by the ADB and project co-financiers</p>
<p><b>TOTAL PROJECT COST: USD 259.506 million, or UA 176.016 million</b></p>					

**REPUBLIC OF MALI**  
**Markala Sugar Project – Agricultural Component**

**PROJECT IMPLEMENTATION SCHEDULE**

		<i>PROJECT IMPLEMENTATION YEARS</i>																							
		2010			2011			2012			2013			2014			2015			2016					
N°	ACTIVITIES																								
	Donors' meeting																								
1	Negotiations																								
2	Board approval																								
3	Approval of other financing																								
4	Signature of the ADF loan agreement																								
5	Authorization of first disbursement																								
6	Recruitment of consulting engineer																								
7	Approval of 1st competitive bidding for equipment																								
8	Bid reception and appraisal																								
9	Approval of bid-opening reports																								
10	Execution of development works																								
11	Execution of plantation works																								
12	Implementation of the environmental and social plans as well as the poverty reduction plan																								
13	Mid-term review																								
14	Government's Completion Report																								
15	ADF Completion Report																								
16	Audits																								

N.B.: Audits will be conducted yearly.

# **REPORT AND RECOMMENDATION OF AFRICAN DEVELOPMENT FUND MANAGEMENT TO THE BOARD OF DIRECTORS CONCERNING FINANCING OF THE AGRICULTURAL COMPONENT OF THE MARKALA SUGAR PROJECT IN MALI**

Management hereby submits this report and recommendation to grant a loan of UA 28.97 million to the Government of Mali to help finance the agricultural component of the Markala Sugar Project (MSP).

The project is a top priority to the Malian Government, which applied to the African Development Fund (ADF) for its financing. To that end, a feasibility study was conducted. The results confirmed the high sugarcane production potential as well as the financial, economic and commercial viability of a 14,132 ha sugarcane plantation and a processing plant with an annual output of 190,000 tonnes of white sugar and substantial by-products (annual output of 15 million litres of ethanol and cogeneration of 30 MW of electricity). The Bank provided technical assistance to the Government in preparing this innovative project.

Indeed, the MSP public-private partnership (PPP) operation will have considerable development impact through reduction of sugar imports, job creation, poverty reduction, increased income for beneficiary communities, creation of a major regional development pole, human capacity-building and consolidation of socio-economic infrastructure.

## **I – STRATEGIC THRUST AND RATIONALE**

### **1.1 Programme Linkages with Country Strategy and Objectives**

The project is in line with the priorities of the Government's Rural Development Master Plan (SDDR). The major strategic guidelines retained in the SDDR are: (i) liberalization and privatization of the agricultural sector; (ii) intensification, securement and diversification of agricultural production while preserving natural resources; and; (iii) integration of agriculture and industry. It constitutes a reference framework for all rural development sub-sectors, including the agro-industry sub-sector. The project is in line with the objectives of the new Poverty Reduction Strategy Framework (PRSF II - 2007-2011), the NEPAD priority guideline on rural infrastructure development and the Millennium Development Goal on eradicating poverty and famine (MDG 1). It also conforms with the guidelines on the Bank's intervention strategy in Mali (CSP 2008-2011), which supports the implementation of the poverty reduction strategy framework (PRSF) and the rural sector.

### **1.2 Rationale for Bank's Involvement**

The Markala Sugar Project is in line with the Bank's intervention priorities in Mali. The two pillars of the Country Strategy Paper (CSP 2009-2011) are: boosting private sector competitiveness and promoting rural development. As a public-private partnership (PPP) project, it is in line with the Bank's private sector strategy. The investment to be made will constitute an industrial pole, which will generate numerous ancillary benefits for the whole economy. The project is justified by the need to speed up the structural transformation of the economy and growth sectors with a view to: (i) increasing opportunities to create employment and raise incomes; (ii) boosting productivity, economic competitiveness and regional integration; and (iii) increasing access to basic social services for poor communities. This project will be the first PPP-type operation financed by the Bank in the agro-industrial sector. Hence, the Bank's departments in charge of agriculture, agro-industry and the private sector assisted the Government and stakeholders in preparing the project.

### 1.3 Coordination of assistance

	Sector or Sub-sector*	Size		
		GDP	Exports	Labour
	[Rural sector - RDS]	[34%]		
	<b>Stakeholders – Annual Public Expenditure (2009)**</b>			
Total (In CFAF million)	Government	Donors		[%]
735 708	[143 205]	[595 923]	<i>ADB</i>	26
			<i>World Bank</i>	25.5
100 %	[19%]	[81%]	<i>IFAD</i>	6
			<i>IsDB</i>	6
			<i>ABEDA</i>	4
			<i>OPEC Fund</i>	3.7
			<i>Belgium</i>	3.5
			<i>EU</i>	2.20
			<i>Others</i>	23.10
	<b>Assistance coordination level</b>			
	Existence of thematic working groups			[Yes]
	Existence of a global sector program			In the preparation phase
	ADB's role in assistance coordination***			[M]****

\*the most appropriate; \*\* Years [Y1 to Y2]; \*\*\* for this sector or sub-sector

\*\*\*\* L: Lead donor; M: member (not lead donor); None: no role

Source: List of Projects/Programmes 2009 CPS-RDS

1.3.1 Mali's technical and financial partners (TFP) have established consultative mechanisms to better coordinate their operations and share information at both the general and sector levels. To that end, they have prepared a Joint Country Assistance Strategy (JCAS) Paper in consultation with the Government of Mali, in order to support the Growth and Poverty Reduction Strategy Framework (GPRSF) for 2007-2011. The JCAS was signed between the Government and TFPs on 7 December 2009. Its main objective is to help Mali to attain its Growth and Poverty Reduction Strategy objectives as the first phase of a ten-year plan to attain the Millennium Development Goals.

1.3.2 For implementing the JCAS, the TFPs established 3 (three) levels of coordination at the general and sector level: (i) the first level is general coordination centred around the GPRSF and conducted by the Group of Heads of Agencies and Missions, under the leadership of the Troika of TFPs, one of which is a lead donor assisted by the Technical Pool. Since 2009, the African Development Bank has been a member of the Troika, together with Canada which holds the leadership in 2010 and the UNDP which is the outgoing leader. The Bank will take over the leadership in 2011. This coordination group meets once a month; (ii) The second level is sectoral and thematic coordination centred around 10 Thematic Groups (TGs) and 3 Cross-cutting Groups. Leaders were designated for each of the 13 Groups, with a mandate covering the PRGSF period or lasting for at least 2 years renewable; (iii) the third level is coordination centred around sub-sectors identified in the 13 Thematic Groups. These thematic groups serve as the forum for sector dialogue with the Malian Government. At the general level, PTF/Government policy dialogue is conducted within the framework of GPRSF monitoring through the Mali-TFP Joint Commission which meets every six months.

1.3.3 In the rural sector, Mali's technical and financial partners came together under the Agricultural and Rural Economics Group currently chaired by the FAO. This Group comprises the following consultative sub-groups: the Livestock Farming and Fisheries Sub-group chaired by Belgian Cooperation; the Irrigation Sub-group chaired by GTZ; the Cotton Sub-group chaired by the French Development Agency (AFD) which covers

all agricultural sectors with special focus on trade aspects; the Office du Niger Sub-group chaired by the Netherlands; and lastly the Food Security Sub-group chaired by WFP. There is also an Environment Group chaired by GTZ.

1.3.4 The Bank is the lead donor for the two project components. It coordinates the project donors. Meetings of project partners were organized in June 2007 in Cologne (Germany), in November 2007 in Bamako, in February 2008 in Tunis and in December 2009 in Bamako. The objective of these meetings was to review preparation studies and share views on the technical, financial, environmental and social aspects of the project. At Government's request, a final roundtable of partners to finalize the financing plan was organized in Tunis in July 2010. Preparation and appraisal missions from the Bank met the main partners of Office du Niger and shared the findings of their investigations with them. The consultations initiated with the partners will continue during project implementation.

## II - PROJECT DESCRIPTION

### 2.1 Project Components

2.1.1 The sector objective is to contribute to equitable and sustainable economic growth in the country. The project objective is to ensure a sustainable increase in the income of sugar sector stakeholders.

#### Project Description

2.1.2 The project is located within the Markala Zone (Markala is a town situated in Ségou Region, 275 km away from Bamako). The project has 2 (two) components: (i) the agricultural component, financed with concessional resources, concerns the development of 14,132 ha of farmland expected to produce an annual yield of 1.48 million tonnes of sugarcane, as well as the implementation of environmental and social management plans (ESMP), population resettlement action plans (RAP) and the community poverty control action plan (PAP); and (ii) the industrial component, which is co-financed by the Bank's private sector window, concerns the construction of a sugar plant with a daily processing capacity of 7,680 tonnes, expected to yield an annual output of 190,000 tonnes of sugar, 15 million litres of ethanol and the cogeneration of 30 MW of electricity by processing 60,000 tonnes of molasses and 460,000 tonnes of bagasse. Execution of the project's agricultural component will focus on three other components: (i) development of production infrastructure; (ii) accommodating measures and capacity-building; and (iii) project management.

#### Component A/ Development of Production Infrastructure

2.1.3 This component focuses on the production of sugarcane on a net surface area of 14,132 ha, to be irrigated by diverting the waters of the Niger River into the canals of Office du Niger after building a pivot irrigation system fed by 21 pumping stations. The water will be abstracted through gravity from the main canals by a battery of water intake structures in secondary canals, which will, in turn, pump it into the 210 pivots for irrigation of the farming area. The Sugarcane Development Corporation (*Société d'exploitation de canne à sucre*) (CANECO) will manage this sugarcane scheme. CANECO will directly manage 60% of the sugarcane scheme (8,479.2 ha) while independent farmers will manage 40% (5,562.8 ha) of the area. The zones between the pivots (about 1,250 ha) will be developed and distributed to independent farmers for cultivation of foodcrops and vegetables, which could help to improve food security in the area. The choice of spray irrigation was dictated mainly by a concern to save water. This mode of irrigation is equally cheaper than localized (drip) irrigation. Given sugarcane cultivation water needs, the size of the above farmland and the processing plant, the water intake rate is estimated at 20 m<sup>3</sup>/s.

2.1.4 The main activities under this component are: soil preparation works; construction of intake structures on the main canals; digging of canals for water supply to the pivots (2 already in place and 208 more to be constructed) and for drainage; laying of irrigation pipes; construction of access roads and lanes; installation of pivot irrigation equipment, pumping stations and an electricity network; procurement of

farming equipment and vehicles; sugarcane plantations and various structures comprising the office premises, housing units, mechanical workshops, warehouses and a dispensary. Provision is also made for consultancy and facilitation services under this component.

### Component B – Accommodating Measures and Capacity Building

2.1.5 This component aims at improving income, food security and living conditions for project area communities. Some of these communities will be displaced and resettled (127 households) due to development of the sugarcane plantations. This component comprises: (i) implementation of the environmental and social management plan, and the population resettlement plan; (ii) development of community social infrastructure; and (iii) capacity-building. Hence, the following socio-economic infrastructure will be constructed: 4 schools, 2 health centres, 10 training centres for professional farmers associations (PFAs), 4 drinking water points, 15 warehouses, stockbreeding facilities (200 km of pastureland and transhumance corridors, 25 pastoral wells and 10 cattle inoculation centres), as well as the generation of power for the local population and the construction of 4 women’s empowerment centers for the villages located within the project area.

2.1.6 The project will carry out activities involving awareness-raising, organization and training of farmers on technical aspects and water management. It will also support the creation of income-generating activities which specifically target women and disadvantaged groups. Hence, women will be provided with standard equipment for processing and marketing agri-food products, catering, village shops and telephone booths. Women will be organised into associations and economic interest groups (EIGs) that share a specific area of interest. They will also benefit from capacity-building activities to make the most of operations financed for them. They will be trained on specific themes that are directly related to the activities they carry out. As many of them as want to can also attend various mixed training sessions, and could constitute at least 40% of the participants.

2.1.7 The project also provides for the development and cultivation of 1,000 ha of rice scheme. Specific support activities for livestock farming and fisheries will be implemented. Implementation of these activities will be entrusted to Office du Niger (ON).

### Component C - Project Management

2.1.8 This component comprises all activities related to project management. Engineering consultancies specialised in engineering, procurement, construction and management will be recruited to assist the executing agencies to implement the project (one for the plantations and one for the environmental and social aspects). It also covers all expenditure connected with the implementation of agreement protocols with project partners (SOSUMAR and specialized Government departments), monitoring/evaluation, accounts audit, mid-term review and financing of the ON team of experts responsible for implementing the relocation action plan (PAR) and for the development of the rice cultivated area.

**Table 2.1**  
**Project Components**

	<b>Name of Component</b>	<b>Cost Estimate</b>	<b>Component Description</b>
1	Sugarcane production infrastructure	UA 153.29 million	<ul style="list-style-type: none"> <li>▪ Construction of hydraulic network: water intake structures on canals, pumping station and 208 pivots;</li> <li>▪ Procurement of farming equipment</li> <li>▪ 14,132 ha sugarcane plantation;</li> <li>▪ Development of 1,250 ha for vegetable and foodcrop farming.</li> <li>▪</li> </ul>
2	Accommodating measures and capacity building	UA 21.37 million	<ul style="list-style-type: none"> <li>▪ Development of 1.000 ha of rice farms;</li> <li>▪ Construction of community social infrastructure;</li> <li>▪ Implementation of ESMP, RAP and PAP.</li> </ul>

3	Project management	UA 1.36 million	<ul style="list-style-type: none"> <li>▪ Project equipment and operation;</li> <li>▪ Monitoring/Evaluation and reports;</li> <li>▪ Procurement of goods, services and works;</li> <li>▪ Financial management.</li> </ul>
---	--------------------	-----------------	--

## 2.2 Technical Solutions Adopted and Alternatives Explored

2.2.1 Dry farming (millet, sorghum, maize) practised by the population is highly dependent on the very irregular rainfall in the region. Without better development of local resources, the region's short-term development prospects would be relatively limited. From the human standpoint, the area would continue to be underprivileged, landlocked and vulnerable, with limited socio-economic infrastructure and difficult living conditions due to limited exploitation and development of natural resources. Moreover, rural exodus and pauperisation of the area would likely increase. The execution of this total water control project is a real development opportunity for the region.

2.2.2 The projet retained the following technical options: selection of the pivot irrigation system for the sugarcane plantations. Part of the sugarcane farms (60%) will be managed directly by CANECO and another part (40%) by independent sugarcane farmers. The spray irrigation system is justified by better water management and higher sugarcane yields. Constructions within the zone and tests conducted in the two pivots already installed perfectly illustrate this. Compared with current rain-fed farming practices, productivity, yields and income levels will be substantially improved and increased. The involvement of local communities as independent sugarcane farmers will encourage greater ownership of the project by village communities and more harmonious and balanced local and regional development. Exclusive sugarcane monoculture will not be practised. If companion crops are not planted between the rows in sugarcane farms, foodcrops and vegetables will be grown between the pivots. This will help to improve food security and income levels for the local population.

*Table 2.2  
Alternative Solutions Explored and Reasons for Rejection*

Alternative Solution	Brief Description	Reasons for Rejection
Status quo	Land development through rain-fed farming methods	<ul style="list-style-type: none"> <li>▪ Underprivileged environment characterized by extreme vulnerability of the population, very high rural exodus and increased poverty due to recurrent droughts.</li> </ul>
Gravity flow irrigation of the sugarcane farms	Construction of open conduits to the plantations to water them through gravity flow irrigation	<ul style="list-style-type: none"> <li>▪ Water efficiency and sugarcane yields are lower (70-80 tonnes/ha), compared with spray irrigation (100-150 tonnes/ha).</li> </ul>
Total control of the farm	Total control of all the sugarcane farms by CANECO	<ul style="list-style-type: none"> <li>▪ No ownership of the project by project area communities</li> <li>▪ Limited support by local communities and risk of social conflicts</li> </ul>
Continuous sugarcane monoculture	Planting of the whole area with sugarcane	<ul style="list-style-type: none"> <li>▪ Food security problems for the local population and foodcrop shortage..</li> </ul>

## 2.3 Project Type

Project loan is the chosen instrument.

## 2.4 Project Cost and Financing Arrangements

2.4.1. The total cost of the project is USD 557 million, of which USD 297.5 million allocated to the industrial component. The cost of the Agricultural Component of the Project is estimated at UA 176.02 million (USD 259.50 million), net of taxes and customs duty, including UA 116.90 million (UA 172.34

million) in foreign exchange and UA 59.12 million (UA 87.16 million) in local currency . Customs duty and taxes will be defrayed by the State. A 10% provision for physical contingencies was applied to works and equipment. A 3% provision for local and international price increases was applied to all components. The project costs, per component and per category, are summed up in Tables 2.3 and 2.4 below:

**Table 2.3**  
**Cost Estimate by Component**

	USD Thousand			UA Thousand			% F.E .
	L.C.	Foreign Exchange	Total	L.C.	Foreign Exchange	Total	
Hydraulic infrastructure and plantations	51 173.11	132 270.31	<b>183 443.42</b>	34 709.40	89 715.54	<b>124 424,94</b>	72
Accommodating measures and capacity-building	21 191.35	6 436.48	<b>27 627.83</b>	14 373.54	4 365.70	<b>18 739,24</b>	23
Project management	492.74	1 280.96	<b>1 773.70</b>	334.21	868.84	<b>1 203,05</b>	72
<b>Base cost</b>	<b>72 857.20</b>	<b>139 987.75</b>	<b>212 844.95</b>	<b>49 417.15</b>	<b>94 950.08</b>	<b>144 367,23</b>	66
Physical contingencies	4 358.27	11 711.80	<b>16 070.07</b>	2 956.10	7 943.81	<b>10 899,91</b>	73
Price escalation (3% compounded)	9 947.42	20 644.49	<b>30 591.91</b>	6 747.08	14 002.62	<b>20 749,70</b>	67
<b>TOTAL</b>	<b>87 162.89</b>	<b>172 344.04</b>	<b>259 506.93</b>	<b>59 120.33</b>	<b>116896.51</b>	<b>176 016,84</b>	66

**Table 2.4**  
**Project Cost by Expenditure Category**

CATEGORIES	USD Thousand			UA Thousand			% F.E.
	L.C.	Foreign Exchange	Total	L.C.	Foreign Exchange	Total	
Works	56 016,57	31 634,08	87 650,65	37 994,59	21 456,58	59 451,17	36
Goods	405	88 326,55	88 731,55	274,7	59 909,62	60 184,32	100
Services	6 850,59	18 160,74	25 011,33	4 646,58	12 317,96	16 964,54	73
Operation	9 585,04	1 866,38	11 451,42	6 501,28	1 265,92	7 767,20	16
<b>Base cost</b>	<b>72 857,20</b>	<b>139 987,75</b>	<b>212 844,95</b>	<b>49 417,15</b>	<b>94 950,08</b>	<b>144 367,23</b>	66
Physical contingencies	4 358,27	11 711,80	16 070,07	2 956,10	7 943,81	10 899,91	73
Price escalation	9 947,42	20 644,49	30 591,91	6 747,08	14 002,62	20 749,70	67
<b>Total</b>	<b>87 162,89</b>	<b>172 344,04</b>	<b>259 506,93</b>	<b>59 120,33</b>	<b>116896,5</b>	<b>176 016,84</b>	66

2.4.2 Additional operating costs for the agricultural component are estimated to UA 30.22 million excluding tax (USD 44.55 million), including UC 12.68 million (USD 18.69 millions) in hard currency and UC 17.54 million (USD 25.86 million) in local currency. Additional operating costs will be entirely funded by CANECO. However, operating costs related to the initial plantation (inputs, labour, machinery maintenance and ploughing) have been included in the project investment costs and will be funded by financiers. When considering the additional operating costs, the agricultural component total cost is estimated at UC 206.23 million (USD 304.06 million). The project global cost summary per component is presented in the following table 2.5.

*Tableau 2.5 : Estimated project cost per component (including additional operating costs)*

COMPOSANTES	Milliers d'USD			Milliers d'UC			% Dev
	M.L	Devises	Total	M.L	Devises	Total	
Hydraulic infrastructure and plantations	51 173,11	132 270,31	183 443,42	34 709,40	89 715,54	124 424,94	72
Accommodating measures and capacity-building	21 191,35	6 436,48	27 627,83	14 373,54	4 365,70	18 739,24	23
Project management	492,74	1 280,96	1 773,70	334,21	868,84	1 203,05	72
Additional operating costs	22 590,13	16 493,90	39 084,03	15 322,30	11 187,38	26 509,68	42
Base cost	95 447,33	156 481,65	251 928,98	64 739,45	106 137,46	170 876,91	62
Physical contingencies	4 358,27	11 711,80	16 070,07	2 956,10	7 943,81	10 899,91	73
Price escalation (3% compounded)	13 220,42	22 839,92	36 060,34	8 967,07	15 491,73	24 458,80	63
<b>TOTAL</b>	<b>113 026,02</b>	<b>191 033,37</b>	<b>304 059,39</b>	<b>76 662,62</b>	<b>129 573,00</b>	<b>206 235,62</b>	<b>63</b>

*Tableau 2.7 : Estimated project cost per component (including physical and financial contingencies)*

COMPOSANTES	Milliers d'USD			Milliers d'UC			% Devises
	M.L	Devises	Total	M.L	Devises	Total	
Hydraulic infrastructure and plantations	62 736,58	163 263,66	226 000,24	42 552,60	110 737,53	153 290,13	72%
Accommodating measures and capacity-building	23 870,22	7 627,35	31 497,57	16 190,54	5 173,43	21 363,97	24%
Project management	556,10	1 453,03	2 009,13	377,19	985,55	1 362,74	72%
Additional operating costs	25 863,12	18 689,33	44 552,45	17 542,29	12 676,49	30 218,78	42%
<b>TOTAL</b>	<b>113 026,02</b>	<b>191 033,37</b>	<b>304 059,39</b>	<b>76 662,62</b>	<b>129 573,00</b>	<b>206 235,62</b>	<b>63%</b>

2.4.3 *Project financing* will be provided by the African Development Fund (ADF), the State of Mali and several other donors, including the Islamic Development Bank (IsDB), the ECOWAS Bank for Investment and Development (EBID), the West African Development Bank (WADB), the Saudi Fund for Development (SFD), the Kuwait Fund, the OPEC Fund (OFID), the Export-Import Bank of Korea (EXIMBANK) and the project's strategic partner (ILLOVO). As lead donor, the Bank will contribute UA 29.968 million from ADF XI resources, representing 16.46% of project costs, net of taxes and customs duty. The ADF contribution will be in the form of a loan. The loan will essentially cover part of the cost of irrigation equipment (pivots) for farmers' groups, development works on the Seribabougou rice scheme and parcelling of the vegetable scheme, certain activities planned as part of the accommodating measures and capacity-building, as well as engineering and consultancy services. Parallel financing will apply. The **indicative** distribution of project financing is presented in Table 2.6 below:

**Table 2.7****Source of Financing**

SOURCES	USD Thousand			UA Thousand			% Total
	L.C	Foreign Exchange	Total	L.C	Foreign Exchange	Total	
ADF	15 324,07	27 384,07	42 708,14	10 393,92	18 573,91	28 967,83	16,46%
GVT.	28 561,87	53 914,08	82 475,95	19 372,78	36 568,53	55 941,31	31,78%
KEX	0	21 529,35	21 529,35	0	14 602,80	14 602,80	8,30%
IsDB	12 635,51	8 423,67	21 059,18	8 570,34	5 713,56	14 283,90	8,12%
SFD	0	16 396,98	16 396,98	0	11 121,65	11 121,65	6,32%
KFAED	0	16 996,42	16 996,42	0	11 528,24	11 528,24	6,55%
OFID	6 021,59	10 049,60	16 071,19	4 084,29	6 816,37	10 900,66	6,19%
WADB	13 423,90	8 949,26	22 373,16	9 105,08	6 070,05	15 175,13	8,62%
EBID	11 195,95	8 700,59	19 896,54	7 593,93	5 901,39	13 495,32	7,67%
<b>TOTAL</b>	<b>87 162,89</b>	<b>172 344,02</b>	<b>259 506,91</b>	<b>59 120,34</b>	<b>116 896,50</b>	<b>176 016,84</b>	<b>100%</b>

2.4.4 The expenditure schedule is as follows:

**Table 2.8**  
**Expenditure Schedule by Component (in UA million)**

COMPONENTS	2011	2012	2013	2014	2015	Total	L.C.	Foreign Exchange
Hydraulic infrastructure and plantations	7 978,34	18 567,97	42 226,69	29 957,37	25 694,57	124424,94	34 709,40	89 715,54
Accommodating measures and capacity-building	3 948,24	8 383,66	5 434,84	708,78	263,71	18 739,24	14 373,54	4 365,70
Project management	175,42	231,63	267,6	247,25	281,16	1 203,05	334,21	868,84
<b>Base cost</b>	<b>12 102,00</b>	<b>27 183,26</b>	<b>47 929,13</b>	<b>30 913,40</b>	<b>26 239,44</b>	<b>144367,23</b>	<b>49 417,15</b>	<b>94 950,08</b>
Physical contingencies	923,53	1 884,45	3 827,43	2 239,35	2 025,15	10 899,91	2 956,10	7 943,81
Price escalation (3% compounded)	793,25	2 695,36	6 495,90	5 280,38	5 484,81	20 749,70	6 747,08	14 002,62
<b>TOTAL</b>	<b>13 818,78</b>	<b>31 763,07</b>	<b>58 252,46</b>	<b>38 433,13</b>	<b>33 749,40</b>	<b>176016,84</b>	<b>59 120,33</b>	<b>116896,51</b>

## 2.5 Project Target Area and Beneficiaries

2.5.1 The project area is located within the Markala locality, in Ségou Region. The project site straddles the territories of two rural council areas, namely Sansanding and Sibila in the Sansanding Sub-Prefecture – Ségou *Cercle* (administrative district). Access to the project site is possible through very good roads. However, access to basic socio-economic infrastructure remains relatively limited.

2.5.2 The zone has a semi-arid climate, with annual average rainfall of 610 mm. The water supply is abundant, albeit with wide seasonal fluctuations (average flow of 110 m<sup>3</sup>/s in March and 3,500 m<sup>3</sup>/s in September). Abundant resources, in terms of water, light-textured soils and strong sunshine are factors favorable to sugarcane farming. The identification of light-textured soils that can potentially be used for sugarcane cultivation led to delimitation of a total surface area of 20,000 gross hectares, including 14,132 net hectares.

2.5.3 The project will benefit about 156,000 persons from 85 localities. Its implementation will require the recruitment of labour, primarily provided by the project area communities. This approach will create agricultural and non-agricultural employment and thus curb rural exodus.

2.5.4 The project area land is part of the public property of the State. Nevertheless, the land law in Mali recognizes customary tenure. Consequently, the lands reserved for sugarcane farming will be retroceded to CANECO. Provision is made within the RAP for payment of compensation to land title holders or usufructuaries prior to development of such land.

2.5.5 Agriculture is the main activity practised by project area communities, followed by stockbreeding and fishing. Dry farming, which is not very productive, is practised on 95% of the cultivated land area. This accounts for the chronic food shortage noted in the project area. On the large farm holdings, the men are responsible for tilling, weeding, fertilizer application, harvesting, bagging, carting the produce from farm to home and storing it in the granary. *Women are very active on family farm holdings.* They sow, harvest, winnow and transport the produce in carts. Women are the key stakeholders in vegetable farming - an activity that generates most of their income. They carry out economic activities such as handicraft, petty trading and harvesting. Some women in semi-urban areas raise sheep, goats and, to a lesser extent, cattle. Others also raise penned livestock. Fishing is the exclusive preserve of men, although women are involved in fish processing and marketing. The profits which accrue from these activities are used to satisfy the specific needs of women.

## **2.6 Participatory Approach for Project Identification, Design and Implementation**

2.6.1 The project was designed following a participatory approach which involved all stakeholders at various stages of identification, preparation and appraisal. During project identification, preparation and appraisal, the consultants conducting studies and the Bank's missions discussed with stakeholders in Ségou, Markala, Sansanding and Sibila: traditional and administrative authorities, mayors of rural councils, representatives of farmers' organizations, and farmers from women and youth organizations. Some villages expressed reservations about the project. The Government conducted awareness-raising campaigns to secure the adherence of the villages concerned. The communities encountered especially insisted on food security issues related to the development of sugarcane cultivation. The planned development of the rice scheme and cultivation between the pivots target this concern.

2.6.2 The Bank's missions also met the project co-financiers, Mali's technical and financial partners (TFPs) who operate in the rural sector, and other stakeholders from public administration and civil society. The availability of water during low-water periods was one of the main concerns raised during these consultations. To address this concern, the Bank provided technical and financial assistance for the conduct of a study to assess the water resources available to the Office du Niger zone. The study concluded that current resources are enough to cover the water needs of the Markala sugarcane scheme. It recommended measures for consolidating the situation, such as optimizing management of the water retained at Sélingué dam and continuing with the water management improvement program within Office du Niger. The findings of the study were discussed at a national validation workshop in April 2010, which was attended by all stakeholders. A participatory approach was followed during project formulation and preparation of the Population Resettlement Plan and the Poverty Reduction Plan within the project area. This approach will equally be adopted during project implementation.

## **2.7 Bank Group Experience and Lessons Reflected in Project Design**

2.7.1 The Bank's portfolio of agricultural projects in Mali is relatively substantial, with 13 ongoing operations. In terms of financing for all projects, it stands at 44%. Close monitoring by the Mali Field Office (MLFO) and regular review, performance improvement and supervision missions have helped to streamline this portfolio. The performance of the agricultural portfolio is satisfactory (2.2/3 in 2010 compared to 2.05/3 in 2009) and there are no problem projects. Nevertheless, there are persistent procurement difficulties which lead to delays in project execution.

2.7.2 One of the key lessons drawn from implementing agricultural projects in Mali in general and of the Moyen Bani Plains Development Programme (PMB) in particular, is the crucial role played by good communication in securing community support. A communication strategy was prepared for the project. Its

implementation kicked off with the support of rural radio stations. Furthermore, the experience of ILLOVO, the strategic partner and leading producer of sugar in Africa, was capitalized upon and factored into project formulation.

2.7.3 The land allocation outcomes under completed projects (PAPIM and PMB) show that the amount of land allocated to women is very small (about 0.9%). For vegetable farming, women received 7% of total land allocation. Youths received 38% of rice schemes. In a bid to reinforce gender equality, the Markala Sugar Project plans to facilitate access to developed lands for women and youths. Women and youths will receive at least 20% of the sugarcane scheme allocated to villagers (independent farmers), 20% of the rice scheme and 50% of the land between the pivots which is reserved for food-crop and vegetable farming.

## 2.8 Key Performance Indicators

The key performance indicators and the baseline situation are presented in the logical framework. These indicators are: (i) the surface area cultivated and sugarcane yields and output attained; (ii) the number of jobs created; (iii) processing plant capacity, output for sugar, ethanol and energy; (iv) surface area, yields and output for rice and vegetable farming; (v) income of beneficiaries; (vi) number and type of farmers (ratio of men, women and youths); (vii) number of households with electricity and safe drinking water or number of installed water points for safe drinking water; (viii) number of persons with access to basic social services or number of schools and health centres built; and (ix) quantity of sugar imported and exported. Other specific indicators will be added during installation of the monitoring/evaluation system and the baseline situation at project commencement, following the results-based management approach.

## III - PROJECT FEASIBILITY

### 3.1 Economic and Financial Performance

3.1.1 *Financial performance* was assessed based on a farming period of 30 years, taking into account the costs and benefits involved in developing sugarcane and community plantations as well as capacity building. The project will help bring about a substantial improvement in farmers' income. It will be recalled that before the project, rain-fed/dry farming was practiced on the farms, notably for sorghum and millet. Farm income was estimated at CFAF 45,600/ha for sorghum and CFAF 49,500/ha for millet. The project will help to diversify production sources for rural households. In that regard, in addition to sugarcane cultivation, the project will develop 1,000 ha for rice farming and 1,250 ha (between the pivots) for food-crop and vegetable farming. The net farm income for sugarcane is CFAF 439,226/ha. It is worth noting that for sugarcane, farm income rises from CFAF 49,500 to CFAF 439,226, representing a gain of CFAF 389,726 (787%). On average, rice farming will generate a net farm income of CFAF 340,075/ha. Vegetable farming (tomato and onion) will yield substantial returns to women. The net farm income will vary, averaging CFAF 1,205,250 to CFAF 1,835,575/ha for vegetables. The calculation details for output and additional value are found in the technical annexes of the report.

3.1.2 *Economic performance:* Economic analysis was conducted using the baseline price method. It is based on comparison of the the "no-project" situation and the "project" situation. All project costs and farmers' operating costs were taken into account. They were estimated based on economic prices. Customs duty was excluded. Consequently, calculation of the project's agricultural component economic rate of return (ERR) yielded a value of 22% at a capital opportunity cost of 12%. The estimate of this rate includes income from rice and vegetable farming. This rate is deemed satisfactory given the scope of the project, the size of the land to be developed and the expected output. At the local level, the project will have a substantial impact on the economy of Ségou Region. It will help to improve the living standards and conditions of local communities by creating jobs and developing social infrastructure such as schools and dispensaries. The agro-industrial complex will create 6,670 direct jobs and provide its employees with regular training to develop their skills and boost their productivity. The project will be the leading private-sector employer in Mali. At least 2,450 households will engage in food-crop and vegetable farming. The project will encourage the development of SMEs and thus generate many indirect jobs. At the national level,

the project will enable Mali to expand its sugar industry and develop value-added products. The project will also generate tax revenue and foreign exchange savings for the State. The ERR for both components of the project stands at 13 %.

3.1.3 **Sensitivity analysis:** The sensitivity analysis was based on the following assumptions:

- (i) A 10% increase in project cost (infrastructure, equipment and other project expenses); under this assumption, the economic rate of return stands at 21%.
- (ii) A decrease (10%) in the supplementary benefits of the project due to a decline in prices and farm earnings; under this assumption, the economic rate of return also stands at 20%.
- (iii) If both assumptions above occur simultaneously (i.e. an increase in project cost and a decrease in benefits), the rate of return will stand at 19%.

3.1.4 The results of the above sensitivity analysis lead to the conclusion that the project remains viable, even under the worst assumptions (increase in cost and/or decrease in benefits), since its ERR remains higher than the opportunity cost of capital estimated at 12%.

## 3.2 Environmental and Social Impact

### Environment

3.2.1 Being a Category I project, a detailed ESIS was conducted for the MSP. Furthermore, pursuant to Bank policy on involuntary displacement of communities, a detailed population resettlement action plan (RAP) was prepared. Moreover, this RAP is part of a broader local development vision. A poverty control action plan (PAP) was prepared to that end. Summaries of the ESIS and RAP were published in September 2009 on the Bank's website. They were equally forwarded to the Bank's Board of Directors in October 2009. Given the quality of the ESIS, an environmental permit was issued by the Ministry of Environment.

3.2.2 At the national level, the positive effects of the project could be foreign exchange savings (over CFAF 31 billion) through sugar import substitution. From the social standpoint, the project will raise income in target communities. It will help to curb rural exodus and emigration by creating a national labour market. The MSP will encourage the emergence of real farmers, promote land securement and guarantee better access to means of production and training services. MSP implementation activities provide the affected communities with an opportunity to escape economic insecurity.

3.2.3 The main negative effects of the agricultural component relate to land requisition and the practice of monoculture, which could lead to the loss of wildlife and plant resources and the risk of erosion. Provision is made for cultivation between the pivots to avoid sugarcane monoculture. The negative impact of the industrial component could also affect the air, soil, water, health and safety. Nevertheless, industrial optimization practices adopted by the strategic partner, which include water saving, energy production through co-generation, composting, treatment of wastewater and effluent as well as control of production performance indicators will help to mitigate the negative effects.

3.2.4 All these identified negative effects will be mitigated through the implementation of actions provided for in the Environmental and Social Management Plan (ESMP). The goal of project Component B is to implement the ESMP, RAP and PAP. Its cost is estimated at UA 21.37 million (or USD 31.50 million).

### Climate Change

3.2.5 Studies conducted in 2003 show that temperatures in Mali appear to have risen by more than 2° C (Celsius) nationwide. The same studies show an average drop of 20% in rainfall between 1951-1970 (the wet period) and 1971-2000 (the reference period), leading to an isohyets displacement of 200 km towards

the South. The rainfall regime in Mali is seriously affected by climate change and variability. The country's population is very vulnerable to climate change. Project implementation will help to mitigate the harmful effects of climate change on project area communities since the project, in itself, constitutes a form of adaptation to these effects through total water control, promotion of rice varieties that are better adapted to current climatic conditions, creation of water points, reforestation and rangeland management.

3.2.6 The Markala Sugar Project will have a positive net carbon balance. The agricultural component will yield a net elimination of 165,850 tonnes of CO<sub>2</sub> per annum. For the industrial component, the quantities of CO<sub>2</sub> which could be released by the boilers of the sugar refinery will be offset by the use of bagasse for generating electricity. The emissions reduction rate is about 0.55 tonne of CO<sub>2</sub> equivalent per tonne of bagasse used (220,000 tonnes/year). Such a reduction in greenhouse gas emissions can be taken into account to obtain carbon credit. To that end, a GEF project amounting to USD 1 million to support cogeneration was prepared by the Bank in its capacity as the executing agency.

## **Gender**

3.2.7 Project implementation took gender aspects into account by guaranteeing opportunities for women. Hence, of the 5,600 ha of the sugarcane scheme distributed to independent farmers, at least 20% will be reserved for women and youths as well as 50% of the 1,250 ha reserved for food crop and vegetable farming. It is worth noting that at least 20% of the planned rice scheme will be allocated to women. The allocations will be made not only to women and youth heads of household, but also to persons grouped into associations, cooperatives and economic interest groups (EIGs). The project will spell out the allocation criteria in accordance with the provisions of Agricultural Law No. 06/045 of 5/9/2006.

3.2.8 Four multipurpose centres for women's empowerment will also be built, to serve as forums for information-sharing and training. At these centres, women will conduct income-generating activities (IGAs) through their associations, EIGs or individually. They will also be taught the requisite skills needed to efficiently run their IGAs. They will be guaranteed at least a 40% participation in mixed training sessions, study and business trips. Women will be heavily involved in sugarcane production operations, notably planting and weeding of farms. This will increase their contribution to household income. Furthermore, women will be specifically trained on the cultivation of specific vegetables.

## **Social**

3.2.9 The most significant social impact concerns improvement of the local environment, job creation, access to safe drinking water, rural electrification, access to basic services and an improvement in farmers' income. Improvement of the local environment will affect villages adjacent to the project area that are home to close to 156,000 persons.

3.2.10 Overall, the project will create 8,000 direct jobs and about 32,000 indirect jobs by developing different economic activities related to sugarcane, vegetable and rice farming. Furthermore, the income of independent sugarcane farmers will rise eightfold, compared to income currently generated from dry cereals. Such improvement in income will contribute to the food security of rural households. In addition, the project will boost growth as well as economic and social development in Ségou Region, and encourage the development of SMEs and SMIs operating in all segments of the sugar sector.

## **Involuntary Displacement**

3.2.11 The negative social impact of the project relates to population displacement. In all, 1,718 households from 64 localities will be directly affected by the project. The population to be physically relocated comprises 127 households (representing 1,644 persons) from 23 different localities. Communities affected by the project will receive compensation in kind (rice or sugarcane scheme) and/or cash, and in the form of assistance. Although the type of compensation is a matter of personal or individual choice, the

affected individuals were advised to opt for compensation in kind (farmland), which promotes the social cohesion and socio-economic unity of the localities to be relocated.

3.2.12 The different categories of compensation are: (i) compensation for loss of public or community physical infrastructure and physical equipment; (ii) compensation for loss of farm income during the transition period; (iii) compensation for loss of farmland; (iv) compensation for loss of natural resources; and (v) other forms of compensation.

3.2.13 With respect to additional measures, a poverty reduction action plan (PAP) was prepared for communities affected by the project. This ten-year plan is a Government medium-term commitment to assist 6,012 households from 85 localities of the MSP project area, to help them to pursue or start profitable economic activities and thus contribute to the sustainable economic development of the communities with a view to attaining the Millennium Development Goals (MDGs). The PAP gives priority to identified vulnerable persons (1,246). The implementation costs of the Population Resettlement Action Plan and the PAP over a five-year period, are included in the project cost.

## **IV - IMPLEMENTATION**

### **4.1 Implementation Arrangements**

4.1.1 Institutional arrangements: The Government signed a partnership agreement with ILLOVO and SAIL for the execution of the Markala Sugar Project. The initiation of the project led to the creation of two companies: the Markala Sugar Company (SOSUMAR) which will develop the industrial component of the project (financed by the private sector window) and CANECO which will deal with the agricultural component relating to irrigation infrastructure and the creation of sugarcane plantations as well as attendant measures. The Malian Government holds 90% of CANECO shares while SOSUMAR holds 10%. Private investors hold 97.5% of SOSUMAR's share capital (Illovo 65% and SAIL 2.5%, Malian private investors 30%) and the Government holds the remaining 2.5%. CANECO has signed a technical services agreement and sugarcane supply agreement with SOSUMAR. CANECO's entire sugarcane yield will be sold exclusively to SOSUMAR which, in turn, is under a reciprocal obligation to purchase it.

4.1.2 As part of project preparation, some aspects of the partnership agreements and the SOSUMAR/CANECO agreements were modified to further increase overall economic benefits accruing from the project (increase of the share of Malian private investors in the capital of SOSUMAR, increase of CANECO's share (from 52.8% to 58%) in the distribution of proceeds from sugar sales, distribution of capital, reduction of the tax exemption period and revision of the sugar market regulatory system). Prior to loan negotiation, the Government will forward the revised partnership agreement and the corresponding service agreements between CANECO and SOSUMAR to the Bank. In the long run, the Government could also retrocede 15% of its shares to independent sugarcane farmers (10%) and salaried workers (5%). The Government will sign a loan retrocession agreement with CANECO.

4.1.3 The sugar project is placed under the Ministry of Industry, Investments and Trade supervision. A sole project management unit will be implemented for the project's two components (agricultural and industrial) under the supervision of ILLOVO as a strategic partner who will be in charge of implementing both components. An executive committee will be set up for the project's operational phase. It will be chaired by the Ministry of Industry, Investments and Trade. The executive committee will be made up of representatives from Sosumar and Caneco's respective Boards, members of the interdepartmental committees made up from the concerned Ministries (Economy and Finance; Agriculture, water and Energy; Land; Land settlement and SEDIZON) and the Governorate of Ségou. The Niger Office (ON) will be responsible for the implementation of the populations relocation action plan (PAR) and for the development of the rice area. The Niger Office (ON) will set up a team made of a team leader specialised in irrigation, a procurement specialist, an agronomist, a socio-economist and an environmentalist. They will be recruited through a competitive process.

4.1.4 During the operational phase, independent sugarcane farmers will be organized into EIGs and grouped into unions and a Federation of Cooperatives. The draft statutes and internal regulations of the future Federation will be prepared prior to the commencement of the sugarcane plantation works. Partnership relations between CANECO and this Federation will be defined in a partnership memorandum of agreement. The draft memorandum of agreement will be submitted to the Bank.

4.1.5 Implementation schedule: The first sugarcane varietal tests were initiated in 2004 and high yield varieties selected. The development of sugarcane plantations will be done in accordance with the October 2011/September 2012 cropping schedule with clearing, site preparation, civil engineering works and nursery expansion. This stage will be followed by the development of infrastructure, extension of the irrigation system and expansion of the farmland over a period of three years to reach the target of 14,132 hectares. Construction of the sugar and ethanol plant should take a period of 2 years.

4.1.6 Procurement arrangements: Cofinancing will be parallel. Development works will be divided into segments. With respect to procurements to be financed with ADF funds, the major irrigation development works and irrigation equipment for the MSP and the rice scheme will be procured through international competitive bidding. Small-scale works divided into lots will be procured through local competitive bidding. Engineering consultancies will be recruited on the basis of a shortlist. All other procurements with parallel financing will be done according to the rules of each donor. All goods, works and services financed by the ADF will be procured in accordance with the ADF's relevant rules of procedure on procurement or its rules of procedure for the recruitment of consultants. In all cases, the Bank's standard bidding documents will be used. The project's management will prepare the procurement plan for the first eighteen months, which will be examined during the loan negotiations. The procurement arrangements are presented in the technical annexes.

**Table 4.1**  
**Procurement Arrangements (in UA thousand)**

CATEGORIES	ADF						GVT.	OTHER DONORS	TOTAL
	ICB	LCB	NAT. SHOPPING	SHORTLIST	OTHER	Total ADF			
<b>WORKS</b>	<b>5 426,19</b>	<b>4 157,28</b>	-	-	<b>3,39</b>	<b>9 586,86</b>	<b>14 332,43</b>	<b>35 531,88</b>	<b>59 451,17</b>
Irrigation development works	5 426,19					5 426,19		28 198,57	<b>33 624,76</b>
Drilling, pastoral and fish-farming development works and environmental mitigation actions		741,49				741,49	14 162,86	-	14 904,35
Creation of village nurseries					3,39	3,39			3,39
Other constructions (warehouses, training and multi-purpose centers, schools, cattle inoculation centres)		3 415,79				3 415,79	169,57	7 333,31	10 918,67
<b>GOODS</b>	<b>4 210,87</b>	<b>298,44</b>	-	-	-	<b>4 509,31</b>	<b>20 442,41</b>	<b>35 232,59</b>	<b>60 184,31</b>
Vehicules						-	33,91	-	33,91
Agricultural equipment	4 210,87					4 210,87	4 762,45	35 232,59	44 205,91
Agricultural inputs						-	15 646,05	-	15 646,05
Other equipment (equipment in the centres, rice hulling machines, shea butter presses, etc.)		298,44				298,44		-	298,44
<b>SERVICES</b>	-	-	-	<b>8 903,42</b>	<b>864,14</b>	<b>9 767,56</b>	<b>4 999,94</b>	<b>2 197,05</b>	<b>16 964,55</b>
Thematic training				453,22		453,22		-	453,22
Other training (awareness-raising, functional literacy...)					369,00	369,00			369,00
Studies / engineering / works control				7 544,23		7 544,23	437,49	2 197,05	10 178,77
Consultancy services (TA, management of CANECO, audits, mid-term review...)				905,97		905,97	4 562,45	-	5 468,42
Management services for Office du Niger						33,91			33,91
Covenants						461,23		-	461,23
<b>OPERATION</b>	-	-	-	<b>329,64</b>	<b>278,23</b>	<b>607,87</b>	<b>7 159,33</b>	-	<b>7 767,20</b>
Local staff				329,64		329,64	6 043,30	-	6 372,94
Miscellaneous operations						278,23	1 116,03	-	1 394,26
<b>BASE COSTS</b>	<b>9 637,06</b>	<b>4 455,72</b>	-	<b>9 233,06</b>	<b>1 145,76</b>	<b>24 471,60</b>	<b>46 934,11</b>	<b>72 961,52</b>	<b>144 367,23</b>
Unallocated						4 496,24	9 007,19	18 146,18	31 649,61
<b>TOTAL</b>						<b>28 967,84</b>	<b>55 941,30</b>	<b>91 107,70</b>	<b>176 016,84</b>

NB:

*Shortlisting applies only to the use of consultants.**Others: - refers to local shopping, international shopping and directly negotiated contracts.*

## **Financial Management**

4.1.7 The project Management is responsible for preparing the annual budget of the components it manages. It will be responsible for preparing the consolidated budget to be submitted to donors and stakeholders. It will set up a computerized accounting system for the project, a type of private accounting on full accrual basis. It will select an accounting system that is in keeping with international or SYSCOA-OHADA (Organisation for the Harmonisation of Business Law in Africa) standards. The system put in place should allow for generating data on general accounting, cost accounting and budget monitoring.

4.1.8 The project Management will prepare a single administrative procedures manual for managing the project. It will procure accounting software, the necessary IT equipment and mount training for accountants and administrative and financial experts. Project accounts will be audited yearly by a certified accounting firm at the end of each fiscal year. The auditor's terms of reference must be defined in line with the Bank's standard format and submitted to it for approval. A single annual audit report will be prepared for the project and for all donors. The report must reach the Bank and the co-financiers before 30 June of each year.

4.1.9 Financial management arrangements have to be set up and do not meet yet the Bank's minimum requirements. Based on our assessment, the overall fiduciary risk rating of the implementing agency is

Substantial. Therefore, financial management arrangements are presented in the technical annexes including an action plan. The implementing entity's FM arrangement is acceptable if: (i) it is capable of recording correctly all transactions and activities; (ii) it supports the preparation of regular and reliable financial statements; (iii) it safeguards its assets, and (iv) it is subjected to a satisfactory audit process. An action plan has been set up to mitigate this risk and is presented in the technical appendix.

## 4.2 Project Monitoring/Evaluation

4.2.1 The project will be executed over five years (2011-2015). Project activities will start with the preparation of an accounting and financial procedures manual, the setting up of a computerized accounting and financial management system and the selection of an audit firm. A project launching workshop and periodic supervision, mid-term review and completion missions will also be organized. The project implementation schedule is presented in Table 4.2 below:

**Table 4.2**  
**Implementation and Supervision Schedule**

No.	ACTIVITIES	AGENCY	START DATE	DURATION
	Partners' Roundtable	Co-financiers/ADF	July 2009	
	Project Appraisal Mission by OSAN/OPSM	ADB	June 2010	3 months
	Joint Appraisal Mission for PPP Project	ADB/Other donors	October 2010	
	Negotiation of loan agreement	ADB/GVT	November 2010	
	Presentation of project to the Board	ADB	December 2010	
	Signature of loan agreement	ADB/GVT	December 2010	
	Fulfillment of conditions	Government	March 2011	3 months
	Approval of financing by other partners	Co-financiers	December 2010	2 months
	Authorization of 1 <sup>st</sup> disbursement of ADF funds	GVT/ADF	March 2011	
	Preparation of 1 <sup>st</sup> annual budget	GVT/CANECO/ON	January 2011	
	Recruitment of Project Manager	GVT/CANECO/ON	January 2011	
	Recruitment of team leaders and members	GVT/CANECO/ON	January 2011	
	Launching of first procurements	CANECO/ON	February 2011	
	Project launching mission	GVT/ADF/Partners	March 2011	
	Recruitment of engineering consultants	CANECO/ON	March 2011	
	Development of sugarcane plantations	CANECO	October 2011	3 years
	Community development actions	Office du Niger (ON)	March 2011	4 years
	Mid-term review	GVT/ADF/Partners	October 2012	
	Completion of activities	GVT/firms	December 2015	
	Completion report of the ADF and partners	ADF/Partners	January 2015	
	First audit report	Audit firms/GVT/ADF/Partners	April 2012	

4.2.2 Internal monitoring/evaluation will be conducted by project Management. A baseline situation will be established at project commencement, with a performance measurement framework that allows for finetuning the project impact assessment indicators from the technical, environmental, financial and socio-economic standpoints. Project Management will submit progress and audit reports to the Bank and the financial partners. External monitoring/evaluation of the agricultural component will be conducted by a technical committee comprising representatives of the ministries concerned. This committee will undertake regular field missions (one every quarter). The ADF will also supervise the project through two supervision missions per year, one mid-term review (during the third year) and a final evaluation. A joint supervision mission of partners will be organized at least once a year.

## 4.3 Governance

In its ESDP, the Government gives priority to good governance and the fight against corruption. There is a gradual but perceptible improvement of the business environment in the country. The privatisation of *Banque internationale pour le Mali* (in 2008) and the Telecommunications Corporation (in 2009) was conducted successfully. Property rights are protected by law. Under the project, the land rights of usufructuaries will be respected and communities affected by the project will be fairly compensated. A committee will be set up to regulate the domestic sugar market. The committee will comprise representatives

of the Government, consumers, producers and other sugar sector stakeholders. It will ensure the concerted management of the sector, while taking into account the concerns of all stakeholders. The Bank's procurement procedures will be respected and transparency will be observed in transactions. A Board of Directors comprising 5 members (4 for the State of Mali and 1 for SOSUMAR) will be set up to guide and monitor the activities of CANECO.

#### 4.4 Sustainability

The project's sustainability depends in part on its conformity with the Government's economic and agricultural development policies and strategies. The farming activities chosen (rice farming, vegetable farming and foodcrop cultivation) are already familiar to and practiced by the communities concerned. The project is also a concretization of the Agricultural Law which provides for equal access to all State-developed lands for all farmers, especially women and vulnerable groups.

4.4.2 Financial projections show that the project is financially viable and allows for debt servicing without resorting to Government financial resources. There will be a marked improvement in the income of independent sugarcane farmers. The project will enable CANECO to fulfill all its financial obligations without recourse to the State. The financial performance will generate a surplus which will be used to develop poverty control activities. The capacity and experience of the strategic partner constitutes a guarantee for the maintenance and management of equipment and infrastructure. Recurrent costs related to investments in the repair and maintenance of infrastructure and equipment as well as additional operating costs are summed up as follows:

**Table 4.4**  
***Financing of Recurrent Costs per Year (UA million)***

Item	During Project Implementation					
	2011	2012	2013	2014	2015	Total
<b>Sources of Financing</b>						
CANECO	0,69	2,91	11,18	13,25	2,19	30,22
ADF, GOV and others financiers	21,59	11,12	11,45	11,79	12,15	68,1
<b>Total</b>	22,28	14,03	22,63	25,04	14,34	98,32

4.4.3 The recurrent costs during project implementation are estimated at UA 98.32 million. They will be financed by the ADF and other donors up to UA 68.10 million and CANECO for UA 30.22 million. At the end of the external donor financing period, the Government and CANECO will continue to defray recurrent costs related to labour, inputs, operational expenses and additional operating costs.

4.4.4 The recommended participatory approach is a guarantee of success for any development project. Relevant actions were identified according to the specific needs of each target group (men, women and youths). A consistent capacity-building program has been retained, with a view to providing beneficiaries with the skills needed for better management of activities. However, the sustainability of actions depends on the degree of ownership of the project by the stakeholders involved in its implementation. Such ownership will be all the more consolidated through direct management of 40% of the sugarcane scheme by independent farmers and if the project actions retained are based on the priority needs of the beneficiaries.

4.4.5 Implementation of actions identified for the communities will significantly boost the income of the target groups and thus ensure a certain degree of sustainability. Furthermore, the setting up of infrastructure management and maintenance organs, whose members will be educated and trained for that purpose, will certainly contribute to ensuring the sustainability of the project's economic infrastructure and equipment. The involvement and empowerment of women in all project activities, and their rigor in managing community affairs equally constitute an additional guarantee of smooth project implementation and sustainability of actions. Capacity-building of various stakeholders in their respective areas of interest will be a clear asset in ensuring the sustainability of post-project actions.

## 4.5 Risk Management

**4.5.1 Implementation risks:** These mainly concern risks resulting from construction delays, social problems, cost overruns, procurement management and equipment dispatch. Implementation risks will be guaranteed by ILLOVO, the strategic partner, which will rely on its sugar project management experience and strong financial position to ensure that the project is successfully implemented from the physical and financial standpoints. Ongoing Information, Education and Communication (IEC) campaigns will be pursued to further raise public awareness and thus avoid social conflict.

**4.5.2 Production risks:** Sugarcane farms in the Markala region are vulnerable to insect and disease attacks. The farms already in place resist these attacks quite well. Furthermore, tests already conducted have led to the selection of several resistant and adapted species. The selection of resistant or tolerant varieties, the treatment of sugarcane slips with hot water prior to planting and the institution of a vector control and monitoring programme in the farms, will help to address these risks. Hence, capacity-building will be organized for independent farmers and a partnership agreement signed with national plant protection services.

**4.5.3 Water availability:** the fact that many schemes are being developed or planned has generated fears of water shortage during the dry season. In a bid to ensure water availability and confirm the technical feasibility of the project, the Bank assisted the Government in assessing the availability of water resources. Hence, a *Multi-year Water Assessment* (2010-2020) for the Office du Niger area was prepared, taking into consideration available water resources and the water needs of all farms. Validated in April 2010 during a workshop attended by all stakeholders, this assessment confirms the availability of water for the project. The assessment will be updated yearly for the dry season and forwarded to the Bank before 31 December. The Government has already signed an agreement to supply water to SOSUMAR/CANECO at a flow rate of 20 m<sup>3</sup>/s to cover the project's water needs at all seasons. Management of the Sélingué dam will be modified to ensure an additional flow of 25 m<sup>3</sup>/s during low-water periods, to give priority to the irrigation needs of the ON area. In that regard, a decision from the Ministry in charge of Water and Energy was made on the principles for allocating the water resources of the Sélingué dam and was communicated to the Bank before 31 December 2010. To further encourage optimal management of water resources, volumetric billing will be introduced for the project and for all agro-industrial operations. Water billing levels will be revised, taking into account the maintenance cost of the primary water supply network of Office du Niger.

**4.5.4 Risk of market loss:** Considering the current sugar deficit on the national and regional markets, as well as demographic changes, a fall in demand does not seem likely. However, prices may fall as a result of dumping. Market studies show that the MSP should remain competitive in the Niger and Burkina Faso markets against imports from Brazil and industries within the sub-region (Nigeria and Ghana), thanks to its relatively low production costs. A protection system negotiated with all stakeholders will be instituted to regulate the domestic sugar market. The transmission of sugar market regulatory texts is one of the loan conditions.

**4.5.5 Exchange rate risks:** The industrial project will be financed mainly with foreign exchange, while its revenue will be in local currency (CFA Franc). The foreign exchange risk will be mitigated by the WADB loan in CFAF and the fact that loans from international donors will be disbursed in Euros, a currency to which the CFAF is pegged at a fixed parity.

## 4.6 Knowledge Development

**4.6.1** The setting up and management of the Markala agro-industrial complex and the envisaged large-scale irrigated areas require diversified knowledge in civil engineering, agricultural engineering, agronomy, hydraulics and concerted water resource management, farm machinery, management of agricultural organizations, credit, environmental protection and agro-economics. Setting up and managing project infrastructure require that various stakeholders on the Borrower's side should also be knowledgeable about the operation of similar projects. Study trips and training courses have been planned to enhance the skills of various

teams and beneficiaries. Implementation of the Markala Sugar Project (MSP) provides a training framework and a learning opportunity for the country's experts. Experiences and best practices in agrobusiness, sugarcane production, composting, bio-fuels, agro-industry, central pivot irrigation and cogeneration of electricity will be disseminated and shared. The project will especially provide women with the requisite capacity to make the most of activities financed for them. They will be trained on specific themes that are directly related to the activities they carry out. They will also attend various mixed training sessions and exchange trips.

## **V – LEGAL FRAMEWORK**

### **5.1 Legal Instrument**

The legal framework of the MSP shall be a loan agreement between the Republic of Mali and the Bank. The agreement will contain the terms and conditions of the loan.

### **5.2 Conditions Associated with Bank's intervention**

5.2.1 The Bank's *intervention is subject to fulfillment of the following special conditions:*

#### *A. Conditions Precedent to Loan Effectiveness*

5.2.2 Loan effectiveness shall be subject to the Borrower's fulfillment of conditions set forth in Section 12.01 of the General Conditions.

5.2.3 Apart from entry into force of this Loan Agreement, the Fund shall make a first disbursement of loan resources only if the Borrower fulfils the following specific condition to the satisfaction of the Bank: provide the agreement to on-lend to CANECO the project loan as well as proof of opening a special account in a bank deemed acceptable by the Fund and intended to receive the loan resources.

#### *B. Other conditions*

5.2.4 Furthermore, the Borrower shall:

- (i) Submit the project Environmental Monitoring Plan to the Fund, latest six (6) months following the date of signature of the loan agreement, and forward to the Fund half-yearly reports on implementation of the Environmental and Social Management Plan (ESMP) and the Resettlement Action Plan (RAP), latest one (1) month following the end of each fiscal year;
- (ii) Submit to the Fund, latest six (6) months following the date of signature of the Loan Agreement, documents related to water billing review applicable to the project and ON private operators;
- (iii) Submit to the Fund, before 31 December of each year, the updated water balance and the Sélingué Dam management guidelines for the dry season (from January to June); and
- (iv) Submit to the Bank, latest six (6) months following the loan agreement signature date, the draft sugar regulation texts.

### **5.3 Compliance with Bank Policies**

The Markala Sugar Project (MSP) complies with the Bank's policies and strategies on the environment, agricultural development and agro-industry.

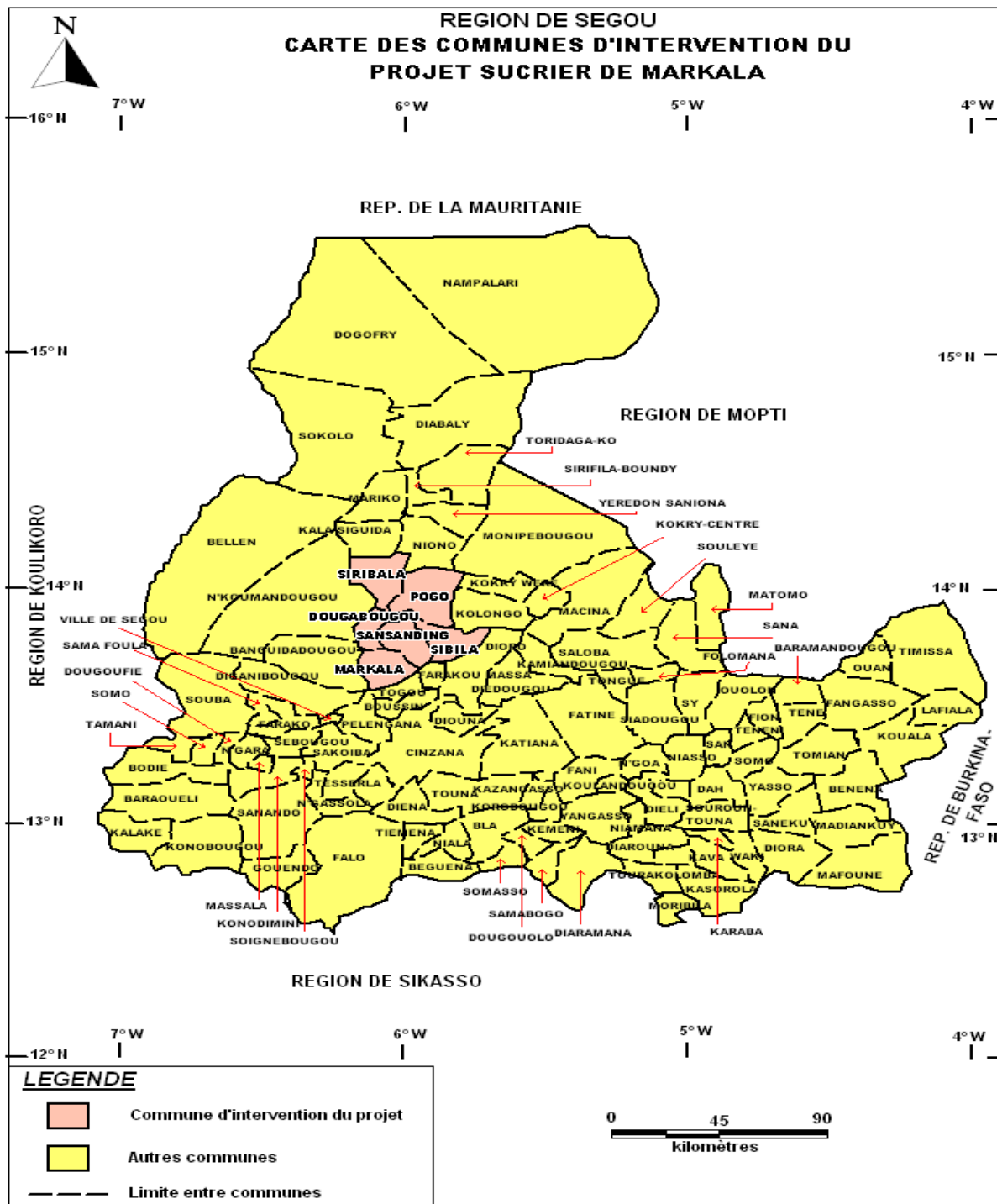
## **VI – RECOMMENDATION**

It is recommended that an ADF loan not exceeding UA 28.97 million be granted to the Republic of Mali to help finance the agricultural component of the Markala Sugar Project, subject to conditions set forth in paragraph 5.2 of this report.

# **ANNEXES**

MALI

LOCATION MAP OF THE MARKALA SUGAR PROJECT AREA

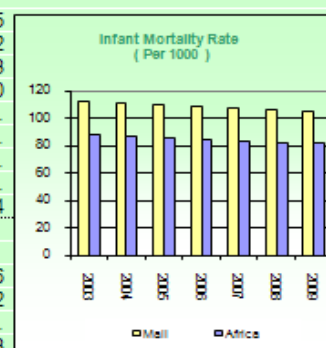
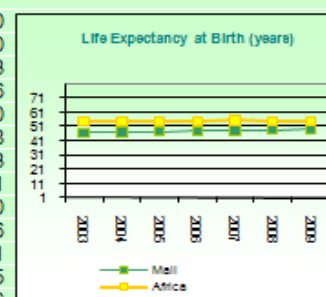
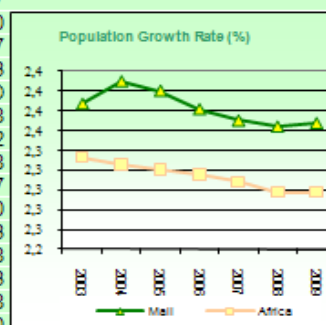
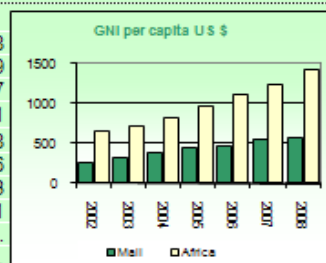


*This map has been drawn up by the staff of the African Development Bank exclusively for the use of readers of the report to which it is attached. The names used and the borders shown do not imply on the part of the ADB Group and its members any judgment concerning the legal status of a territory nor any approval or acceptance of these borders..*

## Mali

### COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Mali	Africa	Developing Country	Developed Country
<b>Basic Indicators</b>					
Area ( '000 Km²)		1 240	30 323	80 976	54 658
Total Population (millions)	2009	13,0	1 008	5 629	1 069
Urban Population (% of Total)	2009	32,7	39,6	44,8	77,7
Population Density (per Km²)	2009	10,5	3,3	66,6	23,1
GNI per Capita (US \$)	2008	580	1 428	2 780	39 688
Labor Force Participation - Total (%)	2009	26,4	41,2	45,6	54,6
Labor Force Participation - Female (%)	2009	38,2	41,2	39,8	43,3
Gender -Related Development Index Value	2005	0,371	0,525	0,694	0,911
Human Develop. Index (Rank among 182 countries)	2007	178	0,514	n.a	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2006	51,4	50,8	25,0	...
<b>Demographic Indicators</b>					
Population Growth Rate - Total (%)	2009	2,4	2,3	1,3	0,7
Population Growth Rate - Urban (%)	2009	4,2	3,4	2,4	1,0
Population < 15 years (%)	2009	44,2	56,0	29,2	17,7
Population >= 65 years (%)	2009	2,3	4,5	6,0	15,3
Dependency Ratio (%)	2009	86,8	78,0	52,8	49,0
Sex Ratio (per 100 female)	2009	97,6	100,7	93,5	94,8
Female Population 15-49 years (% of total population)	2009	24,3	48,5	53,3	47,2
Life Expectancy at Birth - Total (years)	2009	48,8	55,7	66,9	79,8
Life Expectancy at Birth - Female (years)	2009	49,5	56,8	68,9	82,7
Crude Birth Rate (per 1,000)	2009	42,3	35,4	21,5	12,0
Crude Death Rate (per 1,000)	2009	15,4	12,2	8,2	8,3
Infant Mortality Rate (per 1,000)	2009	104,3	80,0	49,9	5,8
Child Mortality Rate (per 1,000)	2009	185,2	83,9	51,4	6,3
Total Fertility Rate (per woman)	2009	5,4	4,5	2,7	1,8
Maternal Mortality Rate (per 100,000)	2005	970,0	683,0	440,0	10,0
Women Using Contraception (%)	2006	...	...	61,0	75,0
<b>Health &amp; Nutrition Indicators</b>					
Physicians (per 100,000 people)	2004	9,3	42,9	78,0	287,0
Nurses (per 100,000 people)*	2004	58,0	120,4	98,0	782,0
Births attended by Trained Health Personnel (%)	2006	45,1	50,5	63,4	99,3
Access to Safe Water (% of Population)	2008	56,0	64,0	84,0	99,6
Access to Health Services (% of Population)	2006	...	61,7	80,0	100,0
Access to Sanitation (% of Population)	2008	36,0	38,5	54,6	99,8
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	1,5	4,5	1,3	0,3
Incidence of Tuberculosis (per 100,000)	2007	319,0	313,7	161,9	14,1
Child Immunization Against Tuberculosis (%)	2007	97,0	83,0	89,0	99,0
Child Immunization Against Measles (%)	2007	87,0	74,0	81,7	92,6
Underweight Children (% of children under 5 years)	2004	38,0	25,6	27,0	0,1
Daily Calorie Supply per Capita	2005	2 579	2 324	2 675	3 285
Public Expenditure on Health (as % of GDP)	2006	2,9	5,5	4,0	6,9
<b>Education Indicators</b>					
Gross Enrolment Ratio (%)					
Primary School - Total	2008	91,3	100,2	106,8	101,5
Primary School - Female	2008	82,7	91,7	104,6	101,2
Secondary School - Total	2008	34,8	35,1	62,3	100,3
Secondary School - Female	2008	27,1	30,5	60,7	100,0
Primary School Female Teaching Staff (% of Total)	2008	26,7	47,5	...	...
Adult Illiteracy Rate - Total (%)	2007	76,7	59,4	19,0	...
Adult Illiteracy Rate - Male (%)	2007	68,6	69,8	13,4	...
Adult Illiteracy Rate - Female (%)	2007	84,0	57,4	24,4	...
Percentage of GDP Spent on Education	2006	4,6	4,5	...	5,4
<b>Environmental Indicators</b>					
Land Use (Arable Land as % of Total Land Area)	2007	4,0	6,0	9,9	11,6
Annual Rate of Deforestation (%)	2006	...	0,7	0,4	-0,2
Annual Rate of Reforestation (%)	2006	...	10,9	...	...
Per Capita CO2 Emissions (metric tons)	2008	0,1	1,1	1,9	12,3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators; last update : septembre 2010

UNAIDS; UNSD; WHO; UNICEF; WRI; UNDP; Country Reports.

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

**DETAILED TABLE OF DATA ON THE BANK'S PORTFOLIO IN MALI (as at 30 June 2010)**

PROJECT	PFI Status	Approval Date	Signature Date	Date of Effectiveness	Closing Date	Date of last Disbursement	Project Age	% Disbursed	Rating
MOPTI REGION RURAL DEVELOPMENT	NON PP / NON PPP	10.10.2001	26.10.2001	17.09.2002	30.06.2011	22.06.2010	8.73	82.32 %	1.90
II LINE OF CREDIT TO BNDA	NON PP / NON PPP	12.12.2002	14.02.2003	24.02.2004	31.07.2010	15.02.2010	7.55	96.38 %	2.61
IRRIGATION DEVELOPMENT PROGRAMME	#	27.05.2009	17.06.2009	18.11.2009	31.12.2016	21.01.2010	1.09	0.93 %	
BAGUINEDA INTENSIFICATION PROJECT	NON PP / NON PPP	30.11.2005	19.05.2006	24.07.2007	31.12.2011	22.06.2010	4.58	78.52 %	2.97
LIVESTOCK FARMING DEVELOPMENT SUPPORT	NON PP / PPP	11.09.2002	23.01.2003	20.08.2004	31.12.2011	28.04.2010	7.81	47.25 %	1.90
SOUTH KAYES LIVESTOCK DEVELOPMENT	NON PP / NON PPP	18.04.2007	17.05.2007	25.06.2008	31.12.2014	30.06.2010	3.20	11.40 %	1.97
INLAND FISHERIES DEVELOPMENT SUPPORT	NON PP / NON PPP	06.10.2004	05.11.2004	19.05.2006	31.12.2012	25.06.2010	5.73	35.78 %	2.84
NERICA DISSEMINATION PROJECT - MALI	NON PP / NON PPP	26.09.2003	21.10.2003	05.02.2005	31.12.2010	28.05.2010	6.76	77.31 %	2.68
INVASIVE AQUATIC WEEDS - MALI	NON PP / NON PPP	22.09.2004	05.11.2004	04.07.2006	31.12.2011	09.04.2010	5.77	29.71 %	2.04
COTTON SECTOR SUPPORT PROJECT- MALI	#	29.11.2006	01.02.2007	12.02.2008	31.12.2013	30.06.2010	3.59	4.71 %	
SUSTAINABLE RUMINANT LIVESTOCK MANAGEMENT PROJECT – RUMI MALI	NON PP / NON PPP	25.01.2006	16.10.2006	26.09.2008	31.12.2013	21.06.2010	4.43	4.91 %	2.32
MALI – CREATION OF SUSTAINABLE FREE ZONES	NON PP / PPP	08.12.2004	14.02.2005	29.05.2006	31.12.2011	11.06.2010	5.56	11.0 %	1.63
ABN- SEDIMENTATION CONTROL PROGRAM	NON PP / PPP	24.09.2003	22.04.2004	24.05.2005	31.12.2010	30.06.2010	6.77	92.09 %	2.34
<b>TOTAL AGRICULTURE (13)</b>							<b>5.51</b>	<b>37.49 %</b>	<b>2.29</b>
RURAL DRINKING WATER	NON PP / PPP	17.12.2003	25.03.2004	25.07.2005	31.08.2010	16.06.2010	6.54	48.11 %	2.54

PROJECT	PFI Status	Approval Date	Signature Date	Date of Effective-ness	Closing Date	Date of last Disbursement	Project Age	% Disbursed	Rating
SUPPLY AND SANITATION PROGRAMME									
GAO, KOULIKORO AND SEGOU DWSS PROJECT	NON PP / NON PPP	11.06.2008	30.07.2008	06.02.2009	31.12.2012	30.06.2010	2.05	0.53 %	2.47
<b>TOTAL PWSS (2)</b>							<b>4.30</b>	<b>13.68 %</b>	<b>2.50</b>
EDUC. DEV. SUPPORT PROG. PRODEC II (ED. IV)	NON PP / PPP	24.09.2003	21.11.2003	02.08.2005	31.12.2010	22.06.2010	6.77	59.14 %	2.82
HIV/AIDS CONTROL SUPPORT PROJECT	NON PP / PPP	08.09.2004	29.11.2004	10.11.2005	31.12.2010	23.06.2010	5.81	46.54 %	2.21
COMMUNITY DEVELOPMENT SUPPORT	NON PP / NON PPP	03.05.2006	02.06.2006	11.05.2007	31.12.2012	25.06.2010	4.16	34.00 %	2.53
<b>TOTAL SOCIAL (3)</b>							<b>5.58</b>	<b>46.56 %</b>	<b>2.52</b>
... STRATEGY SUPPORT PROGRAMME	NON PP / NON PPP	24.09.2008	13.10.2008	17.12.2008	30.06.2011	08.12.2009	1.76	81.89 %	2.06
SUPPLEMENTARY LOAN (PASC RP)	#	30.11.2009	01.12.2009	05.03.2010	30.06.2011	12.03.2010	0.58	100.00 %	
DECENTRALISATION SUPPORT (PADDER)	NON PP / NON PPP	26.09.2007	16.11.2007	06.08.2008	31.12.2012	30.06.2010	2.76	14.06 %	2.59
<b>TOTAL MULTI-SECTOR (2)</b>							<b>1.70</b>	<b>72.51 %</b>	<b>2.32</b>
ROAD DEVELOPMENT AND ... PROGRAMME	NON PP / PPP	21.12.2005	18.01.2006	02.02.2008	31.12.2011	04.06.2010	4.53	57.40 %	2.72
PR I: SUPPLEMENTARY LOAN - MALI	#	05.05.2009	13.05.2009	12.01.2010	30.06.2012	00.00.0000	1.15	0.00 %	
WAEMU – GHANA – ROAD PROGRAMME 1	NON PP / NON PPP	19.11.2003	18.12.2003	14.11.2005	31.12.2012	10.06.2010	6.62	22.62 %	2.00
<b>TOTAL ROADS (2)</b>							<b>5.58</b>	<b>44.12 %</b>	<b>2.36</b>
<b>OVERALL TOTAL (22)</b>							<b>4.53</b>	<b>41.94 %</b>	<b>2.40</b>

## Major Related Projects Financed by the Bank and the Country's Other Development Partners

Priority Areas	Donors with Ongoing Operations	Comments
<u>Agricultural Sector</u> Agriculture, forestry, stockbreeding, fisheries, environment	<u>Lead donor:</u> FAO (agriculture, livestock and fisheries) <u>There is an environment group</u> <u>Other operators:</u> ADF, WB, WFP, EU, IFAD, ABEDA, IsDB, France, EU, FAO, Germany, Belgium, Denmark, Japan	There is a group of "Agricultural and Rural Economics" PTF with 4 technical groups (Stockbreeding and Fisheries, Irrigation, Agro-industrial Sectors and Food Security) and 3 thematic sub-groups (Land, Vocational Training and Agricultural Consultancy, Financing) Rural sector operators include: - The IsDB and Belgium which support food security and the agricultural and stockbreeding sub-sectors; - The Bank, ABEDA, European Union, France and Japan which support the agricultural and stockbreeding sub-sectors; - IFAD, WFP, OPEC Fund, USA and Canada which support food security; - Germany, IDA, Kuwait Fund, Luxembourg, Netherlands, Saudi Fund, India, Spain and Venezuela which focus their support on the agricultural sub-sector.
<u>Social Sector</u> Education and Health	<u>Lead donor:</u> for education: UNESCO  <u>Other operators:</u> World Bank, ADB/ADF, France, IsDB, EU, Japan, Switzerland, Canada, Denmark, WFP, Germany, Netherlands  <u>Lead donor:</u> For health: Rotating, currently The Netherlands  HIV/AIDS: UNAIDS <u>Other operators:</u> ADB/ADF, France, EU, Japan, WHO, Luxembourg, UNDP, World Bank, UNFPA	- There is an education sector approach with PRODEC in which all education partners intervene. Coordination is well conducted at the level of the Ministries in charge of education.  There is a sector programme for health and social development with PRODESS. The Department in charge of health and the Department of Social Development coordinate the programme with the technical and financial partners concerned.
<u>Infrastructure and Public Utilities</u> Public works, Mines, Industry, Water, Energy, Sanitation and Urban Development	<u>Lead donor:</u> For energy: ADB <u>Lead donor:</u> For Transport: EU <u>Lead donor:</u> For urban development: AFD  <u>Others:</u> ADB, EU, IDA, France, UNDP, WADB, AFD	The infrastructure domain is organized into three groups namely: energy, transport and urban development. Each group is well coordinated by a lead donor and a corresponding ministry. The main partners operating in this sector are: the World Bank, European Union, ADB, ABEDA, UNDP and IsDB.
<u>Cross-cutting Issues</u> Women's empowerment, governance, decentralization and capacity building:	<u>Lead donor</u> of the Decentralization and Institutional Development Group: European Union  <u>Other operators:</u> ADF, IDA, Germany, Switzerland, World Bank, French Cooperation, Belgium, AFD, UNDP, Canada	The Ministry in charge of women's empowerment is currently organizing the coordination of gender-related actions at the national level.
<u>Economic reforms</u> Reform support and debt relief	<u>Lead donor:</u> World Bank – Structural reforms  IMF, IDA, ADF, EU, France, Belgium, WADB, Paris Club countries	Frequent consultation is organized. The Bank is in the process of concluding a general budget support programme with Mali.
Niger River Basin:	The Bank is involved in combating silting and invasive aquatic plants in the river.	Coordination exists among partners within the framework of managing the Niger River Basin through the ABN at the regional level and the ABFM at the national level.

The operations of the other development partners in Mali are outlined in the "2009 Repertoire of Rural Sector Projects and Programmes" in which 35 partners support the rural sector portfolio in Mali. These are projects and programs under the supervisory authority of the Ministry of Agriculture, the Ministry of Livestock and Fisheries and the Commissioner for Food Security, all of which are under the leadership of the African Development Bank, which finances 16 projects/programmes. The other operators are the World Bank, IFAD, IsDB, ABEDA, OPEC Fund, WADB, Kuwait Fund, European Union, WFP, Saudi Fund, IAEA, FAO, GEF, EBID/WAEMU, AU/IBAR, UNICEF, UNIDO and the German, Danish, Belgian, French, Luxembourg, Dutch, Japanese, Spanish, Venezuelan, Canadian, American, and Swiss bilateral cooperation agencies. The ADB operates in the rural and environmental sectors through 16 active projects. The cooperation instituted between these various projects, mainly through the Bank's Bamako Field Office, encourages the exchange of best practices on land management, credit, water management, environmental problems, gender and monitoring/evaluation.

Apart from the ADF in the irrigation sub-sector, the World Bank, the European Union, USAID, Dutch, German, Luxembourg and French cooperation agencies, WADB, IFAD, Arab Funds (ABEDA, IsDB, Saudi Fund, and Kuwait Fund) and the OPEC Fund assist the country in developing irrigation. The Bank Group's contribution to rural development in Mali is substantial. The Bank's operations are diverse and related to all agricultural development sub-sectors. In the irrigation sub-sectors, they lay emphasis on small- and medium-sized irrigation schemes and production sustainability through better water control.

Delays often occur in project implementation, especially at project commencement, because of the limited capacity of executing agencies and the fact that project staff are not familiar with the Bank's procurement procedures. For some years now, the high frequency of supervision missions and the organization of special seminars for project managers by the Bank, have led to an improvement in the capacity of executing agencies.

**ANNEX IV MARKALA SUGAR PROJECT – CANECO: CALCULATION OF THE ECONOMIC RATE OF RETURN AND SENSITIVITY TEST**

Année	Revenus nets canne CaneCo (En USD)	Revenus nets rizicoles (En USD)	Revenus nets maraîchers (en USD)	Recettes nettes totales (en USD)	Coûts d'investissement	Coûts de fonctionnement	Charges d'entretien des infrastructures	Total coûts (en USD)	Cash-flow de base (en USD)	Cash-flow avec "+" 10% coûts (1)	Cash-flow avec "-" 10% recettes (2)	Cash-flow avec (1) + (2)
1	0			0	20 170 282	191 492		20 361 774	-20 361 774	-22 397 952	-20 361 774	-22 397 952
2	0			0	45 843 307	985 955		46 829 262	-46 829 262	-51 512 188	-46 829 262	-51 512 188
3	0			0	82 752 041	3 131 303		85 883 344	-85 883 344	-94 471 678	-85 883 344	-94 471 678
4	24 468 414	500 000	124 521	25 092 935	52 610 979	4 052 145		56 663 124	-31 570 190	-37 236 502	-34 079 483	-39 745 795
5	47 649 541	515 000	1 092 348	49 256 889	44 872 775	4 884 976	1 928 311	51 686 061	-2 429 172	-7 597 778	-7 354 861	-12 523 467
6	51 532 979	795 675	6 486 366	58 815 019			5 082 407	5 082 407	53 732 612	53 224 371	47 851 110	47 342 869
7	53 078 968	1 092 727	12 028 332	66 200 027			8 714 270	8 714 270	57 485 757	56 614 330	50 865 755	49 994 328
8	54 671 337	1 406 886	12 418 601	68 496 824			5 178 204	5 178 204	63 318 620	62 800 800	56 468 938	55 951 117
9	56 311 477	1 738 911	12 821 609	70 871 997			4 837 591	4 837 591	66 034 406	65 550 647	58 947 206	58 463 447
10	58 000 821	1 791 078	13 237 773	73 029 673			4 837 591	4 837 591	68 192 082	67 708 322	60 889 114	60 405 355
11	59 740 846	1 844 811	13 667 526	75 253 183			4 837 591	4 837 591	70 415 592	69 931 832	62 890 273	62 406 514
12	61 533 071	1 900 155	14 111 314	77 544 541			4 837 591	4 837 591	72 706 949	72 223 190	64 952 495	64 468 736
13	63 379 064	1 957 160	14 569 599	79 905 822			4 837 591	4 837 591	75 068 230	74 584 471	67 077 648	66 593 889
14	65 280 435	2 015 875	15 042 855	82 339 165			4 837 591	4 837 591	77 501 574	77 017 815	69 267 657	68 783 898
15	67 238 849	2 076 351	15 531 576	84 846 776			4 837 591	4 837 591	80 009 184	79 525 425	71 524 507	71 040 748
16	69 256 014	2 138 641	16 036 270	87 430 926			4 837 591	4 837 591	82 593 334	82 109 575	73 850 242	73 366 482
17	71 333 694	2 202 801	16 557 462	90 093 957			4 837 591	4 837 591	85 256 366	84 772 607	76 246 970	75 763 211
18	73 473 705	2 268 885	17 095 694	92 838 284			4 837 591	4 837 591	88 000 693	87 516 934	78 716 864	78 233 105
19	75 677 916	2 336 951	17 651 527	95 666 395			4 837 591	4 837 591	90 828 803	90 345 044	81 262 164	80 778 405
20	77 948 254	2 407 060	18 225 540	98 580 854			4 837 591	4 837 591	93 743 262	93 259 503	83 885 177	83 401 418
21	80 286 701	2 479 271	18 818 331	101 584 304			4 837 591	4 837 591	96 746 712	96 262 953	86 588 282	86 104 523
22	82 695 303	2 553 650	19 430 517	104 679 469			4 837 591	4 837 591	99 841 877	99 358 118	89 373 931	88 890 171
23	85 176 162	2 630 259	20 062 737	107 869 158			4 837 591	4 837 591	103 031 566	102 547 807	92 244 650	91 760 891
24	87 731 446	2 709 167	20 715 651	111 156 264			4 837 591	4 837 591	106 318 673	105 834 913	95 203 046	94 719 287
25	90 363 390	2 790 442	21 389 939	114 543 771			4 837 591	4 837 591	109 706 179	109 222 420	98 251 802	97 768 043
26	93 074 292	2 874 155	22 086 306	118 034 753			4 837 591	4 837 591	113 197 161	112 713 402	101 393 686	100 909 927
27	95 866 520	2 960 380	22 805 479	121 632 379			4 837 591	4 837 591	116 794 788	116 311 028	104 631 550	104 147 791
28	98 742 516	3 049 191	23 548 209	125 339 916			4 837 591	4 837 591	120 502 324	120 018 565	107 968 333	107 484 574
29	101 704 791	3 140 667	24 315 272	129 160 730			4 837 591	4 837 591	124 323 139	123 839 379	111 407 066	110 923 306
30	104 755 935	3 234 887	25 107 470	133 098 292			4 837 591	4 837 591	128 260 700	127 776 941	114 950 871	114 467 112
								<b>VAN</b>	<b>287 179 464</b>			
								<b>TRE</b>	<b>22%</b>	<b>21%</b>	<b>20%</b>	<b>19%</b>