



**OFFICIAL USE ONLY**

IDA/R2018-0019/1

February 8, 2018

**Closing Date: Wednesday, February 28, 2018  
at 6:00 p.m.**

FROM: Vice President and Corporate Secretary

**Mali - Livestock Sector Development Support Project**

**Project Appraisal Document**

Attached is the Project Appraisal Document regarding a proposed credit and grant to Mali for a Livestock Sector Development Support Project (IDA/R2018-0019), which is being processed on an absence-of-objection basis.

**Distribution:**

Executive Directors and Alternates  
President  
Bank Group Senior Management  
Vice Presidents, Bank, IFC and MIGA  
Directors and Department Heads, Bank, IFC and MIGA

*This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank Group authorization.*

Document of  
**The World Bank**  
**FOR OFFICIAL USE ONLY**

Report No: PAD 2472

INTERNATIONAL DEVELOPMENT ASSOCIATION  
PROJECT APPRAISAL DOCUMENT  
ON A  
PROPOSED CREDIT  
IN THE AMOUNT OF  
EURO 25.1 MILLION (US\$ 30 MILLION EQUIVALENT)  
AND A PROPOSED GRANT  
IN THE AMOUNT OF  
SDR 21.1 MILLION (US\$ 30 MILLION EQUIVALENT)  
TO THE  
REPUBLIC OF MALI  
FOR A  
LIVESTOCK SECTOR DEVELOPMENT SUPPORT PROJECT

February 6, 2018

Agriculture Global Practice  
Africa Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.



## CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2017)

Currency Unit	=	CFAF (XOF)
CFAF 547	=	US\$ 1
US\$ 1	=	0.70218309 SDR
US\$.1	=	0.83423709 Euro

## FISCAL YEAR

January 1 - December 31

## ABBREVIATIONS AND ACRONYMS

<b>AfDB</b>	African Development Bank
<b>AI</b>	Artificial insemination
<b>AWPB</b>	Annual Work Plan and Budget
<b>BP</b>	Business Partnership
<b>CAADP</b>	Comprehensive Africa Agriculture Development Program
<b>CAS</b>	Country Assistance Strategy
<b>CBPP</b>	Contagious bovine pleuropneumonia
<b>CERC</b>	Contingency Emergency Response Component
<b>CGIAR</b>	Consultative Group on International Agricultural Research
<b>CNIA</b>	National Artificial Insemination Center ( <i>Centre national de l'insémination artificielle</i> )
<b>COFIL</b>	Steering Committee ( <i>Comité de Pilotage</i> )
<b>CPF</b>	Country Partnership Framework
<b>CPMU</b>	Crisis Prevention and Management Unit ( <i>Unité de Prévention et Gestion des Crises</i> )
<b>CPS</b>	Country Partnership Strategy
<b>CR</b>	Regional Committee ( <i>Comité Régional</i> )
<b>CSA</b>	Food Security Commissariat ( <i>Commissariat à la Sécurité Alimentaire</i> )
<b>CSO</b>	Civil society organization
<b>CT</b>	Technical Committee ( <i>Comité Technique</i> )
<b>DA</b>	Designated Account
<b>DFM</b>	Directorate for Finance and Equipment ( <i>Direction des Finances et du Matériel</i> ), MEP
<b>DNACPN</b>	National Directorate for Sanitation, Pollution and Nuisance Control ( <i>Direction Nationale de l'Assainissement et du Contrôle de la Pollution et des Nuisances</i> )
<b>DNP</b>	National Directorate for Aquaculture and Fisheries ( <i>Direction Nationale des Pêches</i> ), MEP
<b>DNPIA</b>	National Directorate for Animal Production and Industry ( <i>Direction Nationale des Productions et Industries Animales</i> ), MEP
<b>DNSV</b>	National Directorate of Veterinary Services ( <i>Direction Nationale des Services Vétérinaires</i> ), MEP
<b>DRH</b>	Directorate of Human Resources ( <i>Direction des Ressources Humaines</i> ), MEP
<b>DRPIA</b>	Regional Directorate for Animal Production and Industry ( <i>Direction Régionale des Productions et des Industries Animales</i> ), MEP
<b>ECOWAS</b>	Economic Community of West African States
<b>EIRR</b>	Economic internal rate of return
<b>ESIA</b>	Environmental and Social Impact Assessment
<b>ESMF</b>	Environmental and Social Management Framework



<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FFS</b>	Farmer Field School
<b>FIRR</b>	Financial internal rate of return
<b>FM</b>	Financial management
<b>FMD</b>	Foot and mouth disease
<b>GAP</b>	Good Agriculture Practice
<b>GHG</b>	Greenhouse gas
<b>GRS</b>	Grievance Redress Service
<b>IBM</b>	Iterative Beneficiary Monitoring
<b>ICT</b>	Information and Communication Technologies
<b>IDA</b>	International Development Association
<b>IDB</b>	Islamic Development Bank
<b>IEG</b>	Independent Evaluation Group
<b>IFAD</b>	International Fund for Agricultural Development
<b>IFC</b>	International Finance Corporation
<b>IFR</b>	Interim Financial Report
<b>ILRI</b>	International Livestock Research Institute
<b>IPF</b>	Investment Project Financing
<b>IRM</b>	Immediate Response Mechanism
<b>kg</b>	Kilogram
<b>LCV</b>	Central Veterinary Laboratory ( <i>Laboratoire Central Vétérinaire</i> )
<b>MEP</b>	Ministry of Livestock and Fisheries ( <i>Ministère de l'Élevage et de la Pêche</i> )
<b>MG</b>	Matching grant
<b>MP</b>	Microproject
<b>NCD</b>	Newcastle disease
<b>NGO</b>	Non-governmental organization
<b>NPV</b>	Net present value
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OIE</b>	World Organization for Animal Health
<b>PACAM</b>	Mali Agro-Industrial Competitiveness Support Project ( <i>Projet d'appui à la Compétitivité Agro-industrielle au Mali</i> )
<b>PADEL-M</b>	Mali Livestock Sector Development Support Project ( <i>Projet d'Appui au Développement de l'Élevage au Mali</i> )
<b>PAPAM</b>	Fostering Agricultural Productivity in Mali Project ( <i>Projet d'Accroissement de la Productivité Agricole au Mali</i> )
<b>PCDA</b>	Agriculture Competitiveness and Diversification Project ( <i>Projet de Compétitivité et Diversification Agricoles</i> )
<b>PCU</b>	Project Coordination Unit
<b>PDO</b>	Project Development Objective
<b>PFI</b>	Partner Financial Institution
<b>PIM</b>	Project Implementation Manual
<b>PMS</b>	Permanent Monitoring System
<b>PO</b>	Producer organization
<b>PP</b>	Productive Partnership
<b>PPR</b>	Small ruminant plague ( <i>peste des petits ruminants</i> )
<b>PPSD</b>	Project Procurement Strategy for Development
<b>PRAPS</b>	Regional Sahel Pastoralism Support Project ( <i>Projet Régional d'Appui au Pastoralisme au Sahel</i> )
<b>PRAPS-ML</b>	Regional Sahel Pastoralism Support Project in Mali ( <i>Projet Régional d'Appui au Pastoralisme au Sahel pour le Mali</i> )
<b>PROCEJ</b>	Skills Development and Youth Employment Project ( <i>Projet de Développement des</i>



<b>PVS</b>	<i>Compétences et Emploi des Jeunes)</i> Performance of Veterinary Services (OIE)
<b>QER</b>	Quality Enhancement Review
<b>REDISSE</b>	West Africa Regional Disease Surveillance Systems Enhancement Program
<b>RAP</b>	Resettlement Action Plan
<b>RPF</b>	Resettlement Policy Framework
<b>SCD</b>	Systematic Country Diagnostic
<b>SME</b>	Small and medium enterprise
<b>SNV</b>	Netherlands Development Organization
<b>SORT</b>	Systematic Operations Risk-rating Tool
<b>TA</b>	Technical Assistance
<b>tCO<sub>2</sub>-eq</b>	Tons of carbon dioxide equivalent
<b>VC</b>	Value chain
<b>VSE</b>	Very small enterprise
<b>WAAPP</b>	West Africa Agriculture Productivity Project
<b>WAEMU</b>	West African Economic and Monetary Union

Regional Vice President: **Makhtar Diop**

Country Director: **Soukeyna Kane**

Senior Global Practice Director: **Juergen Voegelé**

Practice Manager: **Marianne Grosclaude**

Task Team Leader(s): **Christian Berger, Mahamoud Magassouba**

## BASIC INFORMATION

Is this a regionally tagged project?

No

Country(ies)

Financing Instrument

Investment Project Financing

☒ Situations of Urgent Need of Assistance or Capacity Constraints

☐ Financial Intermediaries

☐ Series of Projects

Approval Date

28-Feb-2018

Closing Date

28-Jun-2024

Environmental Assessment Category

B - Partial Assessment



Bank/IFC Collaboration	Joint Level
Yes	Complementary or Interdependent project requiring active coordination

### Proposed Development Objective(s)

The Project Development Objective (PDO) is to “enhance productivity and commercialization of non-pastoral animal production in selected value chains, and strengthen the country’s capacity to respond to an eligible crisis or emergency.”

### Components

Component Name	Cost (US\$, millions)
Component 1: Strengthening of livestock services	23.80
Component 2: Support to private investment	43.00
Component 3: Crisis prevention & management, and Project coordination	11.60

### Organizations

Borrower : Ministry of Economy and Finance

Implementing Agency : Ministry for Livestock and Fisheries Development

### PROJECT FINANCING DATA (US\$, Millions)

<input checked="" type="checkbox"/> Counterpart Funding	<input type="checkbox"/> IBRD	<input checked="" type="checkbox"/> IDA Credit	<input checked="" type="checkbox"/> IDA Grant	<input type="checkbox"/> Trust Funds	<input type="checkbox"/> Parallel Financing
Total Project Cost:	Total Financing:		Financing Gap:		
78.40	78.40		0.00		
	Of Which Bank Financing (IBRD/IDA):				
	60.00				

**Financing (in US\$, millions)**

Financing Source	Amount
Borrower	4.80
IDA-61880	30.00
IDA-D2740	30.00
Borrowing Country's Fin. Intermediary/ies	9.40
LOCAL: BENEFICIARIES	4.20
<b>Total</b>	<b>78.40</b>

**Expected Disbursements (in US\$, millions)**

Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025
Annual	0.23	3.38	5.45	9.05	11.13	12.29	12.09	4.93
Cumulative	0.23	3.61	9.06	18.10	29.23	41.52	53.62	58.55

**INSTITUTIONAL DATA****Practice Area (Lead)**

Agriculture

**Contributing Practice Areas**

Climate Change

Fragile, Conflict &amp; Violence

Gender

**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks



## Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

## SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● High
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial
8. Stakeholders	● Low
9. Other	● Moderate
10. Overall	● Substantial

## COMPLIANCE

### Policy

Does the project depart from the CPF in content or in other significant respects?

☐ Yes ☒ No

Does the project require any waivers of Bank policies?

☐ Yes ☒ No





Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04		✓
Forests OP/BP 4.36	✓	
Pest Management OP 4.09	✓	
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10		✓
Involuntary Resettlement OP/BP 4.12	✓	
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

## Legal Covenants

### Sections and Description

The Recipient has hired a national coordinator as head of the Project Coordination Unit, with qualifications and experience and under terms of reference satisfactory to the Association, no later than one (1) month after the Effective Date.

### Sections and Description

The Recipient has prepared and adopted the PIM in form and substance acceptable to the Association, no later than three (3) month after the Effective Date.

### Sections and Description

The Recipient shall, no later than three (3) months after the Effective Date, hire an Accountant with qualifications and experience satisfactory to the Association.

### Sections and Description

The Recipient shall, no later than three (3) month after the Effective Date, have adopted an accounting software satisfactory to the Association.

### Sections and Description

The Recipient shall, no later than three (3) months after the Effective Date, hire a procurement specialist and provide training, in substance and amount satisfactory to the Association, to the Project's procurement team, relevant staff of the MEP, and the tender committee members in the Association's Procurement Regulations.



Sections and Description

The Recipient shall, no later than six (6) months after the Effective Date, hire an external auditor with qualifications and experience satisfactory to the Association.

Sections and Description

The Recipient shall, no later than six (6) months after the Effective Date, prepare and furnish to the Association for its review and approval, an operations manual which shall set forth detailed implementation arrangements for the CERC.

Sections and Description

The Recipient shall, no later than six (6) months after the Effective Date, provide adequate space and equipment for the procurement archive and set up adequate filing system for project records.

Sections and Description

The Recipient shall, no later than six (6) months after the Effective Date, operationalize the crisis prevention and management unit within MEP by defining the unit's mandate.

Sections and Description

The Recipient shall, no later than six (6) months after the Effective Date, designate or recruit an officer responsible for data management.

**Conditions**

Type

Disbursement

Description

The Recipient shall prepare and adopt a manual for managing the Productive Partnerships and Micro-Projects ("Productive Partnership and Micro-Project Manual") under Part B.3 of the Project.

Type

Disbursement

Description

Under Part C.1(c): the Recipient has determined that an Eligible Crisis or Emergency has occurred, has furnished to the Association a request to include said activities in the CERC Part in order to respond to said Eligible Crisis or Emergency, and the Association has agreed with such determination, accepted said request and notified the Recipient thereof.

Type

Disbursement

Description

Under Part C.1(c): the Recipient has prepared and disclosed all safeguards instruments required for said activities, and the Recipient has implemented any actions which are required to be taken under said instruments, all in accordance with the provisions of Section I.E.3(b) of Schedule 2 to the Financing Agreement, for the purposes of such activities.



Type Disbursement	Description Under Part C.1(c): the Recipient's Coordinating Authority has adequate staff and resources, in accordance with the provisions of Section I.E.1 of Schedule 2 to this Agreement, for the purposes of said activities.
Type Disbursement	Description Under Part C.1(c): the Recipient has adopted a CERC Operations Manual in form, substance and manner acceptable to the Association and the provisions of the CERC Operations Manual remain, or have been updated in accordance with the provisions of Section I.E.1(c) of Schedule 2 to this Agreement so as to be appropriate for the inclusion and implementation of said activities under the CERC Part.
Type Disbursement	Description No withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed five hundred thousand Euro (€500,000) may be made for payments made prior to this date but on or after September 1, 2017, for Eligible Expenditures under Category (1).

## PROJECT TEAM

Bank Staff			
Name	Role	Specialization	Unit
Christian Berger	Team Leader(ADM Responsible)	Sr. Agricultural Specialist	GFA01
Boubacar Diallo	Procurement Specialist(ADM Responsible)	procurement	GGOPF
Mahamadou Bambo Sissoko	Procurement Specialist	Sr. Procurement Specialist	GGOPF
Tahirou Kalam	Financial Management Specialist	Financial Management Specialist	GGOAW
Andre Marie Taptue	Team Member	Economist	GPV07
Andrea Mario Dall'Olio	Team Member	Lead Financial Economist	GFCAW
Benjamin Billard	Team Member	Operations Officer	GFA01
Bougadare Kone	Environmental Safeguards Specialist		GEN07
Christine Heumesser	Team Member	Economist	GFAGE
Emeran Serge M. Menang Evouna	Environmental Safeguards Specialist	Sr. Environmental Specialist	GEN07



Evelyne Huguette Madozein	Team Member	Team Assistant	AFMCF
Faly Diallo	Team Member	Finance officer - disbursements	WFACS
Francois G. Le Gall	Team Member	Livestock Adviser	GFA01
Himanshu Sharma	Team Member	Greenhouse Gas Accounting	GFAGE
Mahamadou Ahmadou Maiga	Social Safeguards Specialist	Social safeguards	GSU01
Mahamoud Magassouba	Team Member	Sr Private Sector Specialist	GMTIA
Malick Fall	Team Member	Investment Officer	CAFML
Mehdi Benyagoub	Peer Reviewer	Private Sector Specialist	GFCAW
Moussa Fode Sidibe	Team Member	Program Assistant	AFCW3
Nicolas Ahouissoussi	Team Member	Sr. agriculture Economist	GFA01
Pierre Jean Gerber	Peer Reviewer	Sr Livestock specialist	GFA12
Sachiko Morita	Counsel	Sr. Counsel	LEGEN
Salam Hailou	Team Member	Program Assistant	GFA01
Soulemame Fofana	Team Member	Sr. Rural Development Specialist	GFA01
Volana Andriamasinoro	Team Member	Program Assistant	GFA01
Yeyande Kasse Sangho	Team Member	Sr. Agribusiness Specialist	GFA01
<b>Extended Team</b>			
<b>Name</b>	<b>Title</b>	<b>Organization</b>	<b>Location</b>
Abdou Fall	Project Manager	CGIAR	
Catherine Defontaine	Consultant	World Bank	
Clarisse Ingabire	Animal Health Officer	FAO	
Ibro Manomi	Economist	FAO	Rome, Italy,
Jean-Claude Balcet	Consultant, Agricultural Economist		United States
Lazare Hoton	Credit and Rural Finance Officer	FAO	Rome,Italy
Martinus Vanderknaap	Aquaculture Expert	FAO	Accra,Ghana



**MALI**  
**MALI LIVESTOCK SECTOR DEVELOPMENT SUPPORT PROJECT (PADEL-M)**

**TABLE OF CONTENTS**

<b>I. STRATEGIC CONTEXT .....</b>	<b>1</b>
A. Country Context .....	1
B. Sectoral and Institutional Context .....	2
C. Higher Level Objectives to which the Project Contributes .....	4
<b>II. PROJECT DEVELOPMENT OBJECTIVES.....</b>	<b>6</b>
A. PDO.....	6
B. Project Beneficiaries.....	6
C. PDO-Level Results Indicators .....	7
<b>III. PROJECT DESCRIPTION.....</b>	<b>7</b>
A. Project Approach.....	7
B. Project Components.....	10
C. Summary Project Cost and Financing .....	15
D. Lessons Learned and Reflected in the Project Design .....	15
<b>IV. IMPLEMENTATION.....</b>	<b>16</b>
A. Institutional and Implementation Arrangements .....	16
B. Results Monitoring and Evaluation .....	18
C. Sustainability .....	19
D. Role of Partners.....	20
<b>V. KEY RISKS .....</b>	<b>20</b>
A. Overall Risk Rating and Explanation of Key Risks.....	20
<b>VI. APPRAISAL SUMMARY.....</b>	<b>22</b>
A. Economic and Financial Analysis.....	22
B. Technical.....	24
C. Financial Management.....	25
D. Procurement .....	25
E. Social (including Safeguards).....	26



F. Environment (including Safeguards) .....	27
G. Greenhouse Gas Accounting .....	29
H. World Bank Grievance Redress .....	29
<b>VII. RESULTS FRAMEWORK AND MONITORING .....</b>	<b>30</b>
<b>ANNEX 1: DETAILED PROJECT DESCRIPTION .....</b>	<b>45</b>
<b>ANNEX 2: IMPLEMENTATION ARRANGEMENTS .....</b>	<b>64</b>
<b>ANNEX 3: IMPLEMENTATION SUPPORT PLAN .....</b>	<b>87</b>
<b>ANNEX 4: ECONOMIC AND FINANCIAL ANALYSIS .....</b>	<b>92</b>
<b>ANNEX 5: GREENHOUSE GAS ACCOUNTING .....</b>	<b>100</b>
<b>ANNEX 6: SELECTED BIBLIOGRAPHIC REFERENCES .....</b>	<b>102</b>
<b>ANNEX 7: MAP .....</b>	<b>103</b>



## I. STRATEGIC CONTEXT

### A. Country Context

1. **Mali is a semi-arid, landlocked, low-income country with a predominantly rural economy and rapidly growing population.** Climate change and increasing human pressure present challenges for agriculture in Mali's semi-arid tropical environment. Rainfall is irregular, poorly distributed, low (500 mm per year in the Sahelian zone, less in the desert zone, and 800–1,000 mm in the Sudano-Sahelian zone), and declining. The population (estimated at 17.6 million in 2015) is quite young—the median age is 16 years—and growing at an average rate of around 3 percent. Per capita gross national income was US\$ 760 in 2015. Life expectancy is low (58 years), malnutrition is high (28 percent of children under five are stunted), and most of the adult population is illiterate (69 percent). The economy is predominantly rural and informal: rural areas account for 63 percent of the population, and the informal sector provides 80 percent of the jobs.<sup>1</sup>

2. **Poverty remains high—and highly rural.** Largely by improving agricultural production and value chains, Mali managed to reduce poverty significantly before the 2012 political and security crisis. In 2000, 60 percent of the population lived below the US\$ 1.9 per day poverty line. By 2010, 51 percent were poor. The vast majority—90 percent—lived in rural areas. Poverty is also more concentrated in the South, where population density is highest.<sup>2</sup> After 2010, poverty deepened as drought (2012) and conflict (2012–13) took their toll. Mali ranked 175 out of 188 countries on the 2015 UN Human Development Index (HDI). Non-income indicators of poverty and welfare, particularly for education and health, are among the lowest in the world, and most Millennium Development Goals (MDGs) appear out of reach.

3. **The performance of agriculture remains crucial for the performance of the Malian economy.** Agriculture provides 40 percent of gross domestic product (GDP). The economy grew at approximately 5 percent per year over 1995–2010, but in 2012 the global recession, military coup, and deteriorating security in the North slashed GDP growth to 1.2 percent. In 2013, with the conflict receding, economic growth slowly resumed, hampered by bad weather and poor crops, and then rebounded at 7.2 percent in 2014, following sizable financial support from development partners that spurred public investment and a revival of private consumption.<sup>3</sup> The peace agreement signed in 2015<sup>4</sup> gave hope for stability, and Mali has embarked on structural reforms, adopted sound economic policies, and benefited from increased cotton and mining production, steady investments, and a relatively stable macroeconomic environment. The country is working to create an integrated and open regional economic space through the West African Economic and Monetary Union (WAEMU), the Economic Community of West African States (ECOWAS), and other African cooperative initiatives such as the Comprehensive Africa Agriculture Development Programme (CAADP). The economy is still overly reliant on agricultural production (especially cotton) and gold mining for a substantial share of export revenue. The increasingly harsh effects of

<sup>1</sup> World Bank (2015), "Priorities for Ending Poverty and Boosting Shared Prosperity: Mali Systematic Country Diagnostic"; UNESCO (2010), "Adult and Youth Literacy 1990–2015: Analysis for 41 Selected Countries"; World Bank World Development Indicators database; and <http://www.worldometers.info/world-population/mali-population>.

<sup>2</sup> Based on traditional (consumption) poverty measure; see Mali Systematic Country Diagnostic (World Bank 2015).

<sup>3</sup> IMF (2015), "Mali: Third Review under the Extended Credit Facility Arrangement: Request for Waiver of Performance Criteria, and for Modification of Performance Criteria," IMF Country Report No. 15/151, Washington, DC.

<sup>4</sup> Accord pour la paix et la réconciliation au Mali issu du processus d'Alger, June 20, 2015.



climate change hinder efforts to reduce extreme poverty. In 2015, the country ranked 95 of 167 countries in Transparency International's Corruption Perceptions Index.

4. **Mobilizing Mali's long-term growth potential will require expansion and diversification in the productive sectors of the economy, particularly agriculture.** Increased incomes and urban demand in both Mali and West Africa have created new market opportunities. Seizing these opportunities will require structural transformation aimed at expanding and diversifying productive sectors, particularly agriculture. Key prerequisites for structural transformation include a flexible labor market, a minimum level of education (to adapt to new sectors), and conditions favoring trade and investment, notably lower transport costs and a good investment climate that includes efficient enabling services. The agricultural sector requires a gradual approach, predicated on reducing the gap between current and potential productivity. Prospects for agricultural growth should be exploited first in existing value chains, focusing on improvements of relatively low economic complexity in basic products similar to those already being produced. Then efforts can expand to more diversified, higher-value products and increased value addition.

5. **Development and assistance priorities recognize agriculture (including livestock production) as a cornerstone of economic growth and poverty reduction.** The 60–51 percent decline in poverty from 2000 to 2010 is largely connected to gains in the agricultural sector. This conclusion is reflected in Mali's Strategic Framework for Growth and Poverty Reduction (CSCR), updated to cover 2012–17. The newly adopted Joint Country Assistance Strategy (SCAP II—2016–18) is aligned with CSCR priorities. Mali's Systematic Country Diagnostic (SCD) highlights the importance of agriculture and livestock for poverty reduction. Both the SCD and Country Partnership Framework (CPF) note that increasing rural income is a critical step in economic transformation, while the development of value chains ensures that increased production can be marketed and transformed into higher value-added products.

## B. Sectoral and Institutional Context

6. **Sector significance.** Livestock, including fisheries and aquaculture, is a key sector of the Malian economy and a key productive activity for more than 85 percent of the population (7.2 percent for the fisheries subsector). The national livestock population<sup>5</sup> is estimated at more than 15 million cattle, 32 million small ruminants, 37 million poultry, and just under 1 million camels. Mali produces 180,000 tons of fish per year, including production from aquaculture, which is booming economically.<sup>6</sup> In terms of wealth creation and national exports, livestock is third, behind gold and cotton. In recent years, the sector has contributed about 19 percent of national GDP (4.2 percent from fisheries alone); it provides income to about 30 percent of the population. Even so, annual public funding for the sector represents barely 10 percent of agricultural expenditures and less than 2 percent of the national budget.

7. **Strategies and programs for sustainable development in Mali give due consideration to agriculture in general and to livestock and fisheries in particular (although to a lesser extent).** As a complement to the Agriculture Orientation Law (*Loi d'Orientation Agricole*) passed in 2006, the most recent policy documents and

<sup>5</sup> Mali has a great diversity of animal breeds. The best known are the Maure, Fulani, and Azawack zebu breeds; N'dama cattle; Toronké and Djallonké sheep; and the Sahel and dwarf goat.

<sup>6</sup> Production of farmed fish doubled between 2012 and 2014 (from 1,200 to 2,400 tons); the main species used in fish farming are tilapia (*Oreochromis niloticus*), catfish (*Clarias ssp.*), and heterotis (*Heterotis niloticus*).





investment frameworks include (i) the National Policy for Aquaculture and Fisheries Development (PNDPA, 2011) and its five-year programmatic plan for aquaculture development (2016–20), as well as (ii) the National Agriculture Development Policy (NADP, 2013) and its National Agricultural Investment Plan<sup>7</sup> (PNISA, 2015–25, developed through the CAADP process.

8. **Diversity of livestock systems.**<sup>8</sup> Three main livestock husbandry systems coexist in Mali: (i) *pastoral systems*, characterized by animal mobility (extensive cattle and small ruminant production systems); (ii) *traditional sedentary systems* (village-based systems found throughout the country for ruminants, including dairy, as well as poultry), and (iii) *improved systems* (mainly peri-urban, semi-intensive poultry production, ruminant fattening and dairy). Mali has significant water resources conducive to fishing and aquaculture (three major river basins: the Niger, Senegal, and Volta). Other animal production systems (marginal, but diversified) include beekeeping, rabbit rearing, and pig breeding.

9. **Livestock development constraints.** Numerous constraints operating at various levels impede sector development. Institutional, legislative, and regulatory constraints include the lack of means and intervention capacity among State services, inadequate and/or unenforced laws, inadequate databases, and weak systems for planning, information gathering, and monitoring and evaluation (M&E). Actors in the livestock sector are not well organized—for instance, producer organizations and cooperatives have little structure or capacity for economic organization. Little technical and economic information is available on new livestock intensification systems. Animal diseases are persistent; veterinary services are hard to access; and animal health delivery systems (public and private) are thin on the ground. Zootechnical inputs are used infrequently and their quality is variable (limited fodder crop dissemination and adoption; limited supply and unregulated production of feed for livestock, poultry, and fish; expensive aquaculture inputs). The genetic potential of animal breeds is not well developed, and artificial insemination (AI) services are not widely available. The formal banking sector (owing to weakness, unwillingness, or indifference) is reluctant to finance private operators, particularly over the medium term, and in general the sector suffers from inadequate investment funding and operational support, as shown by the lack of large-scale industrial infrastructure; use of old and obsolete production, processing, and marketing equipment; and low valorization of certain livestock byproducts such as hides and skins. Noncompliance with environmental laws results in the overexploitation of fish stocks. Land tenure is insecure, and land administration services are not decentralized. The national system for preventing and managing climatic, health, and commercial crises in the livestock sector is not well developed or adapted to local conditions.

10. **Sector potential.** If it could overcome constraints like those just listed, the livestock sector could mobilize its considerable growth potential. The combination of demographic growth, urbanization, and the incipient development of the middle class has significantly increased the demand for animal products at the national and export level in West Africa and potentially beyond in other African or Middle Eastern countries. The sector exhibits many comparative advantages that would favor growth. Among others, it has a numerically important, diversified livestock population (first in the WAEMU zone and second in the ECOWAS region) that includes breeds recognized for their meat and milk production potential. Producers have considerable traditional knowledge and experience with animal fattening, milk production, poultry rearing, and fish farming. The livestock/meat export sector is competitive and potentially highly profitable and attractive to investors. The livestock sector already

<sup>7</sup> Programme National d'Investissement dans le Secteur Agricole.

<sup>8</sup> In this project appraisal document, “livestock” is understood to encompass cattle, small ruminants, poultry, fish farming, and all other animal species reared for agricultural diversification.



contributes significantly to economic value added and growth, exports, and the State budget, and the feed value chains exhibit high potential for growth that should promote further development. In addition, the sector is a major lever for creating jobs (including jobs that integrate women and young people into the workforce) and combating poverty and food insecurity. Livestock activities help Malian households overcome nutritional deficits by providing different sources of protein and improving and diversifying diets.

**11. Sector opportunities.** Building on its assets, the sector could take advantage of many opportunities, with a focus on three: (i) the large potential to increase animal productivity (especially by improving animal health, exploiting the genetic potential of improved breeds, and instilling better livestock husbandry practices); (ii) the existence of a significant domestic market that is constantly expanding through demographic growth, urbanization, and national enrichment (GDP growth and the emergence of a middle class); as well as (iii) outlets for animal products in the surrounding markets and the development of subregional exchanges (WAEMU and ECOWAS).

**12. Institutional context.** The Ministry for Livestock and Fisheries (MEP) is responsible for the livestock sector, with the following functions: (i) improvement of traditional livestock activities through training and extension for producers, including support for partnership and cooperation between producers and other actors in livestock value chains; (ii) development of pastoral areas, promotion of feed-processing industries, and support to fodder production, to spur intensive animal production; (iii) strengthening of animal health infrastructure and services; (iv) quality control improvement for livestock services and inputs, and animal products; (v) support of processing industries for livestock byproducts (food, hides and skins, and animal manure); and (vi) identification of stable and remunerative markets for livestock products. MEP recognizes that successful modernization and intensification of the sector must involve the State and all other stakeholders (domestic, external, private, public).

### **C. Higher Level Objectives to which the Project Contributes**

**13. Alignment with the Government of Mali's agricultural development policy.** The project is well aligned with the National Agriculture Development Policy (NADP, 2013),<sup>9</sup> which builds on the Agriculture Orientation Law (LOA, 2006). The NADP recognizes the need for greater agricultural productivity and diversification, along with increased public spending in agriculture, preeminently in the livestock sector. The strategy underpinning the NADP includes specific goals to boost the contribution of agriculture (including livestock and fisheries) to economic growth and employment, generate greater export earnings, upgrade and diversify farming systems, improve food security and livelihood options for Malians, as well as strengthen the institutional context and conserve and sustain the environment. The strategy draws on specialized analytical work undertaken by the International Livestock Research Institute (ILRI), the World Organization for Animal Health (OIE), and the Food and Agriculture Organization (FAO). In line with the PDA, the project is expected to better equip the livestock sector to promote growth in the national economy, while providing ancillary benefits to the population in terms of food consumption and nutrition.

**14. Contribution to the World Bank's partnership strategy.** The project will contribute to the main objectives of the CPF (FY16–19) through selective and strategic interventions in the livestock sector, closely coordinated with the activities of other development partners. In line with the NADP, the CPF highlights the importance of developing agriculture to boost growth and reduce poverty on a lasting basis. The CPF aims to create economic

---

<sup>9</sup> "Politique de développement agricole (PDA) du Mali," May 2013 (<http://faolex.fao.org/docs/pdf/mli145852.pdf>).



opportunities in agriculture by: (i) improving the productive capacity and market integration of producers; (ii) diversifying agricultural production; and (iii) upgrading infrastructure and connectivity. Through the CPF, the project will support Mali's PDA and thus link to national, subregional, and regional development policies. The project will contribute to the World Bank Group Joint Implementation Plan (JIP) for Mali, predicated on the CPF. Alongside the project, the World Bank, International Finance Corporation (IFC), and Multilateral Investment Guarantee Agency will play a closely coordinated role in supporting commercial value chains in the livestock sector with the aim of "reducing poverty through private sector investment in agribusiness."

15. **Links with World Bank and IFC, as well as other externally financed projects.** PADEL-M complements six ongoing Bank operations which touch *inter alia* on the wider livestock sector: (i) Regional Sahel Pastoralism Support Project (P147674: PRAPS-ML, US\$ 45 million, ending in December 2021); PADEL-M is PRAPS-ML's sister project as the latter focusses on pastoral systems; the two projects will be administratively linked to take full advantage of the capacity already available in MEP (see Annex 2); (ii) Mali's Agricultural Productivity Growth Project (P095091: PAPAM, US\$ 70 million, ending in July 2018); (iii) West Africa Agricultural Productivity Program (P129565: WAAPP, US\$ 60 million, ending in December 2018); (iv) Skills Development and Youth Employment Project (P145861: PROCEJ, US\$ 63 million, ending in June 2020); (v) Mali's Agro-industrial Competitiveness Support Project (P151449: PACAM, US\$ 30 million, which started in late 2016 and runs until July 2022); and (vi) West Africa Regional Disease Surveillance System Enhancement Program Phase 3 (P161163: REDISSE 3). PAPAM, PROCEJ, and WAAPP dedicate funding to both traditional and improved livestock systems. PACAM primarily supports the animal feed value chain for livestock, including poultry and fish. PADEL-M will also build on two upcoming irrigation projects that address irrigated production, potentially of fodder crops (P159765: PADAIC in the Alatona area in Niger's inland delta, and the Sahel Irrigation Initiative Support Project—SIIP/P154482), as well as two other projects with important implications for the livestock sector: the Rural Mobility and Connectivity Project (P160505: approved early FY18), which will finance rural roads, and the Drylands Development Project (P164052: FY19), which is designed to reinforce the resilience of rainfed cereal production systems.<sup>10</sup> Results of the Financial Inclusion and Rural Finance study currently undertaken in Mali will also benefit PADEL-M. The project will work closely with IFC, which plays an important role in engaging the private sector and promoting investment opportunities that leverage public funding, including in the livestock sector.<sup>11</sup> Lastly, the project will complement other donor-financed projects, emphasizing lessons learned and opportunities for synergy and coordination, *inter alia*: (i) Project for the Development of Animal Production in the South Kayes Zone (PADEPAKS),<sup>12</sup> funded by the African Development Bank (AfDB); (ii) Rural Youth Vocational Training Project,<sup>13</sup> funded by the International Fund for Agricultural Development (IFAD); (iii) Integrated Development of Livestock and Fisheries Resources Project (PDIRAAM), funded by the Islamic Development Bank (IDB); and (iv) two programs funded by the United States Agency for International Development (USAID)—Feed the Future (FTF) Livestock for

<sup>10</sup> This project builds on the findings from a recent World Bank analysis presented in Report P156684, "Strategies to increase agricultural productivity and improve market participation in Mali's drylands: Evidence from LSMS-ISA 2014."

<sup>11</sup> IFC already supports private companies in the development of targeted value chains, notably for dairy and red meat near urban centers. A case in point is the IFC-financed Kayes abattoir. This facility currently operates at a fraction of its capacity for lack of supply. It would benefit from an associated investment in cattle fattening, which could supply additional animals.

<sup>12</sup> Projet d'appui au développement des productions animales dans la zone Kayes Sud.

<sup>13</sup> Rural Youth Vocational Training Employment and Entrepreneurship Support Project (IFAD.)



Growth (L4G) and Mali Livestock Technology Scaling (MLTS).<sup>14</sup> Details on the specific areas of synergy are in Annex 1, Table 4.

## II. PROJECT DEVELOPMENT OBJECTIVES

### A. PDO

16. The Project Development Objective (PDO) is to “enhance productivity and commercialization of non-pastoral animal production in selected value chains, and strengthen the country’s capacity to respond to an eligible crisis or emergency.” The PDO is aligned with the government strategy for sustainable livestock development, which promotes “sustainable, modern, and competitive agriculture, based primarily on recognized and secured agricultural family farms, through the maximization of agro-ecological potential and of the agricultural know-how of the country, and the creation of an environment conducive to the development of a structured agricultural sector...to guarantee food sovereignty and to make the agricultural sector the driving force of the national economy, with a view to ensuring well-being.” The PDO explicitly articulates the project’s complementarity with PRAPS-ML by specifying that it targets only livestock systems unrelated to pastoralism (the focus of PRAPS).

17. The project will have countrywide coverage. It will focus on the sedentary livestock rearing systems, which are not dealt with by PRAPS-ML. It will encompass the main livestock commodity value chains (meat from cattle and small ruminants, milk, poultry meat, and eggs), including aquaculture. In all regions, the project will also have a focus on peri-urban areas to boost semi-intensive livestock production and processing systems, as appropriate.

### B. Project Beneficiaries

18. **Direct beneficiaries.** The proposed project should primarily benefit about 340,000 livestock-producing people and small-scale livestock operators and enterprises, including poultry and fish farming households and operators, of whom 30 percent will be women and 30 percent youth (between the ages of 15 and 40). More specifically, the direct project beneficiaries are: (i) sedentary livestock-rearing households benefiting from project interventions in targeted production areas, particularly the vulnerable segments of that group; (ii) small- and medium-scale private livestock operators and enterprises; (iii) livestock (including poultry and fish farming) producer organizations (POs) and their apex institutions; (iv) staff of the livestock support services, including the public livestock research and extension services, non-governmental organizations (NGOs), and private service providers involved in the targeted livestock value chains in project areas.

19. **Indirect beneficiaries.** The project has a range of secondary beneficiaries. On the production, processing, and marketing side, they include other livestock and fish farmers outside the targeted areas, who are not directly involved in project activities but will benefit from improved animal disease control and higher-quality livestock inputs and services. Secondary beneficiaries also include stakeholders (buyers and processors) in the targeted value chains, who will benefit from increased provision of livestock, poultry, and fish commodities. On the consumption side, consumers in Mali will benefit from a larger supply of animal protein that is also of better

---

<sup>14</sup> USAID funds for livestock activities under the FTF initiative include: (i) L4G, implemented by AECOM International Development, which strengthens technical and organizational capacities in the cattle and small ruminant value chains and (ii) FTF-MLTS, which supports livestock producers in the Mopti, Timbuktu, and Sikasso regions.



quality, and from improved nutrition at the household level. Other indirect beneficiaries include service providers operating in livestock value chains, such as private veterinarians and input providers (feed and veterinary medicines, for instance).

### C. PDO-Level Results Indicators

20. Progress toward the achievement of the PDO will be measured by the following results indicators:
- a) Percentage increase of yields produced by targeted beneficiaries among selected value chains.<sup>15</sup>
  - b) Incremental sales in targeted value chains (aggregated over all the targeted value chains).<sup>16</sup>
  - c) Time to reach 50 percent of the targeted beneficiaries as foreseen in the inclusive contingency intervention plan.
  - d) Farmers reached with agricultural assets or services—core indicator (of which number of female and number of youth).
  - e) Beneficiary satisfaction rate with services provided by the project for the livestock sector (percentage of which female and percentage of which youth).

## III. PROJECT DESCRIPTION

### A. Project Approach

21. **Overall project approach.** The project aims to support selected sedentary livestock value chains (VCs): cattle and small ruminants (meat and milk), poultry (chickens and eggs), and fish farming (aquaculture), as well as diversification value chains to the extent possible (such as hogs and beekeeping/honey production). The project will support livestock development activities all along the selected VCs from production to market, assuming that these activities have recognized potential to provide significant beneficial spillover effects for Mali's economy. The project will build solid partnerships by pooling the expertise and resources of various actors in the selected VCs, such as the government, private sector operators, producer and VC organizations, commercial banks, and microfinance institutions.

22. **Key problems addressed.** The project will approach problems in an integrated fashion for each selected VC, and across VCs whenever possible. It will address the key problems facing Mali's sedentary livestock sector, including: (i) weak productivity of sedentary production systems caused by inadequate access to services and essential inputs (such as veterinary services, animal nutrition, improved breeding stocks) and the lack of advisory services tailored to producers' circumstances to help modernize and intensify their operations; (ii) poor access to markets and low investment owing to a lack of market information and credit resources, as well as modern means of production, marketing channels, and processing facilities; and (iii) increasing vulnerability owing to increased risks posed by climate change, animal diseases (including zoonotic diseases), economic hazards, conflict, and insecurity.

<sup>15</sup> This indicator will be measured for every targeted value chain, but only the weighted average across all targeted value chains will be reported as a Key Performance Indicator.

<sup>16</sup> As is the case for yields, only the weighted average across all targeted value chains will be reported as a Key Performance Indicator.





23. **Complementarity of PADEL-M with PRAPS.** PRAPS is a regional operation (P147674), currently implemented in the six Sahelian countries (including Mali, through PRAPS-ML) to support improved productivity, sustainability, and resilience of pastoral livelihoods, as prioritized in the Nouakchott Declaration on Pastoralism (2013). As the sister operation of the proposed project, PRAPS-ML concentrates on pastoral activities that sustainably raise the incomes of pastoral and agro-pastoral groups by improving animal health, managing natural resources (essentially rangeland and water), facilitating live animal market access, and preventing and managing pastoral crises. PRAPS-ML is active in Mali's pastoral area, which covers a large part of the national territory, including the northern regions of Mali bordering Mauritania, Algeria, and Niger. The proposed PADEL-M complements PRAPS-ML by focusing on sedentary livestock systems instead of mobile ruminant herding. The two projects have overlapping geographical boundaries but target different beneficiaries. They also have operational complementarities touching *inter alia* upon animal health, feed production and supplementation, access to market information, as well as livestock sector crisis prevention and management. PADEL-M will be administratively linked to PRAPS-ML to take full advantage of the capacity already available in MEP (for instance, fiduciary and environmental/social safeguard management), as well as cross-cutting project coordination. Pooling technical expertise, sharing managerial capacities at the central and field implementation levels, and adopting similar joint implementation arrangements will guarantee that the two projects operate efficiently in synergy, without duplicating activities, hence ensuring a sector-wide approach within MEP.

24. **Gender mainstreaming.** Women have a crucial role in ensuring household food security and contributing to livestock development in rural Mali. In this respect, women engage more in activities related to small livestock (such as poultry, sheep, goats) and fisheries, whereas men focus on cattle. Recent studies show that women participate mostly in milk production and marketing, breeding of short-cycle species, fish processing, and diversification activities like honey production. Generally, women are involved more in the informal sector, where they pursue a variety of livestock-related activities aimed at generating income to meet family needs. For rural women, a primary challenge is to divide their time between their productive activities (such as livestock) and their reproductive activities (such as household chores). Compared to men, women also tend to have fewer productive assets like tools and equipment and more limited access to credit and land. Supporting time-saving technologies in conjunction with the nutrition-sensitive tasks usually undertaken by women will be crucial both for enhancing livestock production and improving maternal and child nutrition.

25. Lessons from experience indicate that to effectively reduce the gender gap in the livestock and fisheries sectors, it is also important to focus on: (i) training in technical skills and business management to equip women to take advantage of profitable economic opportunities; (ii) women's access to technical information and networks; and (iii) women's participation in developing cooperatives and professional organizations. The project will mainstream support to all of the above activities geared toward women as an integral part of its support to the targeted VCs, and it will grant preferential conditions to women for funding of investments. The plight of youth is similar to that of women. A sizable fraction of Mali's large youth population<sup>17</sup> is either unemployed or underemployed. Young people will also receive preferential access to project resources, including investment funding. A study of the roles of women and youth in the household and commercial livestock economy has been

---

<sup>17</sup> In 2016, the estimated age structure in Mali is 0–14 years (47.27 percent), 15–24 years (19.19 percent), 25–54 years (26.82 percent), and 55–64 years (6.71 percent) (Index Mundi 2016).



prepared as part of project preparation to deepen the understanding of these issues and more clearly define how the project can support these groups.

26. **Support to nutrition.** Livestock products are vital to the poor, not only because they contribute to economic welfare but because they assure overall human development outcomes. Animal protein is important to a balanced human diet, particularly during the early years of life; animal products provide nutrients and micronutrients that are otherwise scarce or lacking in local diets. For those reasons, increasing the share of foods from animal sources in the calories consumed by the poor in Mali (as in many other low-income countries, particularly in the Sahelian region) can yield many nutritional benefits, and promoting livestock production can improve human nutrition in rural areas. In fact, evidence suggests that support for livestock development has nutritional benefits for targeted communities and that rural families who own livestock increase their consumption of foods of animal origin and improve children's nutritional status. Through its support for sedentary livestock development, PADEL-M will help to promote sound nutritional practices among rural beneficiaries, particularly women and children.

27. **Climate-smart development.** Climate change adaptation and enhanced resilience in the agricultural sector remain priorities for Mali, as emphasized in the National Adaptation Plan for Climate Change (June 2015). Mali's livestock sector (including aquaculture) is subject to climate change threats of various kinds: (i) gradual depletion of water sources and water points; (ii) infestation of animals by the vectors of diseases such as trypanosomiasis and African swine fever; (iii) degradation of fodder resources; and (iv) natural disasters such as floods and droughts, which are more likely in the North. The project will help to address such threats. With regard to concerns that livestock production systems are a source of greenhouse gas (GHG) emissions and pollutants, evidence suggests that the more intensive production systems promoted under PADEL-M will have less GHG impact per unit produced than traditional systems (Annex 5). Intensification could however result in greater soil and water pollution. The project will promote good manure and waste management practices to prevent such potential adverse effects. Building environmental resilience in close liaison with livestock producers is a core dimension of PRAPS-ML that PADEL-M will emulate and extend to other VCs for animal products.

28. **Private sector development and alignment with the World Bank's approach to maximize financing for development.** The project design explicitly acknowledges the key role of the private sector in sustaining the development of the livestock sector and focuses on private sector solutions where they can help achieve development goals. The project's fundamental premise is that the development of the livestock sector depends on promoting private initiative and that scarce public funds should be used where they are most needed. The project also emphasizes the private sector role in delivering public services. A case in point is the delivery of veterinary services, by supporting the installation of private animal health service providers through the "veterinary mandate." The project will improve the incentive framework for private producers and investors through the provision of public goods in the form of animal health services, genetic improvement, foundation forage seed, etc., and related advisory services, and by dealing with crisis prevention and management. Better provision of these public goods will create an enabling environment to expand opportunities for the private sector in livestock VCs. To support private activity, the project will improve the vertical and horizontal integration of livestock VCs and build the capacities of the inter-professional organizations that represent the entire range of actors in each VC. The project will enhance market efficiency by supporting market information systems that meet specific needs of private actors, especially producers, traders, and exporters. Finally, a key project design feature is the promotion of private sector access to commercial credit through close partnership with financial



institutions. The project will not finance large-scale meat production and processing infrastructure or industrial dairy units. IFC was consulted during preparation to explore such investment possibilities. IFC already supports private companies in the development of targeted VCs, notably for dairy and red meat near urban centers such as Bamako and Kayes.

29. **Crisis prevention and management.** The Sahel, of which Mali is integral part, is an environment where severe climatic variability is the norm. Droughts and highly scattered and unpredictable rainfall patterns are characteristic; the timing of these events cannot be predicted accurately, but they are expected periodically. The growing importance of animal movement and sub-regional trade are gradually increasing the incidence of disease and the potential for full-blown emergencies (such as the reemergence of Highly Pathogenic Avian Influenza in 2015). Although the costs of dealing with emergencies are far higher than the costs of prevention, funds have been more readily available to respond to emergencies unleashed by natural disasters and public health crises than to prepare for them and mitigate their impact. PADEL-M, like PRAPS-ML, assumes that crisis prevention and management are an ongoing requirement for Mali to be prepared to confront livestock disasters and crises. The project will finance the establishment of a sector-wide Contingency and Emergency Response plan and contribute to a countrywide Immediate Response Mechanism (IRM), to provide minimum startup resources for an immediate response to emergencies, which can be replenished to continue responding as required. PRAPS-ML and other recent IDA-financed projects in Mali contain similar contingency emergency response funds.

## **B. Project Components**

30. PADEL-M is structured as an Investment Project Financing (IPF) for a total cost of US\$ 78.4 million, funded partly by an IDA credit in the amount of US\$ 30 million over six years, and by an IDA grant in the amount of US\$ 30 million over six years. The project will have three interrelated components, organized to remove constraints and address priorities sequentially: (i) improving the quality of livestock services and the access of livestock producers to these services; (ii) developing market access through the promotion of private investment in production, processing, and marketing businesses; and (iii) prevention and crisis management, institutional support, and project coordination.

### **Component 1: Strengthening of Livestock Services—US\$ 23.8 million (US\$ 20.5 million from IDA, US\$ 2.1 million from the Government of Mali, and US\$ 1.2 million from beneficiaries)**

31. The objective of this component is to enhance livestock productivity in selected non-pastoral value chains. It is designed to build sustainable human, institutional, and policy capacity for key public and private actors in the livestock and aquaculture sectors, in order to improve animal husbandry practices as well as the access to and delivery of quality extension services (for animal health, feed, and breeding). This component has national coverage by design and comprises three subcomponents: (i) enhancing animal health and food safety; (ii) enhancing livestock (including aquaculture) productivity in the selected value chains; and (iii) strengthening the policy and regulatory framework.

32. **Subcomponent 1.1: Animal health and food safety—US\$ 10.5 million (US\$ 8.9 million from IDA, US\$ 0.4 million from the Government of Mali, and US\$ 1.2 million from beneficiaries).** Subcomponent 1.1 will help to reduce mortality and morbidity losses due to animal diseases and contribute to improved public health; it will seek synergies and complementarities with PRAPS-ML. Activities will include: (i) develop animal disease prevention and control strategies (foot and mouth disease—FMD, Newcastle disease—NCD); (ii) strengthen





surveillance systems<sup>18</sup> for emerging and re-emerging and other priority animal diseases through Field Epidemiology Training Programs for Veterinarians; (iii) support to vaccination programs<sup>19</sup> and awareness campaigns for four priority diseases— small ruminant plague (peste des petits ruminants, PPR), contagious bovine pleuropneumonia (CBPP) in cattle, and FMD and NCD for poultry; (iv) enhance the diagnostic capabilities of the Gao laboratory through the acquisition of laboratory supplies, reagents, and consumables, and also enhance the maintenance and calibration of Central Veterinary Laboratory (LCV) equipment; and (v) promote public health and food safety through enhanced quality control of animal products, the development and implementation of control strategies for brucellosis/tuberculosis/salmonellosis, and support to implement the Anti-Microbial Resistance national action plan. Furthermore, the project will support relevant institutes with research facilities to develop performant fish strains and quality feed formulations, and strengthen fish pathology knowledge.

**33. Subcomponent 1.2: Productivity enhancement—US\$ 12.6 million (US\$ 10.9 million from IDA and US\$ 1.7 million from the Government of Mali).** The aim of this subcomponent is to increase the availability of and access to high-quality services and inputs for livestock producers (including aquaculture). Activities include: (i) genetic improvement by (a) supporting the decentralization and privatization of artificial insemination (AI) service delivery, (b) enhancing capacity for the production and distribution of liquid nitrogen, and (c) reinforcing the capacity of private inseminators, in order to achieve 65,000 AIs at the end of the project with a success rate of 70 percent; (ii) feed improvement through availability of improved forage seeds, provision of forage equipment, silage development, and feed quality control (including aflatoxin assessment); (iii) development and dissemination of technical and economic guidelines for livestock production in the selected VCs; (iv) transfer of Good Agriculture Practices (GAPs) in dairy, poultry, and cattle VCs by rolling out innovative extension models, such as livestock Farmer Field Schools (FFSs), and provision of training; GAPs will include such specialized areas as management of manure, efficient use of natural resources (water particularly), good management of discharges, safe recycling, and biosecurity; and (v) promotion of fish processing and conservation with improved cold chain and traditional conservation methods, combined with improved packaging, labelling, and marketing through the introduction of recently developed fish smoking methods and best practices in aquaculture production.

**34.** In addition, this subcomponent will help to bridge skills and institutional gaps of the public sector by financing: (i) human resource capacity development (specialized training efforts tailored to selected VCs); (ii) veterinary medicine studies (degree training); and (iii) building construction/rehabilitation and equipment (vehicles, motorcycles, office supplies, internet connection, and veterinary kits) for DNSV,<sup>20</sup> field border posts, and local stations for improved fishery and animal production.

**35. Subcomponent 1.3: Policy design and regulatory framework—US\$ 0.7 million from IDA.** This subcomponent aims at strengthening MEP's efficiency and effectiveness by supporting policy formulation and developing the attendant legislation for improving the livestock and fisheries regulatory environment.<sup>21</sup> This area

<sup>18</sup> The project will join efforts with PRAPS-ML and REDISSE III.

<sup>19</sup> To this end, the project will liaise closely with PRAPS-ML. It will sustainably promote the national vaccine production capacity for NCD and PPR through the acquisition of a freeze dryer (lyophilizer) at the Central Veterinary Laboratory (LCV).

<sup>20</sup> DNSV is the Direction Nationale des Services Vétérinaires (National Directorate of Veterinary Services), MEP. The project will finance preliminary and design studies for building construction as well office equipment; the construction will be funded from the government budget. If counterpart funding is not available, other solutions will be sought, including possible renting of office buildings.

<sup>21</sup> The Mali Drylands Development Project currently under preparation for IDA financing will support similar activities for the Ministry of



of weakness needs specific support. Activities will include, wherever necessary, updating and/or developing key general sector policies (such as those regarding general livestock and fishery sector development and trade), as well as specific policies (such as an animal breeding policy, pollution control, fish and aquaculture Master Plan, and so on), and the development of norms and quality and safety standards for animal-sourced products. MEP will have the possibility to undertake specific sector studies, such as a study of livestock identification in relation to the Performance Recording System for inseminated cattle, and Public Expenditure Reviews for the livestock sector. The Project will help build MEP's economic planning and M&E capacities, through initial training and the development of a longer-term partnership with an external institution of international repute.

**Component 2: Support to Private Investment—US\$ 43 million (US\$ 30.1 million from IDA, US\$ 0.5 million from the Government of Mali, US\$ 9.4 million from PFIs, and US\$ 3.0 million from beneficiaries)**

36. Component 2's objective is to strengthen the competitiveness of targeted livestock VCs—cattle and small ruminants (meat and dairy), poultry (eggs and chickens), and fish farming (aquaculture)—by supporting partnerships between VC actors and facilitating their access to markets. It will improve competitiveness by modernizing and intensifying livestock operations and achieving critical scales of operation to ensure profitability and generate employment all along the VCs. To this end, Component 2 will: (i) support VC economic organization and investment incentive framework; (ii) facilitate the preparation of business plans and access to finance; and (iii) contribute to the funding of Productive Partnerships (PPs) in close relationship with Partner Financial Institutions (PFIs), as well as microprojects.

37. **Subcomponent 2.1: Economic organization and incentive framework—US\$ 8.1 million from IDA.** Subcomponent 2.1 will adopt a market-oriented approach for all targeted VCs and create an enabling environment for promoting investment initiatives involving all interested stakeholders in these VCs. This subcomponent will finance primarily institutional support to professional organizations, Technical Assistance (TA) to identify VC markets and promote VC products, and the building of selected market infrastructures. The following specific activities will be implemented: (i) the project will capitalize on knowledge of the livestock sector, focusing on VC organization and market opportunities, by preparing or updating VC competitiveness studies and master plans (including related market studies), and reviewing and disseminating information on sector regulations; (ii) professional and inter-professional entities will be established and/or further strengthened, with a focus on better governance and preparation and implementation of strategic action plans; (iii) VC products will be promoted nationally and regionally (West Africa), and possibly elsewhere internationally; (iv) the emergence and development of investment initiatives will be facilitated by prospecting for business opportunities, identifying private investors, and developing framework commercial agreements; and (v) rehabilitating and/or building a few critical infrastructures for market access, including livestock, poultry, and fish markets, culling platforms, as well as milk collection and conservation centers; access roads will be constructed as required per special request to the Bank-financed Rural Roads project (FY18).

38. **Subcomponent 2.2: Support to investment cycle—US\$ 4.8 million from IDA.** Subcomponent 2.2 will support the preparation of the business plans required to set up the Productive Partnerships (PPs) and Microprojects (MPs) to develop and implement the PADEL-M investment portfolio with private operators. As a first set of activities, this subcomponent will provide various kinds of TA support all along the investment cycle—for preparing, negotiating, and following up on the implementation of business plans. This support will be



provided through (i) a TA contract for the PP window (the consultant firm will maintain a close relationship with PFIs throughout the investment cycle from start to finish); and (ii) a delegated authority contract<sup>22</sup> to develop and manage the MP portfolio for the MP window (under this contract the consultant firm will assume full responsibility for technical design, procurement, and management of funds for implementation of the MPs). Under both windows, contracts will be performance-based, and the consultant firms will be responsible for ensuring the required quality control. Business plan proposals will be submitted: (i) for the PP window, to a National Approval Committee, chaired by the Project Coordination Unit (PCU) and including participation of all involved stakeholders (professional organizations, PFIs, TA providers, etc.); and (ii) for the MP window, to decentralized committees with stakeholder participation. A second set of activities involves building capacity for PFIs, which will receive support to develop the relevant know-how and specific tools to address the financial needs of stakeholders in the targeted livestock VCs. As a result, PFIs will be better equipped to analyze and mitigate the risks linked to investing in the livestock sector. A final set of activities supports communication and awareness campaigns for livestock producers and other VC stakeholders to learn about the project funding approach, workshops on financing instruments adapted to the targeted VCs, and advice on financial management, among other topics.

**39. Subcomponent 2.3: Investment financing—US\$ 30.1 million (US\$ 17.2 million from IDA, US\$ 0.5 million from the Government of Mali, US\$ 9.4 million from PFIs, and US\$ 3.0 million from beneficiaries).** The main output of Subcomponent 2.3 will be the funding and implementation of investment initiatives by investors in the targeted VCs. Project funding will be provided under two separate windows:

- a) *Productive Partnership (PP) window.* This window will co-fund about 160 business plans for small and medium enterprises (SMEs) requiring an investment of CFAF 15 million (about US\$ 26,000) and above; the proposed financing mechanism will be a blend of funding, in which 60 percent of eligible expenditures on average will be covered through matching grants (MGs) provided by the project, 30 percent through loans from PFIs, and 10 percent through cash provided by beneficiaries. MGs will not be transferred directly to beneficiaries but will be deposited with the PFIs to guarantee their loans to beneficiaries, under conditions to be negotiated between individual investors and PFIs. The purpose of this mechanism is to develop sustained business relationships between beneficiaries (livestock producers and other economic agents in the targeted VCs) on the one hand and PFIs on the other, starting right at investment inception.
- b) *Microproject (MP) window.* This window will co-fund about 600 investment initiatives for very small enterprises (VSEs) through MGs for investments of less than CFAF 5 million (about US\$ 9,000). The MG will amount to a maximum of 80 percent of eligible investment expenditures. Bank credit will not be required for MG disbursement, and beneficiaries will be allowed to provide their contribution in kind. This window will target vulnerable groups, particularly women and youth.

**40. Under both windows, women and youth will receive preferential treatment.** These two groups will be required to fund only 5 percent of eligible expenditures under the PP window and 10 percent only under the MP window. The eligibility and selection criteria, as well as the guidelines for appraising and approving MGs for both windows, will be detailed in a special implementation manual<sup>23</sup> for the project's line of funding for the PPs and MPs acceptable to the World Bank. The demands of potential promoters (the individuals or groups active in a

<sup>22</sup> In the form of *Maîtrise d'Ouvrage Déléguée*.

<sup>23</sup> The availability of this manual will be a disbursement condition under both windows.



targeted VC, who initiate the development of investment initiatives) for the PP window and their readiness to join PPs will be assessed at project inception to gauge the requirements and implementation modalities.

**Component 3: Crisis Prevention and Management, and Project Coordination—US\$ 11.6 million (US\$ 9.4 million from IDA and US\$ 2.2 million from the Government of Mali)**

41. The objective of this component is not only to develop mechanisms for preventing and responding to severe crises and emergencies in the livestock sector, but also to strengthen project coordination capacities within MEP. Accordingly, its two subcomponents relate to: (i) crisis prevention and management and (ii) institutional support and project management.

42. **Subcomponent 3.1: Crisis prevention and management—US\$ 2.1 million (US\$ 1.7 million from IDA and US\$ 0.4 million from the Government of Mali).** Subcomponent 3.1 supports two main activities. The first is to operationalize a new Crisis Prevention and Management Unit (CPMU)<sup>24</sup> within MEP by providing equipment (computer hardware and software, office furniture, vehicles, etc.), training, and resources for specialized studies and communication campaigns. The second activity encompasses the development and operationalization of crisis prevention and management tools, including the establishment of forums for crisis management in the 11 regions of Mali and at the national level (as well as participation in international crisis management forums in West Africa and the Sahel), a Contingency Emergency Response Component (CERC), and a mechanism to monitor and evaluate crisis management in the sector. In this effort, the project will collaborate fully with PRAPS-ML, which supports the management of pastoral crises or emergencies.<sup>25</sup> Crisis response plans will be developed with a view to reaching the most vulnerable members of affected communities (youth, women, the elderly) as a priority.

43. CERC will have initial financing equivalent to US\$ 1.3 million, jointly provided by IDA (US\$ 1.0 million, approximately 75 percent) and the government (US\$ 0.3 million, approximately 25 percent), so that it can initiate operations immediately if a severe crisis or emergency has a major impact on sedentary animal production and/or project VCs (including aquaculture). If such a crisis develops, the government may request the World Bank to reallocate project funds to cover some costs of emergency response and recovery. Detailed operational guidelines acceptable to the World Bank for implementing the project CERC will be prepared during the first six months of project implementation. All expenditures under this CERC will be in accordance with paragraphs 11, 12, and 13 of World Bank OP10.00 (Investment Project Financing). They will be appraised and reviewed to determine if they are acceptable to the World Bank before any disbursement is made. Disbursements will be made against an approved list of goods, works, and services required to support crisis mitigation, response, recovery, and reconstruction.

44. **Subcomponent 3.2: Institutional support and project coordination—US\$ 9.5 million (US\$ 7.7 million from IDA and US\$ 1.8 million from the Government of Mali).** Subcomponent 3.2 provides material support to MEP directorates at the central level and in regional offices to enable the project to operate. Beyond that, this subcomponent focusses on all aspects of project management and coordination—essentially the operations of

<sup>24</sup> This unit, to be created and staffed by MEP, must be able to ascertain whether a crisis has arisen, respond to the Food Security Commissariat (CSA) when necessary, and coordinate an operational response to animal health crises, crises induced by natural disasters, and market crises in the livestock sector (including aquaculture). The unit's position within the MEP organizational chart and its mandate are to be officially defined by the authorities within six months after Credit/Grant effectiveness.

<sup>25</sup> PRAPS-ML has already developed a CERC dedicated to pastoral crises, which will also be managed by the CPMU in the future.



the PCU to be established under a sharing arrangement with the PCU of PRAPS-ML. This subcomponent supports Steering Committee meetings and provides funds for (among other items) training and equipment to modernize MEP (computer hardware and software, office furniture, vehicles, etc.) at the central level and in the field, as well as all PCU activities required to manage IDA funds, procure IDA-funded goods and services, and conduct project M&E, including the implementation of safeguard mitigation measures in accordance with agreed-upon procedures. In addition, this subcomponent funds the generation of data on the livestock sector in Mali (including aquaculture), knowledge management, advocacy for livestock sector financing, and communication campaigns. Activities under this subcomponent will be geared to benefit women and youth in every way possible.

## C. Summary Project Cost and Financing

**Table 1: Project costs and financing**

Project components/subcomponents	Project costs (US\$ millions)	IDA (US\$ millions)	% IDA	Beneficiaries (US\$ millions)	PFI's (US\$ millions)	Government (US\$ millions)
<b>Component 1: Strengthening of Livestock Services</b>						
1.1: Animal health and food safety	10.5	8.9	15	1.2	0.0	0.4
1.2: Productivity enhancement	12.6	10.9	18	0.0	0.0	1.7
1.3: Policy design and regulatory framework	0.7	0.7	1	0.0	0.0	0.0
<b>Subtotal</b>	<b>23.8</b>	<b>20.5</b>	<b>34</b>	<b>1.2</b>	<b>0.0</b>	<b>2.1</b>
<b>Component 2: Support to Private Investment</b>						
2.1: Economic organization and incentive framework	8.1	8.1	13	0.0	0.0	0.0
2.2: Support to investment cycle	4.8	4.8	8	0.0	0.0	0.0
2.3: Investment financing	30.1	17.2	29	3.0	9.4	0.5
<b>Subtotal</b>	<b>43.0</b>	<b>30.1</b>	<b>50</b>	<b>3.0</b>	<b>9.4</b>	<b>0.5</b>
<b>Component 3: Crisis Prevention and Management, and Project Coordination</b>						
3.1 Crisis prevention and management	2.1	1.7	2.8	0.0	0.0	0.4
3.2 Institutional support and project coordination	9.5	7.7	12.8	0.0	0.0	1.8
<b>Subtotal</b>	<b>11.6</b>	<b>9.4</b>	<b>15.6</b>			<b>2.2</b>
<b>Total project costs</b>	<b>78.4</b>	<b>60.0</b>	<b>100</b>	<b>4.2</b>	<b>9.4</b>	<b>4.8</b>

## D. Lessons Learned and Reflected in the Project Design

45. The project design reflects the current international consensus on livestock development. It draws on the specific operational experiences from IDA-financed projects implemented in Mali and other countries, as well as on lessons from Bank reviews and other external review initiatives. Specifically, the design is predicated on lessons from the following significant projects: (i) the IDA-financed Agricultural Competitiveness and Diversification Project (P081704: PCDA, FY 2006 / Cr. 4195), which has supported crop and livestock VCs, particularly the development of the dairy and poultry VCs; (ii) PRAPS-ML (P147674: FY 2016), focusing on pastoralism; (iii) WAAPP for Mali (P129565: WAAPP-M, FY 2011); (iv) the recently approved Mali PACAM (P151449: FY 2016), Cameroon Livestock Sector Development Project (P154908: PRODEL, FY 2016), and Burkina Faso PADEL-B (P159476); and (v) the pioneering Colombia Productive Alliance Project (P041642: FY 2002) and numerous subsequent Productive Alliance (PA) development projects in the Latin American and Caribbean





region.<sup>26</sup> The project design also draws on reviews by the Bank's Independent Evaluation Group (IEG), by OIE as part of the Evaluation of Performance of Veterinary Services (PVS) pathway, and by ILRI.

**46. Major lessons from these various projects and reviews informed project design:**

- a) *Animal and public health activities* were designed based on OIE PVS and ILRI recommendations. Mali participates in the PVS pathway, a global OIE program for sustainably improving national veterinary services to comply with international standards. The PVS pathway reviews provide objective, harmonized qualitative and quantitative information to identify priorities and guide investments. ILRI has produced evidence that significant nutritional benefits (especially in poorer segments of the population) typically accompany livestock development.
- b) *Regarding MGs and PPs*, PCDA demonstrated how MGs can improve dairy and poultry farm productivity, while incentivizing producers and processors to invest in mitigating environmental impacts and adopting food safety technologies. The PA projects in Latin America pointed to similar benefits and also identified bottlenecks in organizing producers into groups or cooperatives, such as insufficient awareness of the value added by POs and the difficulty of establishing reliable PAs through formal contractual agreements between stakeholders in VCs.
- c) *VC development* activities in the proposed project were informed by the IEG review of World Bank experience in agriculture and agribusiness. This review identified critical activities and advice for improving supply chain competitiveness, such as: (i) supporting production is important (the PADEL-M design integrates lessons from WAAPP on the adoption of new technologies and benefits of supporting demonstration activities); (ii) strong marketing and market infrastructure is essential; and (iii) TA is important, particularly to support the quantity and quality of production while improving access to markets and credit to consolidate the investment provided. Experience with PA projects in Latin America highlights steps that PAs should take to overcome market barriers for producers: (i) involve PFIs such as commercial banks at the beginning of investment initiatives; (ii) work with buyers to sustain and scale up activities when project funding ends; and (iii) emphasize VCs in which producer/buyer partnerships operate to remove constraints and help roll out the partnership model.
- d) *Crisis prevention and management* elements of the project draw on early lessons from PRAPS-ML concerning crisis management, especially the benefits of depositing initial funding in a CERC and providing resources for a countrywide response (IRM).

## **IV. IMPLEMENTATION**

### **A. Institutional and Implementation Arrangements**

47. Responsibility for implementing the project, including managing environmental and social risks, will rest with MEP. The project will be implemented over six years and cover the entire national territory. The six-year duration is intended to provide a realistic timeframe for implementation. Experience with similar projects demonstrates that for PADEL-M to achieve its planned outcomes it is vital to allocate sufficient time. Time is required not only to strengthen services (improving service delivery, building capacity, etc.) under Component 1,

<sup>26</sup> World Bank (2016), "Linking Farmers to Markets through Productive Alliances: An Assessment of the World Bank Experience in Latin America."



but (even more so) to develop private sector initiatives under Component 2. Corresponding expenditures are likely to be made earlier to support certain services (such as vaccinations) than to fund sustainable PP operations, which will require a longer investment cycle.

48. Annex 2 details the organizational arrangements for PADEL-M. The governance structure is modeled after PRAPS-ML and includes a Steering Committee (COPIL) and Technical Committee (CT), meeting at regular intervals, with all necessary representative membership. The Steering Committee will be chaired by the Minister for Livestock and Fisheries (or representative). It will provide guidance for the project and approve the Annual Work Plan and Budget (AWPB) as well as progress reports. The Technical Committee will be responsible for monitoring project implementation; it will be chaired by the Secretary General of MEP and comprise all relevant technical stakeholders. At the local level, the existing regional coordination committees (CRs) will be involved in implementing the project and will help to assess progress in the field. The project implementation mechanism will consist of a PCU based in Bamako and field staff based in all MEP regional directorates in charge of VC development (DRPIAs). The mechanism will also involve Focal Points in MEP's central directorates and in the ministries in charge of environment and social affairs (to facilitate adherence to environmental and social safeguards).

49. As advocated by the authorities, the PCU for PADEL-M will be fully mainstreamed within the structure of MEP, under the ministry's General Secretariat and alongside the PCU for PRAPS-ML, with which it will maintain a sharing arrangement. Specifically, the two project teams will operate in close synergy under the same National Coordinator, and the teams will be housed in the same building. The sharing arrangements adopted by the two PCUs are the precursor of arrangements for "sector PCUs," which, as agreed in principle with the government, will serve ongoing and future projects in given sectors. The PCU of PADEL-M will work in close coordination with the technical directorates of MEP at the central and regional levels to execute and monitor project implementation. The National Coordinator who will head the combined PCUs will be competitively recruited among high-level civil servants in Mali and remunerated by the government; his/her signature will be required to commit project financing. S/he will be assisted by a team of high-caliber, competitively recruited consultants covering all technical or administrative functions deemed critical for proper project implementation and management. The cross-cutting functions of project management, including the fiduciary functions, will be pooled for both projects, and technical expertise will be shared between the two projects to the extent possible.

50. At the technical level, the current expertise<sup>27</sup> available for PRAPS-ML will be complemented to cover the additional requirements of PADEL-M, including a Technical Director and his/her Secretary, experts in Public Health, Animal Production, Aquaculture, Livestock VCs, and Rural Finance. The Animal Health Expert, the Infrastructure and Market Access Expert, and the Crisis Management Expert will be shared by the two projects. The following cross-cutting project management functions will be pooled: (i) financial management (a joint Administrative and Financial Officer, with an Accountant and Accounting Assistant for each project); (ii) auditing (the internal audit function will be pooled through an Internal Auditor, and the two projects may possibly use the same external audit firm); (iii) procurement (a joint Procurement Officer, with a Procurement Assistant for each project); (iv) M&E (a joint M&E Officer, with an M&E Assistant for each project as well as a pooled team of 11 field staff to cover all administrative regions<sup>28</sup> where the project will operate); (v) information technology,

<sup>27</sup> Which includes a Technical Director, an Animal Health Expert, a Natural Resource Management Expert, an Infrastructure and Market Access Expert, and a Crisis Management Expert.

<sup>28</sup> Eleven field staff will cover all 11 administrative regions (10 regions and the district of Bamako). Since PRAPS-ML already has field units



gender, and social and environmental safeguards (an Expert in each of these fields will be shared by both projects); and (vi) communications (an Expert and an Assistant together will cover both projects). All of these staff positions will be funded by IDA, either under existing PRAPS-ML arrangements or new PADEL-M arrangements. For administrative simplification, the shared PCU staff at the central and field levels will have joint terms of reference (ToRs) but will be financially supported by a single source.<sup>29</sup> Support staff at central and regional levels will be financed by national counterpart funding.

51. At the central level of MEP, relevant technical directorates will appoint Focal Points to support implementation of PADEL-M activities (as with PRAPS-ML). The PCU for PADEL-M will sign partnership or technical agreements with these technical directorates and other public partnering entities to carry out PADEL-M activities within their respective mandates. At the regional level, the joint field staff of PADEL-M and PRAPS-ML will disseminate project information, collect data, and monitor and report on project activities across the nation.

52. The Project Implementation Manual (PIM), to be adopted within three months following project effectiveness, will be a compendium of procedures for implementing the project (administrative, fiduciary, M&E, procurement, and social and environmental safeguards procedures). It will include detailed ToRs for all PADEL-M/PCU staff. A specific manual for managing the CERC will be prepared and validated no later than six months after project effectiveness; it will draw from a similar manual prepared for PRAPS-ML. A manual for managing the private sector funding windows under Subcomponent 2.3 will also be prepared as a disbursement condition.

## **B. Results Monitoring and Evaluation**

53. The Results Framework defines the performance indicators for key project activities. The project will implement a robust M&E system to provide high-quality information and allow the government and World Bank to react immediately to any issues that may arise. The PCU will oversee M&E and compliance with the agreed reporting requirements. The M&E system will be designed to link technical and financial data on the project's progress. It will serve as a mechanism to assess project results and as a day-to-day management tool. It will also support project supervision by ensuring that baseline and follow-up surveys and data collection for key performance indicators are available and regularly updated. Appropriate approaches and solutions will be sought to gather data to properly inform indicators.<sup>30</sup>

54. M&E reports will be produced every six months for physical implementation and results monitoring. Semi-annual and annual reports will be circulated to sector ministries and development partners involved. Semi-annual joint supervision missions with representatives from the Bank and the Government of Mali will ensure compliance with legal covenants and assess the status of key project outcomes. A Mid-Term Review will be conducted no later than three years after the first disbursement. A final independent evaluation will be conducted in the last semester of project implementation to assess overall achievement of expected project results.

55. The M&E manual will provide details about the definition of the Results Framework, the methodology and the instruments to be used for data collection, the institutional arrangements for M&E functions (identification

---

in three regions, the number of additional staff to be financed by PADEL-M is eight. Field staff will be operational for both projects.

<sup>29</sup> Staff funding will be supported either by PRAPS-ML or PADEL-M, depending on positions, as detailed in Annex 1. Drawing on respective IDA Credit/Grant amounts, approximately 60 percent of the pooled staff will be financed by PADEL-M and 40 percent by PRAPS-ML.

<sup>30</sup> One example will be to try and measure herd-level, as opposed to animal-level, productivity for cattle.





of actors and definition of their respective responsibilities), the Grievance Redress Mechanisms, and the mechanism to be used for disseminating information. M&E results will inform a communication strategy that will be developed and implemented by the PCU. A baseline survey will be conducted during the first year of the project to verify the baseline data and targets presented in the Results Framework. As noted, some M&E functions and activities will be pooled with PRAPS-ML (an M&E Specialist will serve both projects, supported by two M&E Assistants—one for each project) and the network of 11 M&E field experts<sup>31</sup> will support both projects. The institutional scheme for PADEL-M allows both projects to cover the 11 administrative regions of Mali and facilitate data collection. PADEL-M will use the same M&E software (TOMMONITORING) as PRAPS-ML. Moreover, an M&E mechanism will be set up to monitor emergency response activities.

**56. Iterative Beneficiary Monitoring.** The project will explore innovative mechanisms such as Iterative Beneficiary Monitoring (IBM), third-party monitoring, and Permanent Monitoring System (PMS). IBM is a feedback mechanism; on a regular basis, it identifies and quantifies distortions and shortcomings that place the achievement of project objectives at risk and reveal what is not working during implementation. Distortions are brought to the attention of project leaders and project managers, who use that information to improve the management of the project. Third-party monitoring is monitoring by parties that are external to the project or program's direct beneficiary chain or management structure to assess whether the project has achieved its intended outputs, outcomes, and impacts. PMS was implemented by the World Bank in Mali in January 2016 and has been functioning as an observatory of the economic and security context, collecting data every month and producing monthly briefings and quarterly reports to inform stakeholders. Farmers are the principal focus of this system. PADEL-M will be integrated into the PMS to assess changes that the project may induce in beneficiaries' lives. PMS questionnaires will be updated in accord with the objectives of the project, and the resulting data will be analyzed in light of the project indicators.

### **C. Sustainability**

**57.** Sustainability considerations, including exit strategies, have been integrated into all project components. The project will facilitate access to and delivery of sustainable livestock services so that they equitably serve the needs of all producers and private investors. It will enhance the resilience of sedentary livestock activities, including a focus on VC activities that are most relevant for poor farmers. Under the project-supported VC business activities, any productive asset, equipment, or infrastructure financed through the investment initiatives under Component 2 will be predicated on approved, well-conceived business plans clearly indicating the arrangements and division of responsibilities regarding operation, management, and maintenance, as well as funding arrangements with PFIs. This requirement should lay the foundation for sustainability of these business plans through the development of solid relationships with PFIs. The project will give priority to investment for promoting climate resilience, such as (i) climate-smart technologies and practices (including sustainable land/landscape management, and waste management systems to minimize GHG emissions, pollution, and dissemination of pathogens), and (ii) renewable energy supply (bio and solar energy) systems.

**58.** The project will invest in strengthening the capacities of public and private institutions. Public institutions, in particular the technical departments of MEP (including CPMU—the unit in charge of crisis prevention and management), will be strengthened through staff training, and more efficient linkages will be developed under Components 1 and 3 to ensure that the performance of public livestock services (including those for aquaculture)

---

<sup>31</sup> As mentioned, three officers are already financed by PRAPS-ML (in Gao, Kayes, and Mopti).



is closely monitored through an effective use of ICT tools (Management Information System). These activities will enable the project's results to remain beneficial for the country at large. The project also intends to support the capacity of private entities (such as livestock-rearing households, animal product traders and processors, service providers, and their organizations) to ensure that access to services and the quality of service delivery are sustained and that the entities supported through the project continue their economic ventures after the project ends. The enhanced capacity of local service providers, including PFIs, in conjunction with the setting up of business-based dialogue platforms through all project components, should enable beneficiaries to carry on with negotiation and mediation processes between various actors in the VCs after the project ends. The continued implementation of these processes is particularly important to sustain the PPs established among producers, POs, agro-processors, traders, and PFIs.

#### **D. Role of Partners**

59. The project will rely on several strategic development partners active in Mali to support and sustain its interventions. Among others, they include:

- a) *Private veterinarians* as part of their veterinary mandates will participate in animal health activities under Subcomponent 1.1. Private veterinarians are key partners, particularly for passive and active surveillance of the targeted diseases and related vaccinations, as well as routine veterinary services.
- b) *FAO and OIE* will assist with all questions regarding animal disease prevention and control (notably within the framework of global PPR eradication) as well as questions pertaining to forage and seed production.
- c) *ILRI*, headquartered in Nairobi, deals with livestock research and development and has programs in most West-African countries. The project will seek opportunities to enlist ILRI's support for technologies and expertise to improve cattle health, nutrition, and productivity (including milk).
- d) *PFIs* are key partners. Their funding is a condition for releasing MGs for PPs, and their involvement is key to the sustainability of investment activities, since promoters will continue seeking their assistance to pursue their business ventures.
- e) *IFC*, as part of the World Bank Group, will be a privileged partner, keen to be involved in agro-industry in Mali as part of its country strategy. IFC has a strong interest in investing in livestock, particularly in the large private investment operations.
- f) *NGOs and private sector organizations*. The project will enlist small and large development-oriented NGOs in the livestock sector to assist in the delivery of livestock services and inputs and facilitate access to markets.
- g) *Other livestock development projects*. The aforementioned partners already participate in specific development projects touching on the livestock sector. PADEL-M, through its PCU, will seek to liaise with these projects and support existing coordinating mechanisms, including at the local level (CR/CPSA).

#### **V. KEY RISKS**

##### **A. Overall Risk Rating and Explanation of Key Risks**

60. The general risks associated with project implementation are summarized in the Systematic Operations Risk-Rating Tool (SORT) (Table 2). The overall risk rating is Substantial, mainly due to the post-conflict situation, the general political and institutional instability, the macroeconomic context, and implementation capacity and



sustainability risks. The risks associated with the sector strategies and policies are rated Moderate, while the risks associated with technical design of the project are rated Substantial.

61. The general risks rated High or Substantial are:

- a) *Political and governance.* Lack of progress in the security situation in the North, and recent upticks in violence in the Center (through terrorist attacks), could distract the government's attention and divert resources from its recovery and development agenda. The government security apparatus has so far been unable to counter this trend, and there is a real risk of a growing divide within Mali's population. Recent experience shows how quickly public support for the government can shift. Reports of growing levels of insecurity in central regions, recurring protests in Bamako, and increasing crime levels in general are evidence of the likelihood of such a shift. The proposed project does not include direct measures to mitigate such risks or their impact, even if its focus on poverty reduction and resilience may help to generate revenues and jobs in the livestock sector.
- b) *Macroeconomic situation.* Despite the fact that Mali's fiscal situation and management have remained sound during the past crisis, given the stabilizing effect of WAEMU membership and recent public financial management reforms, declining oil prices and a further drop in gold prices both have the potential to affect fiscal accounts negatively. Climate shocks would only aggravate this situation. Given Mali's limited fiscal buffers, such risks have the potential to affect budget execution and domestically financed public investment, possibly generating an accumulation of expenditure arrears.
- c) *Technical design.* In view of the level of complexity of project activities and their innovative nature (especially considering the sources of funding and relationships with PFIs), the risk related to technical design is rated as Substantial and specific technical expertise is therefore included in the PCU.
- d) *Institutional capacity for implementation (including fiduciary capacity) and sustainability.* Executing agencies still exhibit significant constraints in the capacity to implement externally funded projects, as is the case with MEP services, which will be used for project execution. Although MEP has shown significant ability to conform to the project preparation schedule, it still has limited experience with managing World Bank projects, particularly in the area of fiduciary and safeguard management. In this context, the PCU will be given the authority and capacity to coordinate all project activities. As discussed, many activities will be pooled with PRAPS-ML, and the two projects will combine efforts to mitigate the capacity constraints of the executing agency and associated partners. In addition, the project will focus strongly on training, including on-the-job training, to reinforce MEP services and partner entities associated with project execution.
- e) *Fiduciary risks.* Based on experience from other IDA-funded projects executed in Mali, notably PRAPS-ML under MEP, the fiduciary risks are assessed as Substantial.
- f) *Environment and social.* The environmental and social risks related to this project are rated Substantial, given Mali's general vulnerability to climate change (especially to droughts and floods) and the consequent negative impact on natural resources, and given the possibility that resettlement operations may be required as a result of project activities. Important concerns also relate to environmental management, particularly manure and waste management (at the production and post-harvest stages), natural resource use efficiency (feed conversion ratios, water use efficiency), and possibly pasture degradation.<sup>32</sup> In

---

<sup>32</sup> Activities that could have large-scale adverse environmental risks and impacts (such as slaughterhouses) will not be funded.



addition, insecurity risks, mainly in the North, may add to the difficulty of pursuing appropriate measures to mitigate environmental and social risks. Despite previous experience in Mali with World Bank safeguards policies, the implementation of project safeguards instruments has generally been weak.

- g) *Other (PFI involvement)*. The risks related to stakeholder involvement is assessed as Low, because the project design is the result of a participatory exercise involving all stakeholders, including PFIs, and it is based on solid technical assumptions developed in close relation with local, national, and international partners. Regarding the availability of commercial funding, consultations with PFIs have further confirmed that they are ready to extend financing as part of the project approach for PPs involving MGs. Hence the risk associated with the provision of commercial bank funding is rated as Moderate.

**Table 2: Systematic Operations Risk-Rating Tool (SORT)**

Risk category	Rating
1. Political and Governance	High
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	Low
9. Other (Partner Financial Institutions' involvement)	Moderate
<b>OVERALL</b>	<b>Substantial</b>

## VI. APPRAISAL SUMMARY

### A. Economic and Financial Analysis

#### *Development impact—Expected benefits and costs*

62. The project is expected to: (i) improve the livelihoods of beneficiaries, including small-scale producers involved in targeted livestock (including aquaculture) VCs; (ii) create employment at the farm and industry level, including profitable activities for youth and women (opportunities for youth will provide an alternative to migrating to cities and out of the country); (iii) increase tax revenues flowing to the government from increased economic activity in the formal livestock sector (including aquaculture); and (iv) reduce the trade deficit by enhancing exports of animal products such as hides and skins, and curbing imports of other animal products such as eggs and milk.

63. **Financial analysis.** The financial analysis was carried out to assess: (i) the incentives and wherewithal of targeted producers and other VC operators to participate in the project, based on the profitability of their PPs and MPs, and particularly on the cash income they will generate to cover immediate expenditures; and (ii) the level of risk of the proposed financial arrangements for supporting PP investments (specifically, the mix of



investors' capital contribution, project MG funding, and short- and medium-term commercial credit). Models of various project-sponsored technologies and investment options were developed based on prevailing prices and tested to determine which ones showed the best prospects for profitability, as indicated by their Financial Internal Rates of Return (FIRRs). FIRRs ranged from 17 percent to 51 percent, exceeding the interest rate charged by local financial institutions (12 percent on average). For PPs, the net present value (NPV) is positive for all models, ranging from US\$ 54,000 to more than US\$ 700,000. For PPs, the NPV ranges from US\$ 2,500 to US\$ 12,000. Investments based on these models should attract small-scale producers, VC operators, and PFIs; they should be used by producers to negotiate co-financing possibilities as part of the envisaged PPs.

64. **Economic analysis.** The project is expected to generate the following direct and indirect economic benefits: (i) increased production of targeted livestock products, including fish; (ii) increased income for participating livestock producers and VC actors, and therefore improved food security and nutrition at the household level and less vulnerability to external shocks, notably climate change and food price volatility; (iii) reduced transaction costs and post-harvest losses; (iv) enhanced market/business opportunities and economies of scale benefiting all actors of the targeted VCs, with increased value-added, better understanding of markets, and higher management capacity, which should particularly enhance producers' bargaining power; (v) foreign exchange savings through reduced imports (mainly eggs and milk) and increased exports (cattle); and (vi) incremental on- and off-farm employment, and improved livelihoods and social stability in the project intervention areas. The project is expected to have a positive impact on participating women and youth, as a focus on these groups is mainstreamed in all relevant activities.

65. The economic analysis was conducted for a 20-year period. Prices and benefit streams calculated under the financial analysis were assigned economic values by applying standard conversion factors, eliminating taxes and transfers (such as credit), and taking into account incremental costs after the project implementation period for infrastructure maintenance and technical advisory services that were not part of the typical financial budgets. The analysis considered only the tangible economic benefits derived from implementing project-funded PPs and MPs that could be quantified in monetary terms. The benefits deriving from activities such as capacity building or improvement of animal health services are less readily quantifiable and were not taken into account in the calculations. Because the analysis considers all project costs (including the carbon footprint) but only a part of the benefits, the results must be considered conservative. Under the base scenario, the total costs taken into consideration (i) exclude the costs of Component 1 and Subcomponent 3.1 (crisis response), because the benefits are not readily quantifiable in monetary terms, and (ii) include only two-thirds of the project coordination costs because coordination of Component 1 is not included. Under that scenario, the project yields an economic internal rate of return (EIRR) of 16 percent and NPV of US\$ 31.4 million (at a 6 percent social discount rate). The project is therefore highly profitable from an economic standpoint. Under the alternative scenario that takes all project costs into account, the EIRR is still around 8 percent. Sensitivity analysis of the base scenario shows that the project's economic profitability is very robust: the EIRR would be around 12 percent even if benefits were reduced by 30 percent or costs increased by 50 percent.

#### *Rationale for public sector provision/financing*

66. The project will support the modernization of livestock production and processing, the intensification of animal production systems, and the strengthening of targeted VCs. It will enhance the capacity of the core public services required to support this process, justifying the public provision of funding. In this regard, the project supports organizational development for advisory services and institution building for core services such as field



veterinary services, disease surveillance and early detection systems, and crisis management. The project will also train the technical professionals who will be directly involved in investment development; following project completion, these professionals are expected to further assist with the development of the sector.

*Value added of World Bank support*

67. Government and donor interventions in the livestock sector, including aquaculture, are scattered and limited in scope. They have not yet created the conditions to enable the structural change required for leading VCs to emerge and to engage Mali in dynamic, rapidly growing domestic and regional markets. By virtue of its strong presence and engagement in Mali, along with relevant experience in sub-Saharan Africa and elsewhere in the world, the Bank has the convening power to aggregate knowledge and efforts of development partners to unlock Mali's livestock potential, including aquaculture. IDA financing will support the much-needed strengthening of public services as well as foster private investments in sector activities. IFC could further play an important role in engaging the private sector and promoting the investment opportunities that will leverage public funds. In this regard, the project's support for PPs will provide real opportunities for leveraging private partnerships between actors in the VCs.

**B. Technical**

68. The technical feasibility of the project is predicated on the following elements:

- a) The selected approaches and activities have been tested and used by other Bank-financed projects. Examples include the IDA-financed PCDA (closed June 2016), which supported the development of PPs, particularly in the dairy and cattle fattening subsectors, and WAAPP, which provides continued support for the adoption of technologies, including those related to the livestock sector.
- b) The early experience of PRAPS-ML in dealing with animal health enhancement and livestock crisis management since 2016 has been taken into account, including skills development and capacity building for MEP to implement IDA-financed projects.
- c) The project reflects findings of livestock VC analyses carried out by the government in recent years to formulate livestock (and aquaculture) development policy and operational actions with regard to VC competitiveness, including gender and youth dimensions (among others). As noted, the project's approach to animal health draws on the PVS assessment by OIE.
- d) Liaising with international organizations and other service providers such as CGIAR centers (ILRI and the International Institute for Tropical Agriculture) as well as FAO, will be pursued during implementation. In addition, it is expected that national and international NGOs (such as SNV) will link up with the project, and extend project activities to local NGOs, beneficiary organizations, and public services.

69. Based on the above findings and lessons of experience, the project contains several technical elements to address and mitigate five specific technical risks associated with developing livestock and aquaculture VCs as part of PADEL-M. The first risk pertains to *animal health*. Livestock species are exposed to epizootic diseases transmitted within Mali and from foreign countries because of weak surveillance. The project will strengthen the disease surveillance system to better prevent and overcome outbreaks and the spread of epidemics. A second risk concerns *climate change*. Support for livestock production may increase GHG emissions and induce other climate effects that may hinder economic activity and livelihoods. Specific measures to minimize GHG emissions, pollution, and the spread of pathogens will be developed during implementation. A third risk involves the scarcity





of *animal feed*, which is a binding constraint, especially for intensive and semi-intensive systems. Feed supplies will be improved through collaboration with the recently approved Bank-financed PACAM project, and relatively simple techniques that have already been developed to increase feed resources for all systems will be identified, developed further, and disseminated through the project. A fourth risk pertains to *natural resources and environmental management*, mainly in relation to manure and waste management, the efficient use of natural resources (feed conversion ratios, water use efficiency), and possibly pasture degradation. The project will address these issues through its technical components (1 and 2). A fifth risk involves *statistics and M&E*. A lack of reliable data may prevent sound project follow-up and limit information on project performance. To mitigate this risk, the project will improve data collection as part of the M&E activities and establish a comprehensive Management Information System to guide data collection and use.

### **C. Financial Management**

70. The financial management (FM) arrangements for the proposed project will be based on the arrangements in place under PRAPS-ML, and the PCU for PRAPS-ML, under the oversight of a Steering Committee, will have overall fiduciary responsibility for PADEL-M. An FM assessment of PRAPS-ML was conducted in compliance with the Financial Management Manual for Bank-Financed Investment Operations (effective March 1, 2010) and FM assessment and risk rating principles. The overall FM performance of PRAPS-ML is considered Satisfactory. Staffing has remained adequate and proper books of accounts and supporting documents have been kept for all expenditures. The PCU is familiar with the Bank's FM requirements. The audit of PRAPS-ML for the year ending December 31, 2016 was submitted on time and was unqualified. The interim unaudited financial reports for the ongoing project were also submitted on time and acceptable to IDA.

71. The overall FM risk rating for the proposed project is assessed to be Moderate, and the FM arrangements meet the Bank's minimum requirements under OP/BP10.00. To maintain the timeliness and reliability of information produced by the PCU and an adequate segregation of duties, an Accountant with qualifications and experience satisfactory to the Bank will be appointed and fully dedicated to the accounting and disbursement tasks of PADEL-M. The PIM will include specific arrangements related to the new project, including fiduciary procedures. These two mitigation measures are dated covenants to be implemented within three (3) months following project effectiveness.

### **D. Procurement**

72. All goods, works, and non-consulting services to be financed by the Credit and the Grant will be procured in accordance with the requirements set forth or referred to in Section VI, "Approved Selection Methods: Goods, Works, and Non-Consulting Services" and Section VII, "Approved Selection Methods: Consulting Services," of the World Bank "Procurement Regulation for Borrowers under Investment Project Financing," dated July 1, 2016 and the "Guidelines on Preventing and Combatting Fraud and Corruption" revised in June 2011; the Project Procurement Strategy for Development (PPSD) and Procurement Plan approved by the World Bank on January 18, 2018. The Procurement Plan specifies for each contract: (a) a brief description of the activities/contracts; (b) the selection methods to be applied; (c) the estimated cost; (d) time schedules; (e) the Bank's review requirements; and (f) any other relevant procurement information. The Procurement Plan covers the first eighteen (18) months of project implementation. The Borrower shall submit to the World Bank, for its review and approval, any updates of the Procurement Plan approved by the World Bank. The Recipient shall use the



World Bank's online procurement planning and tracking tools to prepare, clear, and update its Procurements Plan and conduct all procurement transactions.

73. The procurement functions for the proposed project and PRAPS-ML will be pooled. A joint Procurement Specialist will cover both PRAPS-ML and PADEL-M procurement activities, and the PCU for PADEL-M will recruit a dedicated Procurement Assistant. This procurement team will work closely with the Procurement Specialist of the World Bank. The overall procurement risk for the proposed project is considered Substantial. An action plan has been prepared to mitigate the risks identified in the procurement assessment, in consultation with the Borrower. With the implementation of the proposed measures of the action plan and the support of the World Bank team, the overall procurement risk should become Moderate.

74. The PIM will specify the project's internal organization (including staffing arrangements) and implementation procedures for procurement activities. Among other things, it will include all relevant procedures for calling for bids, selecting consultants, and awarding contracts. The arrangements for monitoring project procurement will be specified as well.

#### **E. Social (including Safeguards)**

75. The project will support improvements in livestock health and productivity and generate increased employment and income for the beneficiaries in the targeted project areas. These interventions are expected to deliver and foster significant social benefits and have long-lasting positive impacts on the livelihoods of the populations in these targeted areas. The preparation of safeguard instruments and the design of the proposed project activities were informed by results of the social and environmental audit conducted for the PCDA before it closed; they were refined considering the results from socioeconomic analysis carried out during project preparation.

76. Because no indigenous peoples live in the project area, the project does not trigger OP4.10. In contrast, the project is Category B and triggers the Involuntary Resettlement Safeguard Policy (OP4.12). Because project intervention areas and footprint details are unknown at this juncture, the project has adopted a framework approach to handle any likely social safeguard risks and adverse impacts. As part of this approach, an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) have been prepared by the Borrower, amply consulted upon, and publicly disclosed both in-country (on October 24, 2017) and on the World Bank external website (on October 24, 2017) after approval. Their preparation is justified since the project may have some adverse social impact, although any adverse social impacts of project activities on the human population in general (and vulnerable social groups in particular) are likely to be limited, small in scale, mostly site specific, and reversible. There is a risk that certain areas will experience an influx of workers as a result of high labor demand generated by some activities, but the proposed activities are not expected to create any major resettlement issues such as the relocation of dwellings. The proposed activities may cause limited temporary displacement but rarely permanent resettlement. The precise characteristics of the PPs and MPs supported under Component 2 are not yet known, but any negative social impacts of the related activities are expected to be site-specific and localized and will be mitigated to satisfaction. PPs and MPs will be selected based on strict eligibility criteria, and feasibility studies will be required to inform the selection process. The feasibility studies will include a social assessment to identify potential constraints and to design measures to mitigate potential adverse impacts. All PP and MP sites will be screened for involuntary resettlement, based on the RPF,





and special social impact assessments and Resettlement Action Plans (RAPs) may be prepared as needed in consultation with affected people.

77. The implementation of many project activities will require behavioral changes, notably changes in attitudes and beliefs regarding animal husbandry and health practices. Public awareness campaigns will be financed to inform and educate producers and other VC actors about social issues in the livestock sector and about World Bank social safeguard procedures. The communication materials and formats for these campaigns will be culturally relevant and understandable for the beneficiaries, and promote the inclusion of women, youth, and other vulnerable groups in project activities.

78. **Citizen engagement.** The proposed project activities are based on continuing citizen engagement and stakeholder consultation and participation throughout the project cycle (design, preparation, and implementation). Three main approaches will be used to foster engagement. The first is *collaboration*: representatives of civil society organizations (CSOs) on the Steering Committee will voice beneficiaries' concerns and participate in the decision-making process regarding project implementation activities. The second is *collecting, recording, and reporting on inputs from citizens*. During supervision missions and evaluations of the project's achievements, focus group discussions and beneficiary satisfaction surveys will gather feedback periodically from beneficiaries on project implementation (its effectiveness, inclusiveness, quality, delivery, and targeting); this information will be used to improve implementation and address issues raised by beneficiaries to obtain better results moving forward. The third approach is *citizen-led monitoring*. CSOs and communities will be involved in Bank supervision missions as well as the joint evaluation of project results upon completion of the project. Recurrent consultations with civil society and direct beneficiaries will be part of the project M&E strategy. The preparation and implementation of safeguard instruments has been and will be part of the consultation process. Citizen engagement and beneficiary feedback will be monitored through the measurement of beneficiaries' satisfaction in relation to project interventions.

#### F. Environment (including Safeguards)

79. The project is rated as Environmental Assessment Category B, requiring a partial environmental assessment. It triggers the following environmental safeguard policies: Environmental Assessment (OP/BP 4.01), Pest Management (OP4.09), Physical Cultural Resources (OP/BP4.11), and Forests (OP/BP 4.36). The Category B rating is predicated on the fact that the project will undertake site-specific physical activities, and that any adverse environmental impacts are expected to be moderate and reversible, given appropriate mitigation measures. Given the project's nationwide coverage of sedentary livestock activities, it spans several agro-ecological areas, which will require specific environmental mitigation measures tailored to local circumstances, based on the most appropriate environmental management practices (detailed in Annex 2).

80. As with social safeguards, the project has adopted a framework approach for environmental safeguards because the exact locations for a substantial number of project activities which may have adverse environmental impacts are not yet known, particularly regarding PPs and MPs. Consequently, an Environmental and Social Management Framework (ESMF) was prepared in line with OP/BP4.01. This ESMF includes specific provisions on handling "chance finds" of Physical Cultural Resources in compliance with OP/BP4.11. However, no specific safeguard instrument was developed, since it has been triggered as a preventive measure (only small-scale excavations are anticipated). Any potential use of chemicals is expected to be on a small scale and easily managed to comply with OP/BP4.09. The ESMF describes procedures and processes for preparing and disclosing site-



specific safeguard instruments, as part of the Environmental and Social Impact Assessment (ESIA), as soon as the exact locations and scope of all project activities are known. Any specific ESIA, including the attendant Environmental and Social Management Plan (ESMP), prepared in accordance with the screening results, will be approved in consultation with all the stakeholders before the corresponding activity starts. The ESMF covers such issues as: (i) hygiene and safety conditions; (ii) safe handling and disposal of veterinary medical wastes and management of wastes such as manure; and (iii) the emergency response to outbreaks of animal disease (if a large number of animals needs to be destroyed as part of the emergency response program, the project should consider taking necessary measures). The ESMF has been reviewed, consulted upon, and made available publicly in Mali on October 24, 2017, and on the World Bank external website on the same date.

**81. Potential adverse risks and impacts identified at the ESMF stage.** In addition to the risk of higher insecurity presented by terrorist groups, the ESMF identified several other potential risks and impacts, including: (i) risk of soil pollution by liquid and solid waste from construction sites or by accidental spills (involving oils, fuels, or other pollutants), decreased water quality due to pollution in construction sites, and dust and smoke generated by site work or processing activities; (ii) risk of water pollution by liquid and solid waste from construction sites or by accidental spills; (iii) environmental risks related to cutting trees and destruction of land cover; (iv) diseases and nuisance related to dust and smoke, and risk of increase in HIV/AIDS; (v) risk of accidents during civils works; and (vi) expropriation in case of installation on private land, leading to increased social conflicts.

**82. Consultation and disclosure.** During the preparation of the ESMF, more than one hundred persons were consulted respectively in Kayes, Koulikoro, Sikasso, Ségou, and Mopti during July and August 2017. The ESMF cleared by the World Bank has been disclosed within the relevant ministries, in the project areas, and on the World Bank website. As noted, consultation with the main stakeholders will be pursued systematically during the whole project life cycle.

**83. Safeguards responsibility.** Arrangements for implementing safeguards will include a full-time Environmental and Specialist within the PCU. S/he will coordinate with all key stakeholders and maintain a close relationship with the Ministry of Environment, Sanitation, and Sustainable Development, at the national and regional level. The responsibility for safeguards screening and mitigation will be with the PCU Environmental and Social Specialist. The National Directorate for Sanitation, Pollution and Nuisance Control (DNACPN) will oversee compliance with environmental and social safeguards. This will ensure *inter alia* adequate review of the project environmental assessment reports, including the ESIA's and ESMPs, and the systematic screening of PPs and MPs.<sup>33</sup> The safeguards screening and mitigation process will be detailed in the PIM, which will also include a list of activities ineligible for support (i.e., infrastructure that could have large-scale adverse environmental risks and impacts, such as slaughterhouses, will not be funded).

---

<sup>33</sup> On that basis, it will be decided which safeguard instruments are relevant for their potential environmental and social risks and related impact mitigation measures. Consultants in charge of completing the technical feasibility studies will work closely with consultants working on the preparation of site-specific environmental safeguard instruments.



## **G. Greenhouse Gas Accounting**

84. It is World Bank policy to quantify the GHG mitigation potential of its projects as an important step in managing and ultimately reducing emissions. The EX-ACT tool was used to estimate GHGs emitted or sequestered as a result of the proposed project compared to the without-project scenario.

85. **Results.** Over 20 years (five years for actual project implementation and 15 years for capitalization of its effects), the project carbon footprint showed a total emission of 718,067 tons of CO<sub>2</sub> equivalent (t CO<sub>2</sub>-eq), or 35,903 t CO<sub>2</sub>-eq per year (see Annex 5). This footprint has been valued in the economic analysis at US\$ 30 per ton on the basis of the World Bank guidelines on social carbon valuation in project design.

## **H. World Bank Grievance Redress**

86. Communities and individuals who believe that they are adversely affected by a World Bank-supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their complaint to the Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of the Bank's non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, visit [www.inspectionpanel.org](http://www.inspectionpanel.org).



## VII. RESULTS FRAMEWORK AND MONITORING

### Results Framework

COUNTRY : Mali

Mali Livestock Sector Development Support Project (PADEL-M)

#### Project Development Objectives

The Project Development Objective (PDO) is to “enhance productivity and commercialization of non-pastoral animal production in selected value chains, and strengthen the country’s capacity to respond to an eligible crisis or emergency.”

#### Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
<b>Name:</b> Percentage increase of yields produced by targeted beneficiaries among selected value chains		Percentage	0.00	25.00	Annual	Progress report, annual PADEL-M report, Household Survey, technical and economic monitoring	PADEL-M as well as M&E function of PCU and Subproject promoters

**Description:** This indicator measures the percentage increase of yields produced by targeted beneficiaries among selected value chains.

To measure this indicator, targeted beneficiaries will be beneficiaries receiving kits and relevant training under Component 1 and all the beneficiaries of funded PPs and MPs under Component 2.

Selected value chains are as follows: cattle/meat, milk, aviculture (eggs and broilers), and aquaculture. This indicator will be calculated by measuring the following subcategories: Number of eggs per hen per cycle; Liters of milk per cow per cycle; Weight productivity of cattle, i.e., live weight, which refers to the Average Daily Gain (ADG) (small ruminants); Weight productivity of cattle, i.e., live weight, which refers to the Average Daily Gain (ADG) (beef cattle); and Fresh fish weight per fish farm per year (unit of measurement: kilo or ton depending on the farm size).



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
<b>Name:</b> Incremental sales in targeted value chains (aggregated over all the targeted value chains)		Percentage	0.00	35.00	Annual	Progress report, annual PADEL-M report, Household Survey, technical and economic monitoring	PADEL-M as well as M&E function of PCU  Subproject promoters
<p><b>Description:</b> This indicator measures the average increase in the value of sales in targeted value chains (cattle/meat, milk, aviculture (eggs and broilers), and aquaculture). For each targeted value chain, the increase in the value of sales is calculated as the ratio of the value of incremental sales during the reporting year (the total value of sales by direct beneficiaries during the reporting year minus the total value of sales in the baseline year) and the value of sales at baseline. This indicator will be measured for each targeted VC. However, only the average value over targeted VCs will be reported.</p> <p>To measure this indicator, beneficiaries will be beneficiaries receiving kits and relevant training under Component 1 and all the beneficiaries of funded PPs and MPs under Component 2.</p>							
<b>Name:</b> Time to reach 50% of the targeted beneficiaries as foreseen in the inclusive contingency intervention plan		Weeks	52.00	10.00	Annual	Review of reports by national institutions responsible for response to crisis  Field Surveys	M&E expert  CSA
<p><b>Description:</b> This indicator relates to efficiency (time to respond) and effectiveness (share of target beneficiaries reached) in response to a crisis or emergency. This is a medium-term indicator. It is common to PRAPS-ML's Results Framework, with the same baseline and targets.</p>							

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Response time is defined from the day of the first alert from the early warning system (starting point has to be defined clearly) to the time 50% of the target beneficiaries as defined in the intervention plan have been reached (ending point has to be defined clearly).							
Name: Farmers reached with agricultural assets or services	✓	Number	0.00	340000.00	Annual	Progress report, annual PADEL-M report, Household Survey	PADEL-M as well as M&E function of PCU
Farmers reached with agricultural assets or services - Female	✓	Number	0.00	102000.00	Annual	Progress report, annual PADEL-M report, Household Survey	PADEL-M as well as M&E function of PCU
Farmers reached with agricultural assets or services - Youth		Number	0.00	102000.00	Annual	Progress report, annual PADEL-M report, Household Survey	PADEL-M as well as M&E function of PCU
Description:							
Name: Beneficiary satisfaction rate with services provided by the project for the livestock sector (% of which female and % of which youth)		Percentage	0.00	65.00	At mid-term and end of project	External Satisfaction Survey, progress reports, annual PADEL-M report	PADEL-M as well as M&E function of PCU
Beneficiary satisfaction rate with services provided by		Percentage	0.00	65.00	At mid-term and end of project	External Satisfaction Survey, progress reports, annual	PADEL-M as well as M&E function of PCU

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
the project for the livestock sector - Female						PADEL-M report	
Beneficiary satisfaction rate with services provided by the project for the livestock sector - Youth		Percentage	0.00	65.00	At mid-term and end of project	External Satisfaction Survey, progress reports, annual PADEL-M report	PADEL-M as well as M&E function of PCU

**Description:** This indicator measures the percentage of beneficiaries who expressed satisfaction with the services provided in the project areas based on formal surveys. It is expected that a survey to measure this indicator will be carried out twice throughout the project. The sample size should be representative of the total number of beneficiaries (i.e. "Beneficiaries" means all beneficiaries targeted by the project components. This indicator requires two supplemental data: (1) number of targeted beneficiaries satisfied with the quality of services, and (2) targeted beneficiaries of services and assets. This indicator will be measured at mid-term and at the end of the project.

**Intermediate Results Indicators**

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Prevalence of two priority diseases (herd prevalence of contagious bovine pleuropneumonia [CBPP] and post-vaccinal seroprevalence of small ruminant plague [PPR]) -- CBPP		Percentage	37.00	20.00	Annual	CBPP: passive surveillance	Central Veterinary Laboratory (LCV) and DNSV





Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: This indicator is common to PRAPS-ML's Results Framework, with the same baseline and targets.							
Name: Prevalence of two priority diseases (herd prevalence of contagious bovine pleuropneumonia [CBPP] and post-vaccinal seroprevalence of small ruminant plague [PPR]) -- PPR		Percentage	40.00	70.00	Annual	passive surveillance	Central Veterinary Laboratory (LCV) and DNSV
Description: This indicator is common to PRAPS-ML's Results Framework, with updated baseline and targets.							
Name: Number of poultry vaccinated against Newcastle Disease		Number (Thousand)	11000.00	16000.00	Annual	Progress reports produced by DNSV	DNSV and M&E function of PCU
Description: Baseline data from DNSV							
Name: Farmers adopting improved agricultural technology	✓	Number	0.00	45000.00	Annual	Progress report, annual PADEL-M report  Surveys at mid-term and end of project	PADEL-M as well as M&E function of PCU

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Farmers adopting improved agricultural technology - Female	✓	Number	0.00	13500.00	Annual	Progress report, annual PADEL-M report  Surveys at mid-term and end of project	PADEL-M as well as M&E function of PCU
Farmers adopting improved agricultural technology - male	✓	Number	0.00	31500.00	Annual	Progress report, annual PADEL-M report  Surveys at mid-term and end of project	PADEL-M as well as M&E function of PCU
Farmers adopting improved agricultural technology - Youth (male and female: 15-40 years old)		Number	0.00	13500.00	Annual	Progress report, annual PADEL-M report  Surveys at mid-term and end of project	PADEL-M as well as M&E function of PCU
Description:							
Name: Number of sectoral policies developed as a		Number	0.00	5.00	Annual	Progress report, annual PADEL-M report	PADEL-M as well as M&E function of

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
result of the project							PCU
Description: Policies developed must be specific to the Livestock Sector or directly apply to the Livestock Sector.							
Name: Number of micro-projects funded (of which % female and % youth)		Number	0.00	600.00	Annual	Progress report, annual PADEL-M report  Delegated project management entity in charge of Very Small Enterprises  PFI reports	PADEL-M as well as M&E function of PCU
Number of micro-projects funded (of which % female and % youth) - Female		Number	0.00	300.00	Annual	Progress report, annual PADEL-M report  Delegated project management entity in charge of Very Small Enterprises  PFI reports	PADEL-M as well as M&E function of PCU

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Number of micro-projects funded (of which % female and % youth) - Youth		Number	0.00	300.00	Annual	Progress report, annual PADEL-M report  Delegated project management in charge of Very Small Enterprises  PFI reports	PADEL-M as well as M&E function of PCU
Description: The project will also measure the percentage of microprojects implemented (18 months after notification of approval). The cumulative target for female and/or youth beneficiaries is 70%.							
Name: Number of Productive Partnerships funded (of which % female and % youth)		Number	0.00	160.00	Annual	Progress report, annual PADEL-M report  Delegated project management in charge of Productive Partnerships  PFI reports	PADEL-M as well as M&E function of PCU
Number of Productive Partnerships funded (of which % female and % youth) - Female		Number	0.00	24.00	Annual	Progress report, annual PADEL-M report  Delegated project	PADEL-M as well as M&E function of PCU

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
						management in charge of sub-projects  PFI reports	
Number of Productive Partnerships funded (of which % female and % youth) - Youth		Number	0.00	24.00	Annual	Progress report, annual PADEL-M report  Delegated project management in charge of Very Small Enterprises  PFI reports	PADEL-M as well as M&E function of PCU
Description: The project will also measure the percentage of Productive Partnerships implemented (18 months after notification of approval). The cumulative target for female and/or youth beneficiaries is 20%.							
Name: Volume of loans granted by Partner Financial Institutions (USD million)		Amount(USD)	0.00	6.62	Annual	Progress report, annual PADEL-M report.  Delegated project management entity in charge of Productive Partnerships.	PADEL-M as well as M&E function of PCU

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
						PFI reports	
Description: Credit effectively disbursed on PFI's own resources. This indicator will be measured at the PPs level.							
Name: Percentage of financed business plans that have met their loan repayment schedule		Percentage	0.00	85.00	Annual	Progress report, annual PADEL-M report.  Producers Surveys.  Financial institutions Surveys and Interviews	PADEL-M as well as M&E function of PCU
Description:							
Name: Time between request from government to making funds available to respond to an eligible crisis		Weeks	52.00	12.00	Annual	Funding request (letter) from government to respond to crisis.  Progress report, annual PADEL-M report	PCU and CSA



## The World Bank

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: This indicator is common to PRAPS-ML's results framework, with the same baseline and targets							



**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

**Target Values****Project Development Objective Indicators**

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Percentage increase of yields produced by targeted beneficiaries among selected value chains	0.00	0.00	0.00	5.00	10.00	15.00	25.00	25.00
Incremental sales in targeted value chains (aggregated over all the targeted value chains)	0.00	0.00	0.00	10.00	15.00	25.00	35.00	35.00
Time to reach 50% of the targeted beneficiaries as foreseen in the inclusive contingency intervention plan	52.00	52.00	52.00	40.00	30.00	20.00	10.00	10.00
Farmers reached with agricultural assets or services	0.00	0.00	60000.00	120000.00	200000.00	260000.00	340000.00	340000.00
Farmers reached with agricultural assets or services - Female	0.00	0.00	18000.00	36000.00	60000.00	78000.00	102000.00	102000.00
Farmers reached with agricultural assets or services - Youth	0.00	0.00	18000.00	36000.00	60000.00	78000.00	102000.00	102000.00
Beneficiary satisfaction rate with services provided by the project for the livestock sector (% of which female and % of which youth)	0.00	0.00		50.00			65.00	65.00

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Beneficiary satisfaction rate with services provided by the project for the livestock sector - Female	0.00	0.00		50.00			65.00	65.00
Beneficiary satisfaction rate with services provided by the project for the livestock sector - Youth	0.00	0.00		50.00			65.00	65.00

**Intermediate Results Indicators**

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Prevalence of two priority diseases (herd prevalence of contagious bovine pleuropneumonia [CBPP] and post-vaccinal seroprevalence of small ruminant plague [PPR]) -- CBPP	37.00	33.00	30.00	27.00	24.00	22.00	20.00	20.00
Prevalence of two priority diseases (herd prevalence of contagious bovine pleuropneumonia [CBPP] and post-vaccinal seroprevalence of small ruminant plague [PPR]) -- PPR	40.00	44.00	48.00	53.00	58.00	64.00	70.00	70.00
Number of poultry vaccinated against Newcastle Disease	11000.00	11000.00	12000.00	13000.00	14000.00	15000.00	16000.00	16000.00
Farmers adopting improved agricultural technology	0.00	0.00	5000.00	10000.00	20000.00	30000.00	45000.00	45000.00

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Farmers adopting improved agricultural technology - Female	0.00	0.00	1500.00	3000.00	6000.00	9000.00	13500.00	13500.00
Farmers adopting improved agricultural technology - male	0.00	0.00	3500.00	7000.00	14000.00	21000.00	31500.00	31500.00
Farmers adopting improved agricultural technology - Youth (male and female: 15-40 years old)	0.00	0.00	1500.00	3000.00	6000.00	9000.00	13500.00	13500.00
Number of sectoral policies developed as a result of the project	0.00	0.00	1.00	2.00	3.00	4.00	5.00	5.00
Number of micro-projects funded (of which % female and % youth)	0.00	0.00	0.00	30.00	150.00	390.00	600.00	600.00
Number of micro-projects funded (of which % female and % youth) - Female	0.00	0.00	0.00	15.00	75.00	195.00	300.00	300.00
Number of micro-projects funded (of which % female and % youth) - Youth	0.00	0.00	0.00	15.00	75.00	195.00	300.00	300.00
Number of Productive Partnerships funded (of which % female and % youth)	0.00	0.00	10.00	40.00	80.00	140.00	160.00	160.00
Number of Productive Partnerships funded (of which % female and % youth) - Female	0.00	0.00	1.00	6.00	12.00	21.00	24.00	24.00

**The World Bank**

Mali Livestock Sector Development Support Project (PADEL-M) (P160641)

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Number of Productive Partnerships funded (of which % female and % youth) - Youth	0.00	0.00	2.00	6.00	12.00	21.00	24.00	24.00
Volume of loans granted by Partner Financial Institutions (USD million)	0.00	0.00	0.41	1.65	3.31	5.79	6.62	6.62
Percentage of financed business plans that have met their loan repayment schedule	0.00	0.00	85.00	85.00	85.00	85.00	85.00	85.00
Time between request from government to making funds available to respond to an eligible crisis	52.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00



## ANNEX 1: DETAILED PROJECT DESCRIPTION

### Mali Livestock Sector Development Support Project

**Component 1: Strengthening of Livestock Services—US\$ 23.8 million (US\$ 20.5 million from IDA, US\$ 2.1 million from the Government of Mali, and US\$ 1.2 million from beneficiaries)**

1. The main objective of this component is to sustainably enhance livestock producers' access to public and private livestock (and fisheries) support services and inputs, including access to good animal nutrition and quality animal feed, animal health services, and appropriate animal genetic resources. To that end, it has national coverage and focuses on establishing a solid base for providing and ensuring access to quality inputs, technical and technological know-how, and managerial and other skills to producers and public staff, and on creating a conducive policy environment for livestock and aquaculture to prosper. This component has three subcomponents, discussed in the following sections.

2. **Subcomponent 1.1: Animal health and food safety—US\$ 10.5 million (US\$ 8.9 million from IDA, US\$ 0.4 million from the Government of Mali, and US\$ 1.2 million from beneficiaries).** This subcomponent, which will seek synergies and complementarities with PRAPS-ML, will help to reduce mortality and morbidity due to animal diseases and will contribute to improved public health through several activities, including:

- a) *Enhanced surveillance systems for emerging and re-emerging priority animal diseases.* The project proposes to revive the epidemiological network (EPIVET-Mali)<sup>34</sup> and make it widely inclusive, with field technicians (at local and border veterinary posts), farmer representatives, regional and national veterinarians, and private practitioners. This network was very active and contributed strongly to the eradication of rinderpest. Lessons from that experience will be applied to answer the global call to control and eradicate PPR. In this regard, the project will finance Field Epidemiology Training Programs for veterinarians, offering basic training in epidemiology, investigating outbreaks, clinical diagnosis, sample collection and packaging, as well as reporting. Network members will receive support for communication, meetings, reporting, and production and dissemination of information on animal diseases. Veterinarians will receive support for transport and equipment (motorcycles and kits).
- b) *Gathering and sharing disease intelligence.* The project will finance training for veterinarians in risk assessment, risk communication, and Geographic Information Systems. Veterinarians will also be trained and equipped to use the EMA-*i*<sup>35</sup> online disease surveillance and early reporting system developed by FAO and currently being piloted in three regions. The system permits real-time reporting from the field through a smartphone app.
- c) *A special effort on FMD*, including support for virus characterization and matching, and the development of a prevention and control strategy. This subcomponent also finances the initial procurement of 100,000 doses of vaccine from a referenced manufacturing company.
- d) *Vaccination programs for livestock diseases.* This activity supports vaccination programs for PPR (3 million doses of vaccine for small ruminants), CBPP (3 million doses for cattle), and Newcastle disease (10 million

<sup>34</sup> EPIVET was created to implement PACE (the Pan African Program for the Control of Epizootics).

<sup>35</sup> Event Mobile Application.



doses for poultry). Vaccination campaigns generally involve the participation of private veterinarians under the “sanitary mandate,” and producers generally pay for the vaccines. To ease that burden, this activity will contribute to the existing vaccination revolving fund for CBPP, improve its management, and extend its application to PPR. To further encourage widespread PPR control through the vaccination of small ruminants (which is not a common practice in Mali), a financial incentive of CFAF 30 for each vaccinated head will be provided.

- e) The *national vaccine production* capacity for Newcastle disease and PPR will be promoted through the acquisition of a lyophilizer and installation of a cold room. Following acquisition of this equipment, LCV will provide 10 million doses of PPR vaccine free of charge to the National Directorate of Veterinary Services (DNSV) over the duration of the project.
- f) *Awareness campaigns and public engagement for disease control activities*. Financial support will be given for planning and monitoring vaccination campaigns.
- g) *Cold chain development* (acquisition of freezers, fridges), and *acquisition of needles and syringes*.
- h) *Enhancement of diagnostic capabilities* through training and the acquisition of laboratory supplies, reagents, and consumables for the regional laboratory in Gao, and also through enhanced maintenance and calibration of LCV equipment.
- i) *Promotion of public health and food safety* through enhanced quality control of animal products. This activity will finance Hazard Analysis and Critical Control Point production modules and training; risk assessment related to food safety; and support for enforcing food safety regulations.
- j) *Development and implementation of control strategies for brucellosis, tuberculosis, and salmonellosis*, including awareness programs for farmers (mainly those involved in genetic improvement programs).
- k) *Implementation of the Anti-Microbial Resistance national action plan* through collaboration with FAO, and support for research on food poisoning.
- l) *Consultancy services* to provide technical expertise for developing a strategy to control Newcastle disease.

3. **Implementation arrangements:** These activities will be implemented under the responsibility of DNSV in close collaboration with LCV, the veterinary laboratory in Gao, and Regional Veterinary Directorates, and under the oversight of the Animal Health and Public Health Experts in the PCU. Where necessary, the project will seek advice and collaboration from leading animal health institutions such as FAO and OIE.

4. **Subcomponent 1.2: Productivity enhancement—US\$ 12.6 million (US\$ 10.9 million from IDA and US\$ 1.7 million from the Government of Mali).** Subcomponent 1.2 aims to make livestock and fish producers more productive through better access to high-quality services and the use of improved inputs.

5. Specific livestock activities under this subcomponent will include:

- a) *Genetic improvement through the decentralization and privatization of AI services*. This activity will support the establishment of five AI centers, provide training in insemination techniques, equip 50 inseminators, and support National Artificial Insemination Center (CNIA) activities for monitoring, public communication, and sensitization. It will install a liquid nitrogen plant and acquire hormones and semen.
- b) *Improved animal nutrition and access to quality animal feed*. Consultancies will be financed to conduct a detailed inventory of locally-available animal feed resources, formulate feeding strategies, and optimize feed rations for targeted VC production systems. Technical modules and simple flyers will be prepared for the livestock farmer field schools (FFSs). Access to diversified grass and legume forage will be



improved by supporting the establishment and/or development of cooperatives of producers specializing in producing and multiplying drought-tolerant forage seed and vegetative planting material, and by organizing awareness campaigns on the benefits of using diversified sources forage. Producer cooperatives will receive support for acquiring equipment for forage production. Organized farmers engaged in intensive farming will receive support for the installation of silage systems.

- c) *The development of Technico-Economic References (Référentiels Technico-Economiques, RTEs)* will be supported through TA. The RTEs will cover livestock production in selected VC and be disseminated through livestock FFSs and other extension channels.
  - d) *Transfer of Good Agriculture Practices (GAPs), including new farming practices and technologies in dairy farms.* Through FFSs, dairy farmers will engage in hands-on, field-based learning under a time-bound schedule extended over a production cycle (from “calf to calf”). In collaboration with FENALAIT, this activity will target about 1,000 dairy farmers organized in cooperatives, as well as 100 farm assistants, to increase milk productivity and quality through the adaptation of improved technologies and practices for dairy farming and milk handling. They will also receive basic literacy, numeracy, and record keeping training, and develop their capacity to form and manage dairy producer groups, which could lay the groundwork for strengthening downstream dairy cooperatives.
  - e) *Training in biosecurity in poultry* for commercial farms, abattoirs, and market sites.
  - f) *Human resource capacity development through financing for specialized training.* Such training could include training in fish pathology, epidemiology, hygiene, and food safety tailored to selected VCs (meat and dairy, poultry, aquaculture, bees/honey); degree training in veterinary medicine in Senegal for 15 students; and short-term and on-the-job training to develop extension and communication skills as well as skills to develop legislation.
  - g) *Build, rehabilitate, and equip decentralized public veterinary, animal production, and fisheries offices* (vehicles, motorcycles, office supplies, internet connection, etc.).
  - h) *Build a DNSV office*, partially funded by the IDA Credit/Grant (design studies and equipment) and the government budget (construction costs).
6. Specific fish farming/aquaculture activities under this subcomponent will include:
- a) *Support for research on fish feed formulas and fingerlings.* This activity will strengthen research capabilities to determine the most appropriate ingredients for quality fish feed. At the same time, it will help to improve local breed stocks through hybridization with strains from different areas in Mali (and if necessary neighboring countries) and natural selection of performant outgrowers.
  - b) *Extension support.* Relevant institutions will be supported to demonstrate fish-rearing techniques, pond and cage management (including data recording), feeding regimes, harvesting and processing methods, as well as marketing strategies to stakeholders and beneficiaries. A model/demonstration fish farm will be established, including a fish hatchery to supply fingerlings, a fish-feed mill for manufacturing feed on the spot, and grow-out ponds for fish production.
  - c) *Post-harvest technology:* Cooperatives and traders will be assisted to establish a cold chain (ice-making machines, cold stores, freezing facilities, refrigerated trucks) and improved smoking kilns.
  - d) *Staff development and institution building.* Staff of the National Directorate for Aquaculture and Fisheries (DNP) will receive customized training (including Training of Trainers). Selected DNP aquaculture and





extension officers will participate in long-term training at different levels (technician, MSc, and PhD or equivalent). An extension unit and research facilities will be established and upgraded (including the supply of office equipment and vehicles).

- e) *Specialized training.* Other specialized training will focus on female fish processors, especially on fish smoking, the main technique for fish conservation.
- f) *Aquaculture Master Plan.* An Aquaculture Master Plan will be prepared. The plan will inventory current facilities and project national requirements for farmed fish, particularly in view of Mali's dwindling fisheries resources. It will include site selection criteria as well as identify potential areas for aquaculture development.

7. **Implementation arrangements.** Under Subcomponent 1.2, the National Directorate for Animal Production and Industry (DNPIA) will be responsible for implementing activities regarding feed production, building on synergies and complementarities with WAAPP achievements. Activities related to AI service delivery will be coordinated by CNIA, as it has the mandate for animal breeding. DNP will implement activities related to aquaculture. The Animal Production Expert of the PCU will lead and monitor overall implementation of this subcomponent. Specialized consultancies will be organized with regard to specific aspects of this subcomponent, including aquaculture development.

8. **Subcomponent 1.3: Policy design and regulatory framework—US\$ 0.7 million from IDA.** Subcomponent 1.3 aims to strengthen the efficiency and effectiveness of MEP by supporting the formulation of policies and development of related legislation to improve the regulatory environment for livestock, fisheries, and aquaculture.<sup>36</sup> A three-fold guiding principle will facilitate consolidation of an evidence-based, inclusive policy framework and institutional structure for the livestock and aquaculture sectors: (i) improving the regulatory environment for the sector; (ii) supporting policy implementation and strengthening key institutions; and (iii) providing policy-related analysis and TA. This subcomponent will finance the following activities:

- a) *Key policies will be updated and/or developed.* Such policies include general development and trade policies for the livestock and fisheries sector, as well as specific policies on animal breeding or on the norms, quality, and safety standards applicable to animal-sourced products. Activities supporting this effort will include preparatory studies, workshops, consultations by consultants in Bamako and in a number of regions, and the drafting of policy documents. The expected outcome is the facilitation of a policy dialogue in an inclusive process led by nationals, and the development of accompanying laws and regulations to strengthen the performance and effectiveness of the livestock and fisheries sector.
- b) *In-depth studies on aquaculture and design of an Aquaculture Master Plan,* from which an aquaculture policy will be developed.
- c) *Capacity-building of MEP's economic planning and M&E services,* including TA to review public investments and expenditures in the livestock and fisheries and aquaculture sectors. Long term partnerships will be established with recognized universities for post-graduate degree studies in agricultural economics.
- d) *Consultancy services to prepare a feasibility study for a Livestock Identification and Traceability System* aligned with the Performance Recording System for inseminated cattle. This identification system will be designed in accordance with international standards and will provide flexibility to serve multiple purposes,

---

<sup>36</sup> The Mali Drylands Development Project currently under preparation for IDA financing will support similar activities for the Ministry of Agriculture.



including: (i) animal identification and registration; (ii) performance recording; (iii) management of AI and AI bulls; (iv) animal health information and certification; and (v) animal traceability. The feasibility study will take the following considerations into account: (i) utilization of a unique animal numeration system; (ii) preparation, review, and update of the legislation; and (iii) budgeting for installing and testing the software.

9. **Implementation arrangements.** This subcomponent will be implemented under the responsibility of the Office of the MEP Secretary General and legal officers in each directorate.

**Component 2: Support to Private Investment—US\$ 43 million (US\$ 30.1 million from IDA, US\$ 9.4 million from PFIs, US\$ 3.0 million from beneficiaries, and US\$0.5 million from the Government of Mali)**

10. Component 2 is designed to enhance competitiveness and facilitate access to markets for four livestock VCs targeted under the project (cattle and small ruminant/meat, poultry/eggs and chicken, milk, and fish farming). It seeks to create PPs to modernize livestock production operations, take advantage of economies of scale, ensure profitability, and generate employment along VCs. The role of the private sector lies at the heart of Component 2 through the establishment of PPs linking VC actors with financial institutions, based on appropriate business plans for investment planning, including economic and financial analysis. Interventions under Component 2 will consist of: (i) improving the economic organization and investment incentive framework for the livestock and fisheries sector; (ii) facilitating preparation of investment business plans and access to suitable finance for viable plans; and (iii) contributing to financing investments in close partnership with PFIs.

11. **Subcomponent 2.1: Economic organization and incentive framework—US\$ 8.1 million from IDA.** Under Subcomponent 2.1, the targeted VCs will adopt a market-oriented approach and receive support to create an environment conducive to the development of PPs, including business relationships between all stakeholders. It will support the following activities:

- a) *Capitalizing on and expanding sector knowledge.* This activity will capitalize on sector knowledge of prospective markets and other market intelligence. It will enable VC actors to understand the rules and incentives that promote private investment by: (i) updating three competitiveness plans for the milk, poultry, and fish VCs, disseminating them widely among VC actors involved in production, processing, and marketing, and convening participatory workshops focused on these plans at the national level; (ii) updating market studies for the four VCs targeted under the project and making them available to professional and inter-professional organizations; and (iii) reviewing and disseminating regulatory texts, including those related to incentives granted to the various sector operators. To the extent possible, PADEL-M will use national expertise (consultants and consulting firms) to carry out these knowledge capitalization activities, which will also be informed by specialized work done under other operations, particularly PCDA.
- b) *Establishing and strengthening inter-professional organizations.* This activity will help to construct an efficient institutional framework capable of responding to the development challenges and the need for economic viability in the four targeted VCs. This activity will initiate and/or complete the institutional setup for four inter-professional organizations (one per VC) and provide the means for them to operate—specifically, organizational support, capacity building (mainly training the VC actors), and logistical resources. A tailor-made training program on relevant topics will be prepared and will include decentralized operating sessions at the regional level. Strategic action plans for each of the four VCs will be prepared/updated and financed. Each inter-professional apex structure for the targeted VCs will receive



TA to implement its action plan, acquire the skills needed to operate over the long term, and support the development and sustain the action of PPs.

- c) *Promoting livestock products.* This activity focuses on the quality of Malian livestock and fisheries products and the promotion of the national label. Support will consist of: (i) organizing fairs and forums on livestock products (an average of five events per year over the life of the project; these events will include the participation of VC actors and PP members in international meetings); (ii) organizing promotional fairs on the occasion of national holidays or special events of economic/socio-cultural importance; and (iii) supporting the promotion of product quality and standardization through targeted actions complementary to the actions developed in Component 1.
- d) *Facilitating the emergence and development of PPs.* Business relationships will be developed through a win-win partnership approach, based on demand and supply management. Four types of activities will be undertaken to facilitate these partnerships. First, the project will provide support to affiliate the head offices of professional organizations to confederations or regional entities in West Africa for exchanges on market opportunities and prospects, and it will promote frameworks for consultation and exchanges initiated by the organizations in accordance with their action plans. Second, the project will support information, communication, and training for VC actors on the principles and strategies underpinning PPs. This support will allow Malian organizations to become familiar with, and be inspired by, the experiences developed in other contexts. Third, it will support professional organizations to develop partnerships, and, above all, formalize them through contractual agreements securing not only raw material supplies but also market outlets. Such agreements will make it possible to size production according to existing demand and obtain the support of financial institutions through guarantees predicated on the visibility and traceability of transactions, which will allay their risk aversion. Fourth, it will support the establishment of contractual relationships between stakeholders in the four VCs with potential investors. This support will be implemented in partnership with the Mali Investment Promotion Agency (API),<sup>37</sup> which will mobilize national and international private investors for the benefit of targeted VC operators. The inter-professional organizations will be the institutional interlocutors for the implementation of this activity. The project will organize yearly business meetings with them around the opportunities identified by API and discussed and agreed with these organizations.
- e) *Developing infrastructure to link production to markets.* To streamline trade, PADEL-M plans to build five cattle markets and two fish markets in strategic areas that will be identified in the market opportunity studies. It also plans to finance four milk collection and conservation centers, the locations of which will be determined by the studies of supply and demand. Linkages between production areas and markets will be facilitated by the rural feeder roads program already identified by PRAPS, as well as the additional program specified under the project. These roads will be an integral part of the new IDA-financed rural roads project (FY18), so PADEL-M does not provide funding for rural roads and tracks.

12. **Subcomponent 2.2: Support to investment cycle—US\$ 4.8 million from IDA.** This subcomponent will support the development and implementation of PPs (Box 1) and MPs predicated on the preparation of bankable business plans for SMEs and VSEs, respectively. For SMEs, this subcomponent will help to match the supply and demand of financial services by supporting the tools and expertise of PFIs interested in the livestock sector, and educating investors about the supply of financial services.

<sup>37</sup> Agence pour la promotion des investissements au Mali.



**Box 1: Productive Partnerships (PPs)**

PPs will be financed under the PP window of the Line of Funding set up under the project for investment initiatives in the livestock sector (see para 14 below). PPs are predicated on the establishment of business partnerships bringing together producers (groups or individuals) and other investors either upstream or downstream of production (input suppliers, collectors/buyers, processors, transporters, agro-processors, animal breeders, and so on) who have developed joint business plans reflecting their common interests and vision to implement investment initiatives. Leadership of a PP can be assumed by a producer organization (PO) or any individual investors in a position to take the lead. In the case of a PO, the partnership typically specifies which *investments* in production will be made by individual members and the contribution of each member to common investments. The PP also specifies the *marketing arrangements*, which assign specific roles to partnership members, including the characteristics, quality, and quantity of products to be produced and traded by each member, price level and price determination criteria, and delivery and payment modalities. Finally, the partnership also specifies the *financial and organizational arrangements* under which it will operate. Before they can be approved for funding under the project, PPs will require close screening to ensure that they are financially and economically viable and incorporate safeguards to avoid or mitigate negative social and environmental impacts. These partnerships will be funded through the investors' own contributions (a minimum of 10 percent, except for women and youth, for whom the minimum is 5 percent), a matching grant (MG) from project resources (average of 60 percent of eligible costs), and short- or medium-term working capital and investment loans extended by Partner Financial Institutions covering the remaining 30 percent of the financing requirements. Expenditures that are eligible for funding through MGs include investment items, additional working capital requirements for the initial production cycles, and training and capacity building, as well operating support, as specified in the business plans.

13. To facilitate this process, Subcomponent 2.2 will:

- a) *Provide methodological support* to establish proven and reliable computerized investment templates with detailed tutorials, and ensure ownership by potential operators, technical services of MEP, and inter-professional organizations. FAO's Investment Center will provide TA for this effort, including implementation of the Rural Invest software, which responds well to this need. This methodological support will start in Project Year 1 (PY) and be renewed in PY3. It will help the project evaluate the capacities of operators trained in the methodology and propose a short-list of these operators to be used for subsequent business plan preparation.
- b) *Support the preparation of business plans for SMEs and VSEs and monitoring of their implementation.* Over the duration of the project, 1,200 business plans will be prepared for investment initiatives—400 for SMEs and 800 for VSEs. Two consulting firms will be recruited to implement the planning methodology for development of business plans:
  - i. *The first TA firm will focus on assisting SMEs under the PP window* (see below). It will provide TA to promoters for the business partnership cycle (investment preparation, submission to the selection committee, and implementation follow-up). It will work closely with PFIs to ensure their agreement in principle during business plan preparation and facilitate funding for the plans once they are approved by the National Approval Committee (NAC). The TA firm will also ensure quality control (specifically, ensure compliance with technical standards and financial parameters) and facilitate the NAC's decision.
  - ii. *The other TA firm will focus on VSEs.* It will be given delegated authority (*Maîtrise d'Ouvrage Déléguée*) for preparing and implementing MPs under the MP window, including fiduciary responsibility (procurement fund management and disbursement).



- c) *Strengthen the capacities of PFIs.* To facilitate the development of financial products for the livestock sector, the project will provide TA to PFIs, particularly commercial banks, credit institutions, decentralized financial institutions, banking intermediaries, and leasing firms. The eligibility of financial institutions for this partnership is predicated on a minimum level of financing activity in the agro-pastoral sector, based on evidence of the structure of their funding sources and investment portfolio, their geographic coverage, and their business plan (adapted to the development prospects and financing of the livestock sector), and their agreement to share risk as specified under the PADEL-M grant mechanism for funding investment initiatives. The TA will help PFIs to: (i) acquire specialized expertise in developing and providing financial services to the livestock sector; (ii) develop appropriate financial products; and (iii) develop specialized management tools. In addition, PADEL-M will facilitate the establishment of PPs with the capacity to mobilize other complementary financial instruments in partnership with IFC or similar funding entities. It will also finance a feasibility study on agricultural insurance in partnership with other stakeholders, such as PlaNet Guarantee.
- d) *Educate targeted VC operators on the investment financing scheme.* To assemble a target group for PFIs, the project will (i) finance six national information and awareness campaigns on the funding approach, which will involve all actors in the targeted VCs; it will also (ii) support some 50 regional information and communication workshops on alternative sources of financing for livestock products, (iii) provide advisory support for credit management, and (iv) design and disseminate announcements through mass media on the financial products available and the conditions for taking advantage of them.

14. **Subcomponent 2.3: Investment financing—US\$ 30.1 million (US\$ 17.2 million IDA, US\$ 3.0 million from beneficiaries, US\$ 9.4 million from PFIs, and US\$ 0.5 million from the Government of Mali).** This subcomponent is the foundation and driving force for promoting the private sector in Mali's livestock VCs. It will finance viable investment initiatives in the targeted VCs through two distinct financing windows under a cost-sharing approach. A Productive Partnership (PP) window will co-finance about 160 business plans for SMEs, and a Microproject (MP) window will fund about 600 investments by VSEs. The PP window will fund operations requiring an investment of CFA 15 million (or about US\$ 26,000) or more through three sources of funding: the MG provided under the project (covering 60 percent of eligible expenditures on average), a PFI loan (covering 30 percent), and the beneficiary's personal contribution (in cash, to cover 10 percent). The MP window will finance investments costing less than CFA 5 million (about US\$ 9,000). Beneficiaries will receive an 80 percent subsidy and cover the remaining 20 percent of the investment through a personal contribution that can be provided in kind, through their own work and materials. Unlike the PP window, the MP window will not require VSEs to borrow from PFIs; VSEs will be required only to have an individual account with a PFI. The MP window will emphasize VSEs operated by women and young people. Under both windows, women and youth will be given preferential treatment: for these groups, the MG will be increased by 5 percent under the PP window and by 10 percent under the MP window. The targets are 15 percent for each group under the PP window (for a total target of 20 percent female and youth beneficiaries) and 50 percent for each group under the MP window (for a total target of 70 percent female and youth beneficiaries). Table 3 summarizes this information.



**Table 3: Business plan investment categories and financing sources**

Investment categories (CFAF million)	PADEL-M funding		Individual cash contribution (%)	PFI contribution (%)
	Matching grants (%)	Funding ceiling (CFAF M)		
PRODUCTIVE PARTNERSHIP (PP) WINDOW				
15–30	65%	18	10%*	25%
31–50	60%	26		30%
51–100	55%	45		35%
> 100	50%	70		40%
MICROPROJECT (MP) WINDOW				
<5	80%		20%**	

\* 5% for women and youth. The remaining financing is covered by a 5% increase of the MG.

\*\* 10% for women and youth. The remaining financing is covered by a 10% increase of the MG.

15. Subcomponent 2.3 will co-finance about 160 PPs under the PP window (about one-third of these PPs will consist of complex investments requiring specialized preparation) and 600 MPs under the MP window, for a total amount of US\$ 30.1 million. The breakdown by VC is shown in detail in Table 4. In brief, the largest share of support will go to the cattle/small ruminant VC, which accounts for 37.5 percent of all investment initiatives supported under the project (300 initiatives, consisting of 75 initiatives for SMEs under the PP window and 225 for VSEs under the MP window). In the milk VC, 180 investment initiatives will be supported (45 SMEs and 135 VSEs). In the poultry and fish farming VCs, this subcomponent will support 160 investments in each VC—40 for SMEs and 120 for VSEs.

**Table 4: Number of PPs, MPs, and amounts to be invested under the PP/SME and MP/VSE windows by type of investment and value chain (VC)**

<b>PP/SME business plans</b>										
Investment categories (CFAF million)	Cattle/small Ruminant (meat)		Milk		Poultry/eggs		Fish farming		Total	
	No.	CFAF 000s	No.	CFAF 000s	No.	CFAF 000s	No.	CFAF 000s	No.	CFAF 000s
15–30	10	250,000	7	175,000	8	200,000	10	250,000	35	875,000
31–50	25	1,125,000	16	720,000	15	675,000	13	585,000	69	3,105,000
51–100	25	2,000,000	14	1,120,000	11	880,000	12	960,000	62	4,960,000
> 100	15	2,400,000	8	1,280,000	6	960,000	5	800,000	34	5,440,000
<b>Total</b>	<b>75</b>	<b>5,775,000</b>	<b>45</b>	<b>3,295,000</b>	<b>40</b>	<b>2,715,000</b>	<b>40</b>	<b>2,595,000</b>	<b>200</b>	<b>14,380,000</b>
<b>MP/VSE business plans</b>										
< 5	225	675,000	135	405,000	120	360,000	120	360,000	600	1,800,000
<b>Total business plans</b>										
<b>Total SME and VSE</b>	<b>300</b>	<b>6,450,000</b>	<b>180</b>	<b>3,700,000</b>	<b>160</b>	<b>3,075,000</b>	<b>160</b>	<b>2,265,000</b>	<b>800</b>	<b>16,180,000</b>

16. *Grant approval process.* Under the PP window, a National Approval Committee (NAC) will be established to select the investment initiatives submitted by promoters. The PIM will specify the NAC mode of operation and membership, which will include the participation of PFIs. The funding approval process will be as follows: first, the promoter will prepare his/her PP for submission to the NAC and initiate contacts with PFIs to start the financing process with them at that stage; second, the NAC will review the PPs and decide if they are eligible for an MG under the PP window; and third, the PFI Credit Committee will review the PPs selected by the NAC and decide whether to grant a loan under the conditions previously agreed with PADEL-M, in accordance with the PFI internal financing policies and procedures. A TA consultant firm will provide TA to support the PP



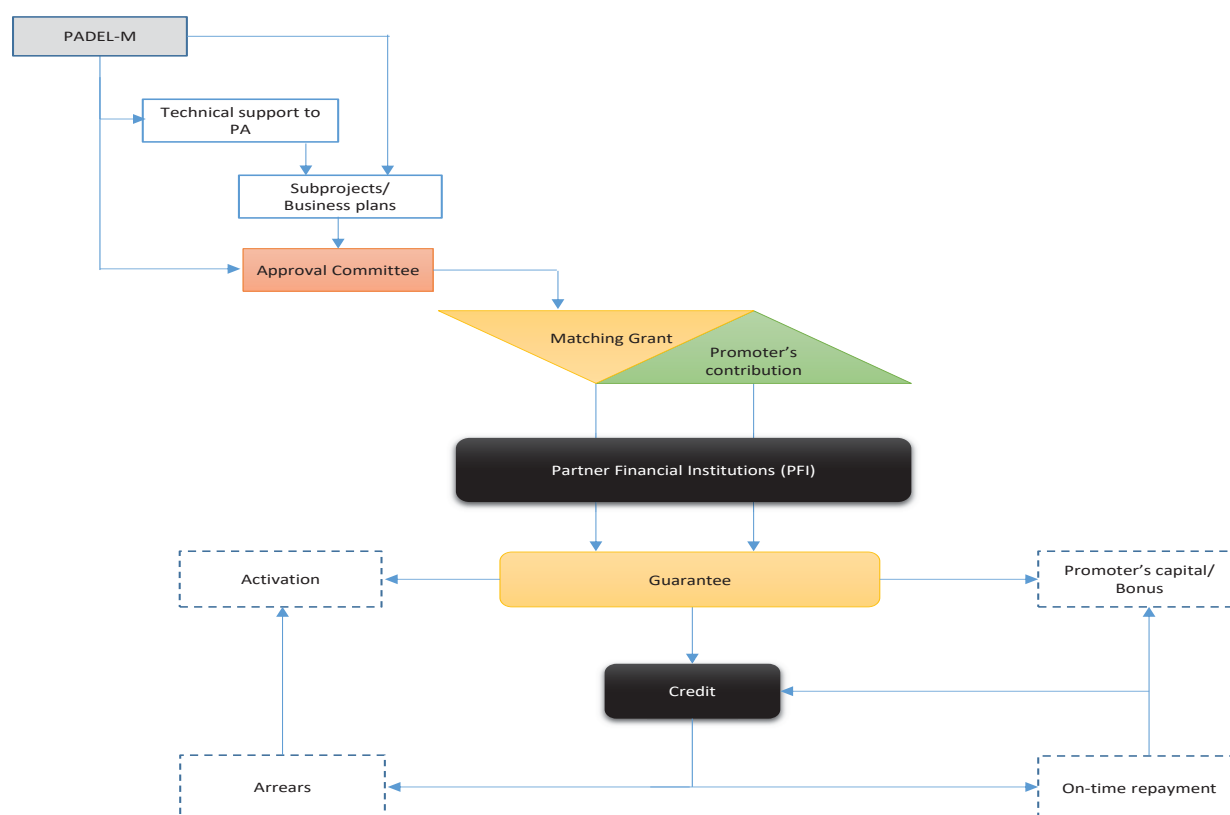


investment cycle by helping the promoter to prepare the proposal for submission to the NAC, ensuring quality control, and supporting PP implementation. Throughout this process, the firm will remain in close contact with PFIs.

17. For the MP window, a Regional Approval Committee is planned in each region to vet funding requests from VSEs, which (as noted) do not need to seek approval from a PFI to access the MGs, which will be triggered automatically after approval by the Regional Committee. The PIM will detail the specific guidelines for managing the two windows.

18. **Financing mechanism under the PP window.** The proposed financing mechanism for the PP window is based on the guarantee provided by the project MG (on average 60 percent of the investment cost), which is deposited in an interest-bearing account with the PFI, supplemented by the personal contribution of the promoter (10 percent). If the PFI Credit Committee accepts the business plan, the PFI then proposes a credit agreement covering the entire cost of the business plan. The modalities of this financing must be negotiated upfront to: (i) consider whether to constitute a term deposit (*dépôt à terme*) guarantee and use financial products to soften credit conditions; (ii) specify which items may be financed through medium-term credit; and (iii) define the terms and conditions for mobilizing the guarantee. This mechanism not only requires the promoter to develop an objective and realistic business plan but to manage the credit agreement in a rigorous, disciplined way. The loan repayment performance of the promoter is decisive for the partial or total replenishment of the MG, which may then be used to guarantee a new credit operation. Figure 1 describes the proposed funding mechanism.

**Figure 1: Proposed funding mechanism**







19. Under the proposed mechanism, eligible promoters are directly responsible to the PFI for: (i) the credit agreement, covering the full cost of the business plan; (ii) full repayment of the loan contracted according to the agreed schedule; and (iii) mobilization of the personal contribution, with the required back-up. For their part, PFIs are required to mobilize their own resources to grant short- and medium-term loans (which are backed by the guarantee in the form of the MG), under modalities adapted to the specific sectors concerned. This financing mechanism makes it possible to circumvent a number of constraints: (i) the lack of a guarantee that denies producers access to financial services; (ii) the reluctance of financial institutions to provide credit for the inherently risky activities in the livestock sector; (iii) the unavailability of stable resources for financial institutions to provide medium-term credit, including loans for purchasing equipment; and (iv) the lack of specialized financial instruments for supporting investments in livestock value chains.

**Component 3: Crisis Prevention and Management, and Project Coordination—US\$ 11.6 million (US\$ 9.4 million from IDA and US\$ 2.2 million from the Government of Mali)**

20. This component will develop mechanisms for preventing and responding to severe crises and emergencies in the livestock sector and strengthen project coordination capacities within MEP. Within the budget for Component 3, an initial amount of US\$ 1.0 million from IDA resources, supplemented by additional counterpart funds equivalent to US\$ 0.3 million, will be allocated to a Contingency Emergency Response Component (CERC).

21. **Subcomponent 3.1: Crisis prevention and management—US\$ 2.1 million (US\$ 1.7 million from IDA and US\$ 0.4 million from the Government of Mali).** Subcomponent 3.1 aims to support: (i) the operationalization of a new unit for crisis prevention and management (CPMU)<sup>38</sup> within MEP through the provision of critical equipment (computers, software, office furniture, vehicles, etc.), training, and resources to undertake various studies and communication campaigns, and (ii) the development and operationalization of crisis management tools, including forums for crisis management in the 11 regions of Mali and at the national level; arrangements for participation in international crisis management forums in West Africa and the Sahel; a CERC; and a mechanism to monitor and evaluate crisis management in the sector. Since PRAPS-ML already contributes to the management of pastoral crises, the two projects (PRAPS-ML and PADEL-M) will join forces and ensure full collaboration with the CPMU. The medium-term outcome to be achieved is a reduction in the time required during a pastoral crisis to reach 50 percent of the targeted beneficiaries, foreseen in the inclusive intervention plan. Crisis response plans will be developed with a view to reaching the most vulnerable members in affected communities (including youth, women, and the elderly).

22. This subcomponent focuses on developing crisis preparedness and response mechanisms by:

- a) *Operationalizing the newly created CPMU.* The unit will be equipped with an all-wheel-drive vehicle, office furniture, and ICT equipment (computers, software, etc.). Various actors involved in crisis management will receive training, including training of trainers (to further their impact). Thematic studies will identify the risks and vulnerabilities in livestock farming and aquaculture, and an action plan will be developed to address crises and vulnerabilities in the livestock sector (including aquaculture). Market information systems (including information collection and dissemination) will be developed for poultry (MIS-Poultry)

<sup>38</sup> This unit, to be created and staffed by MEP, must be able to ascertain whether a crisis has arisen, respond to the Food Security Commissariat (CSA) when necessary, and coordinate an operational response to public health crises, crises induced by natural disasters, and market crises in the livestock sector, including aquaculture. The unit's position within the MEP organizational chart and its mandate are to be officially defined within six months after project effectiveness.



and fisheries (MIS-Fish) to complement the system developed by PRAPS-ML for livestock (SIM-Bétail). Support will be provided to improve the legal and regulatory framework for crisis management in the livestock sector, including aquaculture (especially crises arising from natural disasters such as droughts or floods, in addition to public health and commercial/market crises), and to draft and disseminate laws. Support will also be available to produce a bi-annual crisis prevention, preparedness, and management newsletter for the livestock sector (including aquaculture) and train support staff.

- b) *Implementing crisis management tools.* This subcomponent will make it possible to set up consultative forums of all partners involved in crisis preparedness and management at different geographical scales (in each of the 11 regions of Mali, as well as at the national level) and fund participation in international crisis management forums in West Africa and the Sahel. It will also establish a specific mechanism to monitor and evaluate crisis management in the livestock sector, including aquaculture, and establish the CERC, to be activated if a severe and eligible crisis strikes in Mali.

23. CERC will be established and managed in accordance with the provisions of World Bank OP/BP10.00 (Financing of Investment Projects), paragraphs 11, 12, and 13. As noted, CERC will be allocated initial funding from the project's IDA resources, supplemented by counterpart funds, to be prepared from the start to cover initial expenses in the event of a severe crisis. This arrangement will also enable project proceeds to be reallocated rapidly if a natural or man-made disaster or crisis has caused—or is likely to imminently cause—major adverse economic and/or social impacts. Critical initial expenses may, for example, involve procuring a detailed analysis of actual needs in the field, without waiting for a financial restructuring of project components.

24. The project's CERC may be triggered only when the government has officially declared an emergency or provided a statement of the facts justifying the request to activate the use of emergency funding. The government may request the Bank to reallocate project funds to this particular component to support response and reconstruction in declared emergencies.

25. If the Bank agrees with the determination of the disaster and associated response needs, this component allows the government to request the Bank to recategorize and reallocate financing from other project components to cover emergency response and recovery costs. Disbursements would be made against a list of critical goods or procurement of works and consultant services required to support immediate response and recovery needs.

26. A specific Emergency Response Operations Manual will apply to this CERC component, with details on FM, procurement, withdrawal documentation requirements for eligible expenditures, environmental and social safeguard management frameworks, a list of goods and services, other necessary implementation agreements, and preparation of the requisite ToRs. The manual will also specify the resources to be allocated to an entity (Coordinating Authority) to be responsible for coordinating and implementing the CERC, indicate the specific activities and eligible expenditures (Emergency Expenditures) that may be included in the CERC, and describe any specific procedures to be followed for such inclusion.

27. Detailed operational guidelines, deemed acceptable by the World Bank for the implementation of the CERC, will be developed within six months after the start of project implementation. Drawing from experience with PRAPS-ML,<sup>39</sup> these guidelines will include: (i) a specific manual of operation for the CERC to be added to the PIM, containing the above provisions; (ii) a contingency plan in response to an eligible crisis; and (iii) a

---

<sup>39</sup> PRAPS-ML has already developed a CERC for pastoral crises, which will also be managed by CPMU in the future.



corresponding emergency procurement plan. All expenditures under this fund will be incurred in accordance with paragraph 12 of World Bank OP/BP10.00 (Financing of Investment Projects), and will be evaluated, reviewed, and deemed acceptable by the World Bank prior to any disbursement. Disbursements will be made against an approved list of goods, works, and services to mitigate a crisis, based on the response and recovery measures.

28. Should a severe crisis strike the livestock sector, including the aquaculture subsector (such as a natural disaster or a large public health or commercial/market crisis), causing a major impact on sedentary animal production and/or VCs covered by the project, the government may request the World Bank to use IDA resources pre-allocated to the CERC and also to reallocate project funds from other components to support mitigation, response, recovery, and reconstruction measures. In the longer term, when each of the several World Bank–financed investment projects in Mali (all sectors) will have introduced this type of CERC, it may be possible to pool a part of the resources of all of these projects for responding jointly to a serious crisis, affecting the national economy, as part of a greater countrywide Immediate Response Mechanism, irrespective of the sector. In this regard, the government will be encouraged to create a countrywide IRM Operational Manual that would streamline implementing arrangements, procurement, safeguards, and other aspects of operations through a centralized coordinating authority.

29. *Collaboration with PRAPS-ML<sup>40</sup> under Subcomponent 3.1.* Prior to the establishment of the CPMU within MEP, the PCU for PRAPS-ML recruited a national expert in pastoral crisis management for the entire project duration. As PADEL-M will also contribute to crisis management in the livestock sector (including aquaculture), the two projects will work together and collaborate with key institutions involved, notably: (i) the CSA for the preparation of contingency plans; (ii) the ministry in charge of decentralization with regard to support to municipalities; (iii) the Early Warning System to work on crisis indicators; (iv) professional organizations for setting up monitoring networks; and (v) FAO and specialized NGOs for training (Livestock Emergency Guidelines and Standards—LEGS).

30. PRAPS-ML also set-up an Immediate Response Fund to be activated in the case of a severe pastoral crisis. With the addition of PADEL-M, MEP will manage two funds targeted at different beneficiaries.<sup>41</sup> However, the funds are meant to be utilized simultaneously, with identical or very similar operating mechanisms, under the aegis of the same administrative entity. CPMU will be the mandated, specialized entity within MEP that has the necessary crisis management ability and that can coordinate the resources of PRAPS-ML and PADEL-M in a crisis.

31. **Subcomponent 3.2: Institutional support and project coordination—US\$ 9.5 million (US\$ 7.7 million from IDA and US\$ 1.8 million from the Government of Mali).** This subcomponent includes material support to MEP directorates at the central level and in regional offices for the project to operate, and focuses on all aspects related to management and coordination of PADEL-M activities, including Steering Committee meetings, M&E system, knowledge generation and management, communication, procurement, management of IDA funds, and

<sup>40</sup> The activities of PRAPS-ML under its Component 4 (Pastoral Crisis Management) have several main objectives: (i) the creation of an Early Warning System at MEP to anticipate and prepare responses to a pastoral crisis; (ii) support decentralization of the pastoral crisis management system by setting up (and assisting with operational means) a local monitoring network in pastoral communities, and strengthening the capacity of municipalities to plan actions to prevent the emergence of a pastoral crisis and respond in crisis situations; and (iii) set up an Immediate Response Fund targeted at pastoral crises. A major cross-sectoral training program on crisis management in the livestock sector (particularly pastoral crises) is run by PRAPS-ML, based on the Livestock Emergency Guidelines and Standards.

<sup>41</sup> The IRF set up by PRAPS-ML is intended for severe pastoral crises, whereas the other IRF set up by PADEL-M is intended for other major crises in the livestock sector, including aquaculture.



the monitoring of safeguard mitigation measures in accordance with agreed-upon procedures. As such, activities under this subcomponent will strengthen the capacities of the PCU through operational means (computers, software, office furniture, vehicles, and so on) and training, and also assist the central directorates and regional entities (DRPIAs) of MEP by providing some equipment. A budget will be allocated for livestock data generation in Mali to build a full-fledged national database on the livestock sector (including aquaculture), knowledge management, advocacy for livestock sector financing (including aquaculture), and communication activities. This subcomponent's activities will benefit women in every aspect, to the extent possible.

32. Subcomponent 3.2 support will cover the following items:

- a) *Institutional support* to the General Directorates of MEP at the central level and to the Regional Directorates of MEP (responsible for VC development) in the field, including the provision of office equipment and furniture, computer hardware and software, vehicles, and so on; support for the M&E system of MEP, from the field to the various General Directorates; operational support for meetings of MEP's consultative bodies; and strengthening of internal/external communication and advocacy toward various target audiences.
- b) *Critical staffing for the PCU*. The PCU will operate under the administrative authority of the Secretary General, MEP. It will be led by a National Coordinator (for both projects), to be competitively selected with IDA approval by the government from among high-level civil servants, and fully remunerated by the government. The PCU of PADEL-M will benefit from the following expertise, either independently or in conjunction with the PCU of PRAPS-ML (as shown in Table 5), paid through IDA resources, while support staff (drivers, liaison officers, and others) will be paid through government resources: a Secretary to support the National Coordinator, a Technical Director supported by a Secretary, an Administrative and Financial Officer, an Accountant and an Assistant, an Internal Auditor (in addition to the recruitment of an external audit firm), a Procurement Officer and an Assistant, an M&E Officer with an Assistant and a network of 11 M&E Field Officers (each covering one of the 11 administrative regions of Mali),<sup>42</sup> a Communication Officer and an Assistant, a Gender and Social Safeguards Specialist, an Environmental Safeguards Specialist, an Information Technology Specialist, an Animal Health Expert, a Public Health Expert, a Crisis Management Expert, an Infrastructure and Market Access Expert, a Rural Finance Expert, a Zoo-technician (Animal Production Expert), an Aquaculture Expert, and an Animal Product VC Expert.

33. As shown in Table 5, the cross-cutting project management functions that will be shared include *FM* (a joint Administrative and Financial Officer); *auditing* (a joint Internal Auditor, and possibly the services of the same external audit firm); *procurement* (a joint Procurement Officer); *M&E* (a joint M&E Officer and 11 field staff); shared experts in *information technology*, *gender/social safeguards*, and *environmental safeguards*; and *communications* (an Expert and Assistant shared by both projects). For administrative simplicity, shared PCU staff at the central and field level will have joint ToRs but will be financially supported by a single source—either PRAPS-ML or PADEL-M, as detailed in the Table below (approximately 60 percent of the pooled staff will be financed by PADEL-M, and 40 percent by PRAPS-ML, drawing on their respective IDA credits or grant). Support staff at central and regional levels will be covered by national counterpart funding.

<sup>42</sup> Eleven field staff will cover all 11 administrative regions where the project will operate. Since PRAPS-ML already has field units in three regions, eight additional staff are required.



**Table 5: Staff and staff sharing arrangements for the PCUs of PADEL-M and PRAPS-ML under the authority of the Secretary General, MEP**

Functions	PCU staff for PRAPS-ML (100% IDA financing by PRAPS-ML)	Staff shared by the two projects: * Indicates IDA financing through PADEL-M **Indicates IDA financing through PRAPS-ML	PCU staff for PADEL-M (100% IDA financing by PADEL-M)
<b>Management</b>	1 Technical Director 1 Secretary	1 National Coordinator (civil servant paid by the government), and secretary	1 Technical Director 1 Secretary
<b>Coordination of technical components</b>	1 Natural Resource Management Expert	1 Animal Health Expert* 1 Crisis Management Expert* 1 Infrastructure and Market Access Expert*	1 Public Health Expert 1 Rural Finance Expert 1 Animal Production Expert 1 Aquaculture Expert 1 Value Chain Expert
<b>Coordination of cross-cutting functions</b>		1 Communication Specialist* 1 Assistant for Communication** 1 Information Technology Expert** 1 Gender and Social Safeguards Specialist** 1 Environmental Safeguard Specialist**	
<b>Financial management</b>	1 Accountant and 1 Assistant	1 Administrative and Financial Specialist (RAF)**	1 Accountant and 1 Assistant
<b>Audit</b>		1 Internal Auditor** 1 External Auditor (recruited by each project—not part of the PCUs)	
<b>Procurement</b>	1 Procurement Assistant	1 Procurement Specialist*	1 Procurement Assistant
<b>Monitoring and evaluation</b>	1 Assistant Monitoring and Evaluation Officer	1 Monitoring and Evaluation Expert (RSE)* 3 M&E field staff* (Kayes, Mopti, Gao) 8 M&E field staff**	1 Assistant Monitoring and Evaluation Officer
<b>Support staff (paid through counterpart funding)</b>	2 Drivers	3 Clerks 3 Guards 1 Receptionist	3 Drivers

34. At the technical level, PRAPS-ML's current expertise<sup>43</sup> will be complemented to cover the additional needs of PADEL-M, including experts in public health, animal production, aquaculture, livestock VCs, and rural finance. The Animal Health Expert, Infrastructure Expert, and Crisis Management Expert will be shared by the two projects. The PCU staff of PADEL-M will commit themselves fully to the activities described in their own ToRs. At the central level of MEP, relevant technical directorates will appoint Focal Points to support implementation of both projects' activities. In addition, the PCU of PADEL-M will sign partnership agreements with these technical directorates and other public partnering entities to carry out PADEL-M activities within their mandates. At the regional level, the joint field staff of PADEL-M and PRAPS-ML will disseminate project information, collect data,

<sup>43</sup> Which includes a Technical Director, Animal Health Expert, Natural Resource Management Expert, Infrastructure and Market Access Expert, and Crisis Management Expert.



and monitor and report on project activities throughout the country. Field staff will be located in the Regional Directorates of MEP responsible for VC development (DRPIAs).

35. Lastly, PADEL-M will draw upon a Technical Assistance Pool<sup>44</sup> (in the form of person-months) to provide ad hoc support to MEP in the implementation of PADEL-M activities, as required.

36. The PCU will carry out the following activities:

- a) Institutional support through capacity development of MEP's General Directorates at the central level and Regional Offices (DRPIAs), including operational equipment (computers, software, office equipment, furniture, and vehicles).<sup>45</sup>
- b) PCU capacity development through a staff training plan and the provision of equipment (computers, software, office equipment, furniture, and vehicles).<sup>46</sup>
- c) Capacity development for MEP regional staff (at DNPIAs) through the addition of eight field staff (aside from the three field-staff already recruited by PRAPS-ML), a staff training plan, the provision of equipment (computers, software, office equipment, furniture, and one motorbike per field officer), and a staff training plan.
- d) Operational support to PADEL-M steering bodies—Steering Committee, Technical Committee, and regional coordination bodies (CRs)—and the development of operational manuals, project launch activities, and M&E activities.
- e) Expenses for cross-cutting functions, such as communication and gender plans (including gender mainstreaming in all activities), environmental and social safeguard measures), and for conducting critical studies.
- f) Supervision costs, including external audits, implementation support missions, Mid-Term Review, and final evaluation.
- g) General operating expenses of the PCU, including rental of premises pending the construction of additional office space for the building that PRAPS-ML is already building.

37. **Budget.** The budget for Component 3 draws on an IDA envelope equivalent to US\$ 9.4 million, supplemented by a government contribution equivalent to US\$ 2.1 million. As discussed, CERC will be allocated US\$ 1.0 million from IDA resources, supplemented by national counterpart funds equivalent to US\$ 0.3 million. Government counterpart funds will be made available to finance activities pertaining to the project, such as those directly related to public governance in the livestock sector (including aquaculture), and others designed to support PADEL-M implementation (such as regular meetings of project governance entities). The Financial Agreement will include specific provisions on the commitment made by the Malian authorities on the amount, periodicity of payment, and use of these funds, which will also be subject to periodic supervision by the World Bank.

---

<sup>44</sup> Estimated to be 42 person-months over the life of PADEL-M, which would provide 7 man-months annually (on average) to meet specific needs for expertise during project implementation.

<sup>45</sup> Four double cabin 4x4 pickup trucks at the central level and 33 motorbikes at the local level.

<sup>46</sup> One liaison vehicle, two station wagons, three double cabin 4x4 pickup trucks, and one motorbike at the central level.





## Links with World Bank and IFC, as well as other externally financed projects

38. PADEL-M complements six ongoing Bank operations which touch *inter alia* on the wider livestock sector: (i) Regional Sahel Pastoralism Support Project (P147674: PRAPS-ML, US\$ 45 million, ending in December 2021); PRAPS-ML is the sister project of PADEL-M focusing on pastoral systems; the two projects will be administratively linked to take full advantage of the capacity already available in MEP (see Annex 2); (ii) Mali's Agricultural Productivity Growth Project (P095091: PAPAM, US\$ 70 million, ending in July 2018); (iii) West African Agricultural Productivity Program (P129565: WAAPP, US\$ 60 million, ending in December 2018); (iv) Skills Development and Youth Employment Project (P145861: PROCEJ, US\$ 63 million, ending in June 2020); (v) Mali's Agro-industrial Competitiveness Support Project (P151449: PACAM, US\$ 30 million, which started in late 2016 and runs to July 2022); and (vi) West Africa Regional Disease Surveillance System Enhancement Program (P161163: REDISSE 3). PAPAM, PROCEJ, and WAAPP dedicate some funding to both traditional and improved livestock systems. PACAM primarily supports the animal feed VC for livestock, including poultry and fish. PADEL-M will also build on two upcoming irrigation projects which will address irrigated production, potentially of fodder crops—P159765: PADAIC in the Alatona area in Niger's inland delta), and the Sahel Irrigation Initiative Support Project (P154482: SIIP)—as well as two other projects with important implications for the livestock sector: the Rural Mobility and Connectivity Project (P160505: adopted early FY18), which will finance rural roads, and the Drylands Development Project (P164052: FY19), which is designed to reinforce the resilience of rainfed cereal production systems.<sup>47</sup> It will benefit from the results of the Financial Inclusion and Rural Finance study currently undertaken in Mali. The project will work closely with IFC, which plays an important role in engaging the private sector and promoting investment opportunities that will leverage public funding.<sup>48</sup> Lastly, the project will complement other donor-financed projects, emphasizing lessons learned and opportunities for synergy and coordination, *inter alia*: (i) Support Project for the Development of Animal Production in the South Kayes Area (PADEPA-KS),<sup>49</sup> funded by AfDB; (ii) Rural Youth Vocational Training Project,<sup>50</sup> funded by IFAD; (iii) Integrated Development of Livestock and Fisheries Resources Program (PDIRAAM), funded by IDB; and (iii) Feed the Future (FTF) Livestock for Growth (L4G)<sup>51</sup> and Mali Livestock Technology Scaling (MLTS), both funded by USAID. Details on the specific areas of synergy are shown in Table 6.

<sup>47</sup> This project builds on the findings from World Bank Report P156684, "Strategies to Increase Agricultural Productivity and Improve Market Participation in Mali's Drylands: Evidence from LSMS-ISA 2014."

<sup>48</sup> IFC already supports private companies in the development of targeted VCs, notably for dairy and red meat near urban centers. A case in point is the IFC-financed Kayes abattoir. This facility currently operates at a fraction of its capacity for lack of supply. It would benefit from an associated investment in cattle fattening, which could supply additional animals.

<sup>49</sup> Projet d'appui au développement des productions animales dans la zone Kayes Sud.

<sup>50</sup> Rural Youth Vocational Training Employment and Entrepreneurship Support Project (IFAD).

<sup>51</sup> USAID funds for livestock activities under FTF include: (i) L4G, implemented by AECOM International Development, which strengthens technical and organizational capacities in the cattle and small ruminant value chains; and (ii) FTF-MLTS, which supports livestock producers in the Mopti, Timbuktu, and Sikasso regions.



**Table 6: Synergy of PADEL-M with World Bank and other externally funded livestock projects**

Project	Description	Synergy with PADEL-M
<b>PRAPS-ML:</b> Regional Sahel Pastoralism Support Project-Mali	IDA-funded. Sister project of PADEL-M focusing on pastoral (mobile) systems in Mali. Part of the regional PRAPS initiative (IDA). Cost: US\$ 45 million. Approval: FY 2016. Duration: 6 years. End date: December 2021.	PADEL-M and PRAPS-ML will have operational complementarities touching <i>inter alia</i> upon: (i) epidemiologic surveillance and vaccinations; (ii) feed production and supplementation; (iii) access to market information; (iv) livestock sector crisis prevention and management; and (v) shared management setup.
<b>PAPAM:</b> Fostering Agricultural Productivity in Mali Project	IDA-funded. Co-financed by IFAD. Support for enhancement of Mali's agricultural productivity. FY 2013, US\$ 70 million (IDA), US\$ 42 million (IFAD), ending in July 2018.	PADEL-M and PAPAM complement each other particularly for research and extension regarding irrigated fodder crops.
<b>WAAPP:</b> West Africa Agricultural Productivity Program for Mali	IDA-funded. Support for agriculture technology development. US\$ 60 million (IDA), ending in December 2018.	A joint intervention area between PADEL-M and WAAPP is research and development of best practices for selected traditional and improved livestock systems (including pilot fattening operations to supply the Kayes slaughterhouse).
<b>PROCEJ:</b> Skills Development and Youth Employment Project	IDA-funded. Training of youth and support to investment activities, including in selected animal value chains (meat, milk, hides and skins). FY 2014, US\$ 63 million (IDA), ending in June 2020.	PROCEJ and PADEL-M complement each other for training and investment activities concerning youth.
<b>PACAM:</b> Mali Agro-industrial Competitiveness Support Project	IDA-funded. Agro-industrial Competitiveness Support Project, focused on two value chains (mangoes and livestock) in the Sikasso, Bamako, and Koulikoro production basins. US\$ 30 million (IDA), approved November 2016, ending July 2022.	PACAM activities regarding animal feed, including for fish and poultry, are highly complementary to PADEL-M value chain development activities.
<b>REDISSE 3:</b> West Africa Regional Disease Surveillance Systems Enhancement Program (Phase III)	IDA-funded. The project strengthens national (15 ECOWAS countries) and regional cross-sectoral capacity for collaborative disease surveillance and epidemic preparedness in West Africa. IDA Grant: US\$ 7.0 million. IDA Credit: US\$ 140.0 million for regional initiative. Cost for Mali project: US\$ 45 million for Mali.	Shared interest of PADEL-M, PRAPS-ML and REDISSE regarding One Health issues, particularly for adequate disease surveillance capacity and results.
<b>SIIP:</b> Sahel Irrigation Initiative Project	IDA-funded. Regional project will support irrigation initiative in six Sahelian countries. Cost: US\$ 198 million (IDA 170 million). Implementation: FY 2018-23.	Joint interest between PADEL-M and SIIP-Mali will regard to production of fodder crops in selected irrigated areas of Mali.
<b>Rural Mobility and Connectivity Project</b>	IDA-funded. The project will rehabilitate about 1,700 km of rural roads in Koulikoro (dryland zone) and Sikasso (southern zone) regions of Mali. IDA credit of Euro 64 million (\$70 million equivalent). Approval date: July 17, 2017.	PADEL-M does not finance rural roads. It will rely on the Rural Mobility and Connectivity Project to access targeted areas. Programming of road links will be done jointly between the two projects.
<b>Drylands Development Project</b>	IDA-funded. The new investment operation is being prepared for FY19 based on sector analysis: "Strategies to Increase Agricultural Productivity in Mali's Drylands," Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA), 2014. The project will aim at increasing productivity of smallholder farmers in the dryland zone through continuous investments in learning, innovation, new farm technologies, and agricultural productivity.	Close liaison will be maintained between PADEL-M and the Drylands Project in the areas covered by the latter. Synergy will be mostly in fodder production for intensive livestock systems.





Project	Description	Synergy with PADEL-M
<b>PADEPA-KS:</b> Support Project for the Development of Animal Production in the South Kayes Area	AfDB-funded. Support to livestock activities in the Kayes region, including vaccination parks, livestock markets, slaughter slabs, water points, storage sheds, development protection of transhumant pathways, and rural access roads. Initiated in April 2007. Cost: CFAF 14.2 billion; partially funded by ADF grant of CFAF 11 billion.	PADEL-M will build on all activities undertaken to date by PADEPA in the Kayes area.
<b>Rural Youth Vocational Training:</b> Employment and Entrepreneurship Support	IFAD-funded. Project is national in scope, was tested in the Koulikoro and Sikasso regions and later expanded. Targeting gives priority to young people—particularly young women—who lack technical skills and access to financing for income-generating activities. Project cost: US\$ 43.7 million (IFAD, US\$ 33.2 million). Approval date: December 2013.	PADEL-M Component 2 will be closely coordinated with the IFAD project, especially as regards funding and implementation of MPs for income-generating activities related to livestock.
<b>FTF-L4G:</b> Livestock for Growth Project	USAID-funded. L4G provides TA to support the sustainable development of livestock production. L4G aims to increase livestock competitiveness and productivity, raise domestic and export livestock trade, and strengthen market linkages and access. L4G is part of USAID/Mali's Feed the Future Initiative (FTF). Duration: 5 years, 2014-19. Grant of US\$ 14.9 million.	Close collaboration will be maintained between L4G and PADEL-M regarding strengthening technical and organizational capacities in the targeted VCs.
<b>FTF-MLTS:</b> Feed the Future/ Livestock Technology Scaling Program	USAID-funded. FTF Mali contributes to inclusive growth <i>inter alia</i> in ruminant livestock value chains in the regions of Mopti, Timbuktu, and Sikasso. Activities include promoting animal health, improving livestock feed, and supporting access to market. Duration: 5 years, 2014–19.	PADEL-M will collaborate closely with MLTS in the regions of Mopti, Timbuktu, and Sikasso covered by MLTS, with a focus on animal health and feed.
<b>PDIRAAM:</b> Integrated Development of Livestock and Fisheries Resources Program	Funded by IDB. Covers four VCs: red meat, milk, poultry, and aquaculture; includes rural roads, pastoral wells, feed lots, rural slaughterhouses, vaccination parks and veterinary posts, AI, markets, and Islamic microfinance. Cost: CFAF 13.7 billion (€ 21 million). Duration: 5 years. 62 communes of Sahel along the Kayes, Koulikoro, and Ségou axis.	PADEL-M will collaborate closely with PDIRAAM in the regions of Kayes, Koulikoro, and Ségou covered by MLTS, with a focus on vaccinations and AI.



## ANNEX 2: IMPLEMENTATION ARRANGEMENTS

### Mali Livestock Sector Development Support Project

#### A. Project Institutional and Implementation Arrangements

1. The Borrower will be represented by the Ministry of Economy and Finance. Overall responsibility for project implementation, including management of environmental and social risks, will be delegated to the Ministry of Livestock and Fisheries (MEP). Implementation of the project will take place for six years over the country's national territory. The project duration is set to allow a realistic timeframe for implementation. Indeed, earlier experience with similar projects demonstrates that it is particularly important to allocate sufficient time, not only for activities to strengthen services under Component 1 (such as improving service delivery, capacity building) to ensure achievement of the planned outcomes, but especially for the development of sustained PPs in the livestock sector under Component 2.
2. Details regarding organizational arrangements for PADEL-M are presented in this annex. The governance structure for PADEL-M will be modeled after that of PRAPS-ML, including a Steering Committee and Technical Committee meeting at regular intervals, with all necessary representative membership. The Steering Committee will serve as a guidance body, approve the AWPBs and PADEL-M progress reports. The Technical Committee, comprising all relevant technical stakeholders, will be the body responsible for monitoring project implementation. The Steering Committee will meet at least twice a year under the chairmanship of the Minister for Livestock and Fisheries (or his/her representative), while the Technical Committee will hold one meeting per quarter under the chairmanship of the Secretary General of the MEP. At the local level, the existing regional coordination committees (CRs) will be involved in implementing PADEL-M and will contribute to the assessment of field progress.
3. *PADEL-M Steering Committee.* PRAPS-ML and PADEL-M will share the same Steering Committee, which will serve as the orientation and steering body for PADEL-M. It is chaired by the Minister of MEP and includes representatives of MEP<sup>52</sup> (SG, Cabinet, CPMU, PCU, DNSV, DNPIA, DNP, DFM, and DRH), the Ministry of Economics and Finance, the Ministry for Investment Promotion and the Private Sector, the Ministry for Industrial Development, the ministry in charge of Employment and Professional Training, the Ministry for Health and Public Hygiene, the ministry in charge of the Environment and Sustainable Development, the ministry in charge of Agriculture, the ministry in charge of Territorial Administration, the ministry in charge of the Promotion of Woman, the ministry in charge of Youth Promotion, the private investment promotion agency (API-Mali), local and regional authorities, POs (including relevant inter-professional bodies<sup>53</sup>) and major NGOs operating in the livestock and aquaculture sector. FAO and the World Bank may participate as observers. The frequency of meetings is at least twice a year.

<sup>52</sup> MEP representation will include the following structures: General Secretariat (SG), Crisis Prevention and Management Unit (CPMU), Project Coordination Unit (PCU), National Directorate of Veterinary Services (DNSV), National Directorate for Animal Production and Industry (DNPIA), National Directorate for Aquaculture and Fisheries (DNP), Directorate for Finance and Equipment (DFM), and Directorate of Human Resources.

<sup>53</sup> Such as : SYNELPROV (*syndicat national des éleveurs et producteurs de viande*), FEBEVIM (*fédération bétail-viande du Mali*), FENALAIT (*fédération nationale des producteurs de lait*), FENAPHAB (*fédération nationale des producteurs d'huile et d'aliments*)



4. *PADEL-M Technical Committee.* This committee will oversee and monitor project implementation. It will be chaired by the Secretary General of MEP and comprise representatives of implementing agencies (CPMU, DNSV, DNPIA, DNP, and so on), representatives of POs in the livestock sector (including inter-professional bodies), representatives of other livestock support projects, scientific research institutes, as well as contractual service providers. The frequency of meetings is at least once per quarter.

5. The project implementation mechanism will comprise a Project Coordination Unit (PCU) based in Bamako, and field correspondents based in MEP's regional directorates in charge of VC development (DRPIAs). In addition, it will involve Focal Points in MEP's central directorates, as well as in the ministries in charge of Environment and Social Affairs, to facilitate the implementation of the project's technical activities, as well as environmental and social safeguards.

6. The PCU of PADEL-M will be fully mainstreamed into the MEP structure as advocated by authorities. It will be placed under the General Secretariat of MEP, alongside the PCU for PRAPS-ML. The PCUs of PADEL-M and PRAPS-ML will operate under a sharing arrangement in which the two project teams will share the same National Coordinator and other staff; they will operate in close synergy and be housed in the same building. The two PCUs combined are a precursor of "sector PCUs," which (as agreed in principle with the government) will serve ongoing and future projects in given sectors. The PCU of PADEL-M will work in close coordination with MEP technical directorates at the central and regional level to execute and monitor project implementation. The main functions of the PCU will be:

- Steer and coordinate PADEL-M activities in accordance with the provisions of the Financing Agreement regarding the management and use of IDA resources, as well as national procedures.
- Provide support to MEP and other partners involved in implementing the project activities.

7. The National Coordinator who will head the PCU will be competitively recruited from among high-level civil servants in Mali, approved by IDA, and remunerated using government resources; his/her signature will be required to commit project financing. S/he will be assisted by a team of high-caliber, competitively recruited consultants, covering all technical or administrative functions deemed critical for proper project implementation and management. The project management cross-cutting functions, including the fiduciary functions, will be pooled, and technical expertise will be shared between the two projects, to the extent possible.

8. At the technical level, PRAPS-ML's current expertise<sup>54</sup> will be complemented to cover the additional needs of PADEL-M, including a Technical Director (assisted by a Secretary) and experts in public health, animal production, aquaculture, livestock VCs, and rural finance. The Animal Health Expert, Infrastructure Expert, and Crisis Management Expert will be shared by the two projects. Cross-cutting project management functions will be organized as follows: (i) *FM* (a joint Administrative and Financial Officer, as well as an Accountant with an Accounting Assistant for each project); (ii) *auditing* (the internal audit

---

*du bétail*), FIFAM (*fédération des intervenants de la filière avicole du Mali*), CNOFPMP (*collectif national des organisations professionnelles de la filière poisson du Mali*), and CONASCOPA (*confédération nationale des sociétés coopératives des pisciculteurs et aquaculteurs du Mali*).

<sup>54</sup> Which includes a Technical Director, an Animal Health Expert, a Natural Resource Management Expert, an Infrastructure and Market Access Expert, and a Crisis Management Expert.



function will be handled by a joint Internal Auditor, and the two projects may possibly use the services of the same external audit firm); (iii) *procurement* (a joint Procurement Officer and a Procurement Assistant for each project); (iv) *M&E* (a joint M&E Officer and an Assistant for each project, as well as a team of 11 field staff to cover all 11 administrative regions<sup>55</sup> of Mali covered by the project); (v) *information technology, gender and social safeguards, and environmental safeguards* (an expert in each of these fields will be shared by both projects); and (vi) *communication* (a Communication Expert and an Assistant, shared by both projects). All of the above staff positions will be funded by the IDA Credit/Grant, either under existing PRAPS-ML arrangements or under new PADEL-M arrangements. For administrative simplification, shared PCU staff at the central and field levels will have joint ToRs but will be financially supported by a single source.<sup>56</sup> Support staff at the central and regional levels will be financed by the national counterpart funding.

9. At the central level of MEP, relevant technical directorates will appoint Focal Points to support implementation of both projects' activities. The PADEL-M PCU will sign partnership or technical agreements with these technical directorates and with other relevant public entities to carry out PADEL-M activities within their mandates. At the regional level, joint field staff of PADEL-M and PRAPS-ML will assume responsibility for dissemination of project information, data collection, and monitoring and reporting on project activities throughout the national territory. The field staff will be located in the Regional Directorates of MEP responsible for VC development (DRPIAs).

10. *The Project Implementation Manual (PIM)*, to be adopted within three months following project effectiveness, will provide a compendium of procedures for the operational implementation of PADEL-M, encompassing administrative, fiduciary, M&E, procurement, and social and environmental safeguard procedures. It will include detailed ToRs for all PCU staff of PADEL-M. A specific manual for management of the CERC will be prepared and validated no later than six months after project effectiveness. Also, a specific manual<sup>57</sup> for the management of the private sector funding windows under Subcomponent 2.3 will be prepared and validated no later than one year after project effectiveness.

11. *Support missions for PADEL-M implementation.* Under the fiduciary responsibilities of the World Bank and in accordance with the provisions of the project Financing Agreement, periodic missions will be fielded to support project implementation (at least twice a year), and video and/or audio-conferences will be held on a regular basis for the purpose of PADEL-M monitoring and assessment. Implementation support missions will prepare Aide-Memoires.

12. Figure 2 depicts the organizational structure of PADEL-M.

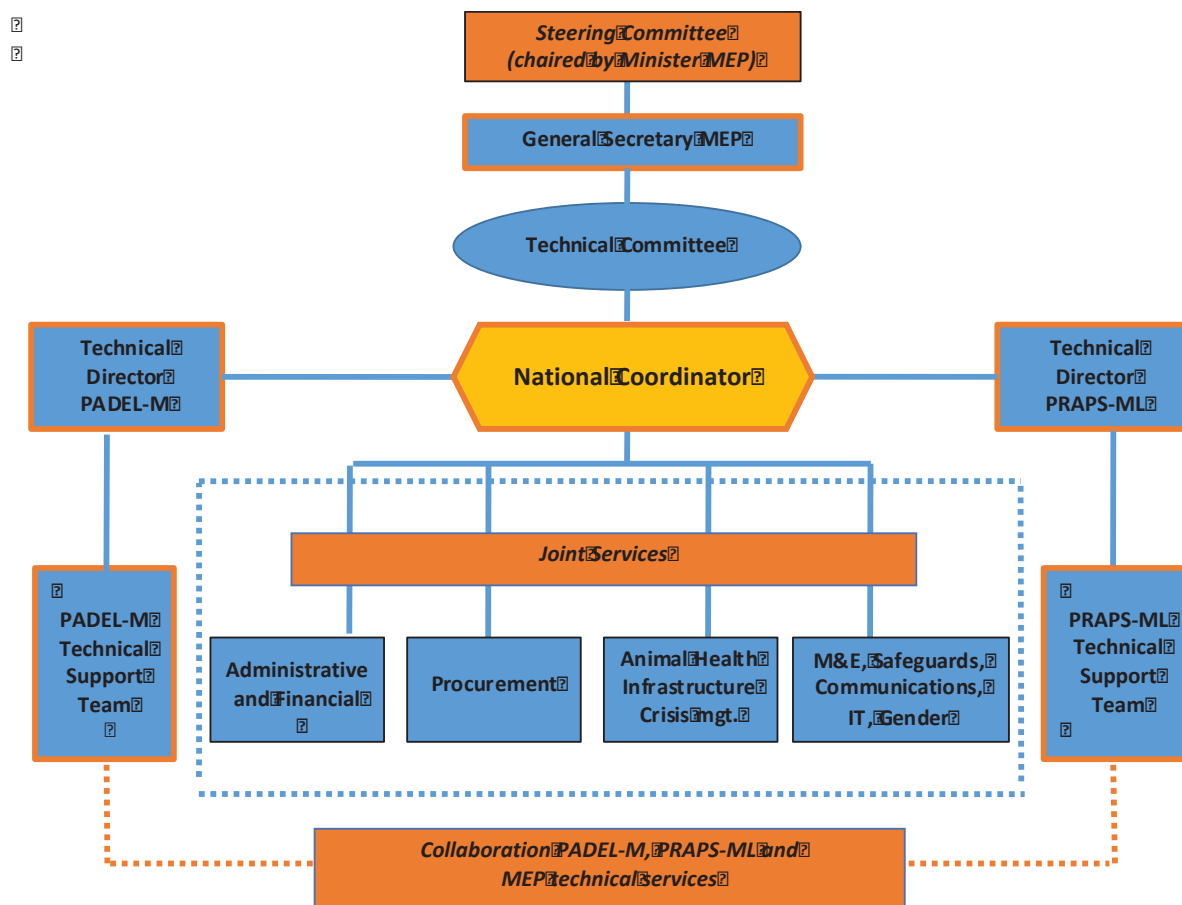
<sup>55</sup> Eleven field staff will cover all 11 administrative regions; since PRAPS-ML already has field units in three regions, the additional staff financed by PADEL-M will be only eight.

<sup>56</sup> Staff funding will be supported either by PRAPS-ML or PADEL-M as detailed in Annex 2. Approximately 60 percent of the pooled staff positions will be financed by PADEL-M, and 40 percent by PRAPS-ML, drawing on their respective IDA credits and grant.

<sup>57</sup> The availability of this manual will be a disbursement condition under both windows.



**Figure 2: PADEL-M organizational structure**



## B. Financial Management (FM) Arrangements

13. An FM assessment of the implementing unit (PCU) of PRAPS-ML designated to manage PADEL was carried out in May 2017. The objective of the assessment was to determine whether the PCU has acceptable FM arrangements in place to ensure that the project funds will be used only for the intended purposes, with due attention to considerations of economy and efficiency. The assessment complied with the Financial Management Manual for World Bank–financed investment operations, effective March 1, 2010.

14. Arrangements are acceptable if they are capable of accurately recording all transactions and balances, supporting the preparation of regular and reliable financial statements, safeguarding the project’s assets, and are subject to auditing arrangements acceptable to the Bank. These arrangements should be in place when project implementation starts and be maintained as such during project implementation. The assessment concluded that the financial management of the PCU satisfies the Bank’s minimum



requirements under OP/BP10.00, and therefore is adequate to provide, with reasonable assurance, accurate and timely FM information on the status of the project required by the Bank.

15. The overall fiduciary risk rating is assessed as Moderate, and the proposed risk mitigation measures in the FM Action Plan (Table 7) will strengthen the internal control environment and maintain the continuous timeliness and reliability of information produced by the PCU and an adequate segregation of duties.

**Table 7: Financial management Action Plan for PADEL-M**

Action	Responsible party	Deadline and conditionality
1- Develop the project implementation manual, including fiduciary procedures	PCU	Three (3) months after effectiveness
2- Recruit an accountant with qualifications and experience satisfactory to the World Bank	PCU	Three (3) months after effectiveness
3- Customize accounting software	PCU	Three (3) months after effectiveness
4- Recruit an external auditor	PCU	Six (6) months after effectiveness

16. *Internal control system.* The internal control system comprises (i) a Steering Committee to oversee project activities and (ii) a PIM, including updated administrative, financial, procurement, and accounting procedures, to be adopted within three months following project effectiveness, and an internal audit function to carry out ex-post reviews and to evaluate the performance of the overall internal control system. The Internal Audit function will be shared between PRAPS-ML and PADEL-M.

17. *Planning and budgeting.* The PCU of PADEL-M will prepare a detailed AWPB, which needs to be approved by the Steering Committee. The PCU of PADEL-M will submit the approved AWPB to the World Bank no later than November 30, before the year in which the work plan is to be implemented.

18. *Accounting.* As agreed by the Borrower and the World Bank, PRAPS-ML and PADEL-M will share FM staff. An additional Accountant and an Assistant Accountant will be recruited to reinforce the existing FM team, comprising a Finance and Administration Officer (and an Accountant/Assistant Accountant for PRAPS-ML).

19. The project will use the SYSCOHADA accounting system used in West African Francophone countries. The multi-project accounting software (TOM2PRO, already used by PRAPS-ML) will be customized to host the book-keeping of PADEL-M.

20. *Financial reporting.* Every quarter, the PCU of PADEL-M will submit an Interim Financial Report (IFR) to the Bank within 45 days after the end of the calendar quarter period. The IFRs should provide sufficient pertinent information for a reader to establish whether (i) funds disbursed to the project are being used for the purpose intended; (ii) project implementation is on track; and (iii) budgeted costs will not be exceeded. PADEL-M will use the IFR format used by ongoing IDA-funded projects.

21. The IFR may include:

- An introductory narrative discussion of project developments and progress during the period, to provide context to (or other explanations of) the financial information reported.



- A Sources and Uses of Funds Statement, both cumulatively and for the period covered by the report, showing (separately) funds provided under the project (IDA, Borrower, Recipients).
- A Uses of Funds by Components Statement, cumulatively and for the period covered by the report.
- The Designated Account reconciliation, including bank statements and general ledger of the bank account.
- Disbursement forecasts for the upcoming six months.
- Explanation of variances between the actual and planned activities and budget.

22. Annually, the PCU of PADEL-M will prepare Project Annual Financial Statements, which will comply with SYSCOHADA and World Bank requirements. Annual Financial Statements may comprise:

- Project presentation and project developments and progress during the year, to provide context to (or other explanations of) the financial information reported.
- A Statement of Sources and Uses of Funds which recognizes all cash receipts, cash payments, and cash balances.
- A Statement of Commitments.
- Accounting policies adopted and explanatory notes.
- A Management Assertion that project funds have been expended for the intended purposes as specified in the relevant financing agreements.

23. *Auditing.* The PCU of PADEL-M will submit Audited Project Financial Statements satisfactory to the World Bank every year within six (6) months after closure of the fiscal year. A single opinion on the Audited Project Financial Statements in compliance with the International Federation of Accountants (IFAC) will be required. In addition, a Management Letter will be required, containing auditor observations and comments, and recommendations for improvement in accounting records, systems, controls, and compliance with financial covenants in the Financial Agreement.

24. The PCU of PADEL-M will recruit a technically competent and independent auditor acceptable to the Bank within six (6) months after the project effectiveness date. The recruitment for the external audit of the financial statements of the project should be done through ToRs agreed by IDA.

25. *Disclosure of the audited financial statements.* In line with the new access to information policy, the project will comply with the World Bank policy of disclosing audit reports (making them publicly available, promptly after receipt of all final financial audit reports).

26. *Disbursements arrangements.* Disbursements under PADEL-M will be carried out in accordance with the provisions of the IDA Disbursement Guidelines (World Bank Disbursement Guidelines for Projects, dated May 1, 2006), the Disbursement Letter, and the Financing Agreement.

27. The project will finance 100 percent of eligible expenditures inclusive of taxes. A new Designated Account (DA) will be opened in a commercial bank under terms and conditions acceptable to IDA. The ceiling of the DA will be established at CFAF 2.5 billion. An initial advance up to the ceiling of the DA will be made and subsequent disbursements will be made against submission of Statements of Expenditure reporting on the use of the initial/previous advance. The option to disburse against submission of the



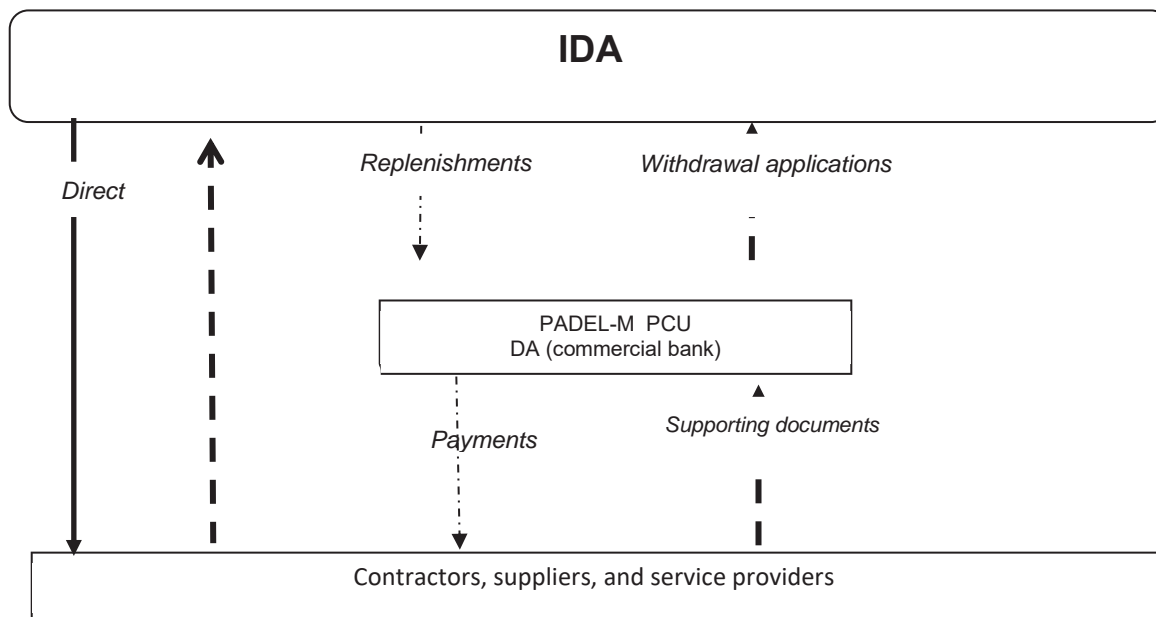


quarterly unaudited IFR (also known as report-based disbursement) could be considered, as soon as the project meets the criteria. The other methods of disbursing funds (reimbursement, direct payment, and special commitment) will also be available to the project. The minimum value of applications for these methods is 20 percent of the DA ceiling. The project will sign and submit Withdrawal Applications electronically using the eSignatures module accessible from the Bank's Client Connection website.

28. *Retroactive financing.* All *bona fide* expenditures incurred for project execution between the date of project pre-appraisal (September 1, 2017) and the date of Credit/Grant effectiveness will be eligible for retroactive financing under the IDA Credit/Grant up to a maximum of Euros 500,000.

29. Figure 3 shows the flow of funds for PADEL-M.

**Figure 3: Funds flow for PADEL-M**



### Implementation Support Plan

30. The intensity and frequency of FM implementation support will be in line with a risk-based approach and involve a collaborative approach with the entire Task Team. The first implementation support mission will be performed three months after project effectiveness. Subsequent missions will be scheduled by using the risk-based approach model and will include the following due diligences: (i) monitoring of FM arrangements during the supervision process at intervals determined by the risk rating assigned to the overall FM Assessment at entry and subsequently during implementation; (ii) review of the IFRs; (iii) review of the audit reports and Management Letters from the external auditors, and follow-up on material accountability issues by engaging with the Task Team Leader, Client, and/or auditors; the quality of the audit (internal and external) is to be monitored closely to ensure that it covers all relevant aspects and provides enough confidence on the appropriate use of funds by recipients; and (v) other assistance to





build or maintain appropriate FM capacity and efficient internal control system. The FM Specialist will perform periodic field missions to review the FM performance and risk and provide adequate advice and recommendations.

31. Table 8 shows the shared FM implementation arrangements for the project and PRAPS-ML.

**Table 8: Shared financial management implementation arrangements for PRAPS-ML and PADEL-M**

FM function	Shared resource for implementation	PCU/PADEL-M	PCU/PRAPS-ML
Internal control system	Steering Committee	X	X
	Project Implementation Manual	X	X
	Administrative, Financial, and Accounting Procedures Manual	X	X
	Internal audit	X	
Budget	Work Plan and Budget	X	X
Funds flow	Designated Account	X	X
Accounting	Finance and Administration Specialist	X	
	Accountant	X	X
	Accountant Assistant	X	X
	Accounting software	X	
Audit	External auditor	X	X

### C. Procurement

32. Procurement arrangements for the project have been designed considering the findings of the national procurement system review and the procurement performance of PRAPS-ML. The Procurement Strategy for Development is presented in Table 9. The procurement arrangements have been finalized with the PPSD prepared by the Borrower.

**Table 9: Summary of the Procurement Strategy for Development**

Contracts Title, Description and Category	Estimated cost (US\$) and risk rating	Bank oversight	Procurement approach/ competition	Selection methods	Evaluation method
<b>Goods</b>					
Lyophilizer for the LCV	1,600,000 Substantial risk	Post	National/Open	Request for Bids	Qualification Criteria: most advantageous bid
Poultry vaccination equipment	88,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Motorcycles	397,000 Low risk	Post	National/Open	Request for Bids	Qualification Criteria: most advantageous bid
Equipment for "cercles" outside PRAPS zone (27 freezers, 108 ice boxes, 27 containers, 150 syringes + needles)	61,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Smartphones	24,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Cold chamber for LCV	70,000	Post	National/Open	Request for Quotations	Qualification Criteria: most



	Low risk				advantageous quotation
Autoclaves	35,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Incinerators	35,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Control kits and sampling material	74,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Vehicles	1,000,000 Low risk	Post	National/Open	Request for Bids	Qualification Criteria: most advantageous bid
50-liter storage containers for GT 20 semen and liquified nitrogen	7,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Insemination kits	44,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Computer and office equipment	322,000 Low risk	Post	National/Open	Request for Bids	Qualification Criteria: most advantageous bid
Equipment for gestation diagnostic	35,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Liquified nitrogen for semen conservation and supply of private centers	53,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Animal identification and registration equipment	79,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Veterinary kits (public, VTMS)	35,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Communication equipment	11,000 Low risk	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Works					
UCP HQs	158,000	Post	National/Open	Request for Quotations	Qualification Criteria: most advantageous quotation
Consulting Services					
Study of TB/brucellosis prevalence and its incidence on control strategy, and design of an action plan	35,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Preparation and diffusion of guides on good practices for fish production, processing, conservation, and packaging	26,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Audit of professional organizations reference situation	70,000 Low risk	Post	National/Open	Consultant's Qualification Based Selection	Rated criteria
Preparation of competitiveness plans	53,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Update of marketing studies for animal products	70,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
International TA for training of technical staff	58,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria



and quality control of PPs					
Base study on risk and vulnerability analysis for livestock and aquaculture	18,000 Low risk	Post	National/Open	Consultant's Qualification Based Selection	Rated criteria (most advantageous proposal)
Manual for crisis prevention and management (incl. validation)	18,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Emergency Contingence Plan and Procurement Plan (incl. validation)	18,000/ Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Communication plan	14,000 Low risk	Post	National/Open	Consultant's Qualification Based Selection	Rated criteria
Project logo	9,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Gender action plan	18,000/ Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
MEP staff training program	18,000/ Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Architecture and technical studies for the building of PCU-HQ	9,000/ Low risk	Post	National/Open	Consultant's Qualification Based Selection	Rated criteria
Baseline for results framework indicators	35,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Technical studies (resources for miscellaneous requests)	53,000 Low risk	Post	National/Open	Consultant's Qualification Based Selection	Rated criteria
TA (including to the CPS SDR)	35,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria
Project implementation manuals (financial and Admin. procedures, M&E, technical implementation, management of PPs and MPs, crisis management)	88,000 Low risk	Post	National/Open	Selection of Individual Consultants	Rated criteria

33. *Reference to the National Procurement Regulatory Framework.* A Country Procurement Assessment Review was carried out for Mali in 2007, and the national procurement system was evaluated using the OECD Development Assistance Committee methodology in September 2011, with European Union funding. The assessment of procurement regulations found that procurement principles and most procurement procedures needed to be strengthened. The recommended actions included strengthening the legislative and regulatory framework, strengthening institutional and management capacity, and reinforcing the integrity and transparency of procurement.

34. In this regard, the government has taken several steps. It adopted an action plan based on the findings of the Country Procurement Assessment Review, set up a new legal and regulatory framework for procurement under the new Procurement Code, and issued procurement regulations and standard



bidding documents. It also created a regulatory body for public procurement and established procurement units in the regions and technical ministries, including the Ministry of Finance.

35. In 2013, under the initiative of the WAEMU Commission, the World Bank funded a study of budget execution to determine how to increase development impact. Based on data suggesting that a significant part of the capital investment budgets of WAEMU Member States are underspent, the study provided a comprehensive review of the systems, processes, and practices used by Finance and Procurement Divisions to manage capital expenditure and identified practical recommendations for countries to enhance levels of budget execution. The country report for Mali recommended a series of actions to reduce huge delays in procurement and improve value for money. The action plan of this study was approved at the regional level in February 2014 at the WAEMU Experts Committee meeting in Burkina Faso. Mali had implemented some of the measures of the action plan before its approval by the Council of Ministers of WAEMU in June 2014, in Dakar.

36. A Prime Ministerial Decree (Decree No. 2014-0256/PM-RM) passed on April 10, 2014 determines which authorities are in charge of concluding and approving contracts and raises the threshold for concluding and approving contracts by all authorities. This decree in theory should help to reduce the procurement cycle for a number of contracts. The ministerial decree signed on April 25, 2014, confirmed the new thresholds for concluding and approving contracts and also reduced the time limit for the different stages of the procurement cycle. More importantly, it has removed the double review by the government/donors for contracts subject to the prior review of donors (Decree No. 2014-1323/MEF-SG). These measures aim to reduce the procurement cycle and to boost budget execution.

37. The current regulation on Public Procurement in Mali is Decree No. 2015-0604 /P-RM dated September 25, 2015, and its rules for applying Decree No. 2015-3721/MEF-SG dated October 22, 2015. These new provisions: (i) retain the elimination of the double review by the government/donors for contracts subject to the prior review of donors; (ii) extend the scope of the code to all contracts regardless of the amount; and (iii) present new procurement methods.

38. The World Bank has assessed the country procurement regulation and found that the principles and most of the procedures are in compliance with World Bank standards for procurement. In general, the country's new procurement procedures do not conflict with the World Bank Guidelines, but in cases of conflict, the provisions of the World Bank prevail. However, for National Competitive Bidding procedures for goods and works to become acceptable to the World Bank, some special provisions will be required regarding advertisement, access for foreign bidders to participate, limitation of domestic preference, deadlines for submission of bids, the evaluation and contract award process, standard bidding documents, fraud and corruption clauses in bidding documents, inspection by the World Bank, and obstructive practices and debarment under the national system.

#### **Requirements for the Use of National Procedures**

39. National procedures will be acceptable to the World Bank subject to the implementation of the following provisions, as reflected in the Financing Agreement:

- Open advertising of the procurement opportunity at the national level.



- The procurement is open to eligible firms from any country.
- The Request for Bids/Request for Proposals document shall require bidders/proposers to present a signed acceptance at the time of bidding to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including without limitation the World Bank's right to sanction and its inspection and audit rights.
- Contracts with an appropriate allocation of responsibilities, risks, and liabilities.
- Publication of contract award information.
- Rights for the World Bank to review procurement documentation and activities.
- An effective complaints mechanism.
- Maintenance of records of the procurement process.

#### **Applicable Guidelines**

40. The procurement for goods, non-consulting, and consulting services for the project will be carried out in accordance with the procedures specified in the "World Bank Procurement Regulations for IPF Borrowers" dated July, 2016 ("Procurement Regulations") and the World Bank's Anti-Corruption Guidelines: "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants" (revised as of July 1, 2016), as well as the provisions stipulated in the Financing Agreement. All goods and non-consulting services will be procured in accordance with the requirements set forth or referred to in Section VI of the Procurement Regulations, "Approved Selection Methods: Goods, Works and Non-Consulting Services," and the consulting services will be procured in accordance with the requirements set forth or referred to in Section VII of the Procurement Regulations, "Approved Selection Methods: Consulting Services," the PPSD, and Procurement Plan approved by the World Bank.

41. *Procurement Plan.* A Procurement Plan for the first 18 months of project implementation has been prepared by the Borrower and approved by the Bank during negotiations. Through the course of project implementation, the Procurement Plan will be updated (at least annually), subject to the approval of the project team, to reflect implementation needs and improvements in institutional capacity. The Procurement Plan will be available in the project's database and a summary will be disclosed on the World Bank's external website following project approval. The recipient shall use the World Bank's online procurement planning and tracking tools to prepare, clear, and update its Procurements Plan and conduct all procurement transactions.

42. The procurement experience of the PCU of PRAPS-ML is appreciable but limited. In addition, the Procurement Specialist resigned in October, 2016 and has been replaced since. In the meantime, the Procurement Assistant was assisted by the Procurement Specialist of another Bank-funded project Implementation Unit through a Memorandum of Understanding. During the last implementation support mission carried out in November, 2017, the procurement risk was rated Substantial.

43. The overall procurement risk for the proposed project is considered Substantial. An action plan to mitigate the risks identified in the procurement assessment has been prepared, in consultation with the



Borrower (Table 10). With the implementation of the proposed measures of the action plan and the support of the World Bank team, the overall procurement risk will be rated Moderate.

**Table 10: Action plan for strengthening procurement capacity**

No.	Key Risks	Mitigation actions	By whom	By when
1	Lack of a procurement procedures manual based on “World Bank Procurement Regulations for IPF Borrowers” dated July, 2016	Develop a PIM of procedures with a section on procurement detailing all applicable procedures, instructions, and guidance for handling procurement, the standard bidding documents, and other standard procurement documents to be used. The PIM will outline the interaction between the project stakeholders responsible for procurement	PCU	No later than 3 months after Credit/Grant effectiveness
2	Lack of Procurement Specialist proficient in World Bank procedures	Hire a Procurement Specialist proficient in the World Bank procurement procedures for PADEL-M, on a competitive basis	PRAPS-ML/PCU	No later than 3 months after Credit/Grant effectiveness
3	The procurement team and technical staff involved in procurement processes have not mastered the World Bank’s new Procurement Framework and its tools	Train the procurement team (the Procurement Specialist and the Procurement Assistant), the technical experts, DFM staff, and the tender committee members in the Bank’s new Procurement Framework	PCU	No later than 3 months after Credit/Grant effectiveness
4	Delays in the implementation of some activities, linked to evaluation committee management and awarding of contracts	Closely monitor and exercise quality/control on all aspects of the procurement process, including evaluation, selection, and contract award in line with the provisions of the procurement manual	PCU	Throughout project implementation
5	Lack of a dedicated archiving room with a trained staff for its management	Provide adequate space and equipment for the procurement archive and set up an adequate filing system for project records to ensure easy retrieval of information/data according to Bank requirements for archiving	PCU	No later than 6 months after effectiveness
		Designate or recruit an officer to be responsible for data management		

44. *Procurement supervision.* In addition to the prior review and implementation support mission carried out by the World Bank, it is recommended that at least two missions be carried out each year, with one visit to the field to carry out post review of procurement actions.

45. *Post review procurement.* Post reviews can be done either by World Bank staff or consultants hired by the World Bank. They may also be carried out by third parties such as supreme audit institutions, procurement regulatory authorities, consultancy firms, NGOs, and others, according to procedures acceptable to the World Bank to ascertain compliance with procurement procedures as defined in the legal documents. The procurement post reviews should cover at least 10 percent of contracts across the World Bank portfolio that have not been prior reviewed in a financial year. The sampling is risk based and considers (i) the project procurement risk rating, with the riskier projects having a larger sample, and (ii) the contract risk rating, to ensure that riskier contracts constitute a higher proportion of the sample. Post reviews contribute to the overall procurement performance rating of the project based on the rating of



the post procurement review and provide a basis for updating the project procurement risk and the risk mitigation plan.

46. *Oversight and monitoring arrangements for procurement.* A PIM will be prepared based on experience with the PIM for PRAPS-ML and submitted to the Bank for review. It will define the project's internal organization and its implementation procedures. It will include, among other things, all relevant procedures for calling for bids, selecting consultants, and awarding contracts. The project monitoring arrangements for procurement will be specified. Detailed procurement documentation (namely, the PPSD) may be referenced as such and retained in the project files. The detailed 18-month Procurement Plan agreed with the Borrower has been uploaded on the World Bank website.

#### **D. Monitoring and Evaluation (M&E)**

##### **Objective**

47. M&E is essential for a results-based approach to program management. A key component of project design, M&E remains incorporated into all facets of the project cycle through its completion. The M&E system will enable the PADEL-M management team to clearly demonstrate to the key stakeholders whether the project is achieving the stated goal, outcomes, and outputs in accordance with the targeted timeframe. Therefore, the M&E system should provide the means to robustly analyze the relevant data and information and monitor the performance of the project in order to:

- Monitor the project outcome indicators as reflected in the Results Framework.
- Comprehensively track the implementation of the AWPB (inputs, activities, and outputs), using mainly the set of indicators (or milestones) outlined under each component and subcomponent at frequent intervals.
- Establish a process to alert PADEL-M managers to any problem in project implementation and provide the basis for making the necessary adjustments.
- Outline the flow of data and information from the project sites through the various stakeholders, both for the use of the general public and to inform decision-making.
- Provide a framework for accountability<sup>58</sup> for progress toward development objectives attributable to interventions and actions of the PCU of PADEL-M.
- Serve as a platform for communicating the project's results and the benefits generated for livestock keepers (including fish farmers).
- Meet the World Bank's routine reporting requirements—namely, the six-monthly progress report and the Implementation Status and Results report, which is publicly disclosed—and data and information requirements for the Mid-Term Review.

##### **Context and Capacity**

48. Fulfilling these M&E objectives in Mali is a daunting task for several reasons. Government capacity to plan, execute, monitor, and evaluate projects can often be weak. Signs of weak capacity include (but are

---

<sup>58</sup> Accountability in the results framework is against the short- and medium-term outcomes of the project. Accountability for the activities and outputs is captured in the ESMF.





not limited to) incomplete datasets, field-level data that are not validated, missing information, inconsistent reporting, and the delivery of data and information that are never subsequently reported or used in making decisions or formulating policy. Table 11 presents an assessment of M&E capacity in Mali.<sup>59</sup>

**Table 11: Assessment of M&E capacity in Mali**

Availability of key data	Routine data collection	Quality of data	Government capacity	Use of data and information
1	1	1	2	1

Note: Rating scale: 1 = lowest, 5 = highest.

### Design of results framework

49. The main instrument for M&E in PADEL-M is the results framework, which will be reported in the Implementation Status Reports. It consists of the PDO statement and is organized around five “SMART”<sup>60</sup> PDO-level indicators and eight SMART intermediate results area indicators, structured around the three components of the project. Core indicators of the World Bank are also included, such as the core indicator on farmers reached with agricultural assets or services and the core indicator on beneficiary satisfaction with services provided by the project. Indicators are disaggregated as necessary: by type of disease for the indicator on diseases (CBPP/PPR) and by sex (percent female) for the two core indicators on farmers reached with agricultural assets or services and on beneficiary satisfaction rate. All indicators have baselines and targets listed, as well as the data collection frequency, data sources, methodology for calculating baseline and progress values of indicators, and responsibilities for data collection. The PDO indicators are described in Table 12. To ensure the validity of the baseline data and targets, a baseline survey will be conducted during the first year of the project.

### M&E arrangements

50. M&E arrangements will pool some M&E functions and activities together with PRAPS-ML. The M&E Unit located with the PCUs for PRAPS-ML and PADEL-M will have responsibility for overall monitoring and evaluation of both PRAPS-ML and PADEL-M, including collection and processing of information necessary for tracking project results. All implementing entities will participate in data collection, compilation, analysis, and reporting on progress.

51. The project will support an efficient M&E system that will contribute to adequate strategic planning and monitoring of the project. An M&E Specialist will be responsible for all M&E activities of both PADEL-M and PRAPS-ML.<sup>61</sup> In particular, s/he will ensure that data and information are produced on time and are of sufficient and necessary quality.

52. The M&E Specialist will be supported by two M&E Assistants, one responsible for PADEL-M and the other for PRAPS-ML. A network of 11 M&E field experts will be set up to support the M&E activities of both PADEL-M and PRAPS-ML. The institutional arrangements for PADEL-M will allow both projects to

<sup>59</sup> Based on the M&E capacity assessment presented in the PRAPS project document.

<sup>60</sup> SMART: specific, measurable, achievable and attributable, relevant, and time-bound.

<sup>61</sup> The M&E Officer will be financed by PRAPS-ML.





cover the 11 administrative regions of Mali<sup>62</sup> and facilitate data collection (see Figure 4). Eight M&E Field Officers, covering seven regions and the district of Bamako, will work on PADEL-M and PRAPS-ML, while the remaining three M&E Officers,<sup>63</sup> covering three regions, will work on PRAPS-ML and PADEL-M. PADEL-M will use the same M&E software (TOMMONITORING) as PRAPS-ML. Moreover, an M&E mechanism will be set up to monitor emergency-response activities. Finally, the project will map all project beneficiaries, register their phone numbers, and set up a call center, thus enabling them to provide continuous feedback.

### **M&E activities**

53. M&E activities for PADEL-M will: (i) generate information on the project's progress and (ii) analyze and aggregate data generated at the national and local levels. The M&E Field Officers will collect data in each of the regions under their responsibility and produce regular monitoring reports. They will be under the direct supervision of the senior M&E Officer and based at the DRPIA.

54. The senior M&E Officer will be responsible for all M&E activities conducted under the project. This officer will be located in the PRAPS-ML and PADEL-M PCU. S/he will be responsible for the quality of the data produced and of the semi-annual and annual progress reports that will be submitted to the National Coordinator and the World Bank. The M&E Officer will also complete the project results framework.

55. The progress reports will not only track progress of the results framework indicators but also Key Performance Indicators, including input, output, and process indicators. Project baseline and end of project surveys will be conducted as part of the M&E.

---

<sup>62</sup> There are 10 regions and the district of Bamako.

<sup>63</sup> These three officers are already financed by PRAPS-ML. They will be based in Gao, Kayes, and Mopti.

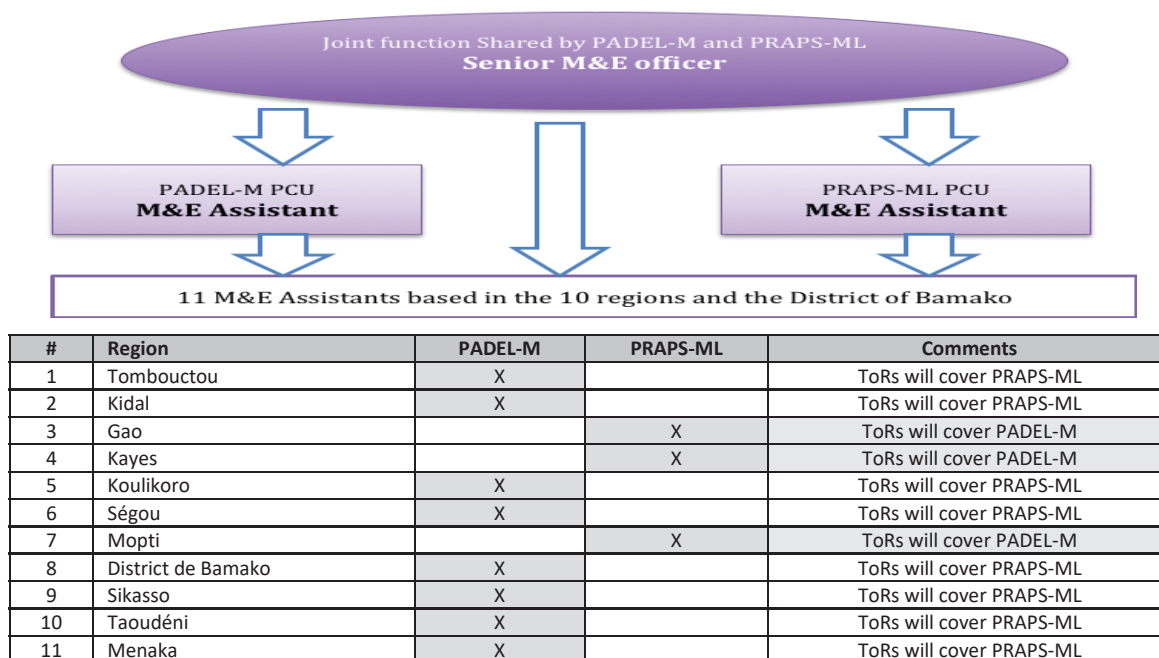


**Table 12: Description of Project Development Objective indicators**

Indicator name	Definition (indicator definition, etc.)
Indicator One: Percentage increase of yields produced by targeted beneficiaries among selected value chains	This indicator measures the percentage increase in yields produced by targeted beneficiaries among selected VCs. To measure this indicator, targeted beneficiaries will be beneficiaries receiving kits and relevant training under Component 1 and all the beneficiaries of funded PPs and MPs under Component 2. Selected VCs are: cattle/meat, milk, aviculture (eggs and broilers), and aquaculture. This indicator will be calculated by measuring the following subcategories: Number of eggs per hen per cycle; Liters of milk per cow per cycle; Weight productivity of cattle, i.e., live weight, which refers to the Average Daily Gain (ADG) (small ruminants); Weight productivity of cattle, i.e., live weight, which refers to the Average Daily Gain (ADG) (beef cattle); and Fresh fish weight per fish farm per year (unit of measurement: kilo or ton depending on the farm size).
Indicator Two: Incremental sales in targeted value chains (aggregated over all the targeted value chains)	This indicator measures the average increase in the value of sales in targeted VCs: cattle/meat, milk, aviculture (eggs and broilers), and aquaculture. For each targeted VC, the increase in the value of sales is calculated as the ratio of the value of incremental sales during the reporting year (the total value of sales by direct beneficiaries during the reporting year minus the total value of sales in the baseline year) and the value of sales at baseline. To measure this indicator, targeted beneficiaries will be beneficiaries receiving kits and relevant training under Component 1 and all the beneficiaries of funded PPs and MPs under Component 2.
Indicator Three: Time to reach 50% of the targeted beneficiaries as foreseen in the inclusive intervention plan	This indicator relates to efficiency (time to respond) and effectiveness (share of targeted beneficiaries reached) in response to a crisis or emergency. This is a medium-term indicator. Response time is defined from the day of the first alert from the early warning system (starting point has to be defined clearly) to the time 50% of the targeted beneficiaries as defined in the intervention plan have been reached (ending point has to be defined clearly).
Indicator Four: Farmers reached with assets and services (of which number of female and number of youth)	This indicator measures the number of livestock households and small livestock operators and enterprises in targeted areas who were provided with agricultural assets or services by the project. The baseline value for this indicator is zero. This is an outcome indicator. The percentage of female and youth (15–40 years old) reached with assets and services will be measured by taking into account beneficiaries receiving kits and relevant training under Component 1 and beneficiaries of activities supporting private investment under Component 2. This is a core indicator.
Indicator Five: Beneficiary satisfaction rate with services provided by the project for the livestock sector (% of which female and % of which youth)	This indicator measures the percentage of beneficiaries who expressed satisfaction with the services provided in the project areas based on formal surveys. It is expected that a survey to measure this indicator will be carried out twice throughout the project. The sample size should be representative of the total number of beneficiaries. This indicator requires two supplemental data: (1) number of targeted beneficiaries satisfied with the quality of services, and (2) targeted beneficiaries of services and assets. This is a core indicator. It will be measured at mid-term and at the end of the project.



**Figure 4: Monitoring and evaluation arrangements for PADEL-M and PRAPS-ML**



## Innovative mechanisms

56. The project will explore innovative mechanisms, such as Iterative Beneficiary Monitoring (IBM), third-party monitoring, and a Permanent Monitoring System (PMS).

57. *IBM*. On a regular basis, IBM identifies and quantifies distortions and shortcomings that place the achievement of project objectives at risk and reveal what is not working during implementation. Those distortions are brought to the attention of project leaders and project managers, who use them to improve the management of the project. Contrary to other systems that are heavy, lengthy, and expensive, the main advantage and innovation of the IBM system is that it is designed as a light, low-cost, short, rapid, and iterative (with high frequency) feedback loop that collects information directly from beneficiaries and produces short reports on challenges that can be addressed by the project team. By repeating data collection at regular intervals, it creates a positive and self-reinforcing cycle of improvement. It is a mechanism that helps improve project results gradually and quickly without the need for lengthy and expensive evaluations.

58. *Third-party monitoring*. This type of monitoring is conducted by parties external to a project's or program's direct beneficiary chain or management structure to assess whether intended outputs, outcomes, and impacts have been achieved by the project or program. Third parties are contracted to collect and verify monitoring data, especially in insecure contexts. Third-party monitoring provides an independent perspective on project performance and triangulates information/data. It can be conducted by CSOs, think tanks, academic institutions, media, or private firms.

59. *PMS*. After the signing of the Peace Agreement in May and June 2015, the World Bank, AfDB, IDB, and the United Nations development agencies in Mali were requested to conduct a joint assessment of the



economic situation in North Mali. In addition to that baseline study (undertaken in August 2015), the Government of Mali and its partners requested the implementation of a system to follow changes in the North to provide information on the impact of investments and other actions on the economic recovery and restoration of security. The PMS was implemented by the World Bank in January 2016 and has functioned since then as an observatory of the economic and security context, collecting data every month and producing monthly briefings and quarterly reports to inform stakeholders. Farmers are the principal focus of this system, given the large extent of losses they faced during the conflict in 2012. PADEL-M is one of the paramount projects being implemented to support farmers in Mali. It will be integrated with the PMS to assess any changes that it may induce in beneficiaries' lives. Questionnaires of the PMS will be updated to reflect objectives of PADEL-M, and the data collected by the system will be analyzed with reference to the project indicators.

## **E. Environmental Management**

### **Introduction**

60. PADEL-M is rated as a "Category B" project, given that its activities are not expected to have large-scale and irreversible adverse environmental risks and impacts. Project-supported activities could have certain site-specific adverse environmental and social risks impacts, however, and the project triggers four safeguard policies: OP/BP4.01 (Environmental Assessment), OP/BP4.09 (Pest Management), OP/BP4.11 (Physical Cultural Resources), and OP/BP4.36 (Forests).

61. *OP/BP4.01: Environmental Assessment.* This policy is triggered because Components 1 and 2 of PADEL-M finance activities that potentially entail adverse environmental risks and impacts. The draft ESMF prepared by the Borrower describes procedures and processes for preparing and disclosing site-specific safeguard instruments—an ESIA, including an ESMP, as required—as soon as the exact locations and scope of project activities are known. Any specific ESIA, including the corresponding ESMP, prepared in accordance with the screening results, will be approved in consultation with all the stakeholders before the corresponding activity starts. The ESMF will cover such issues as: (i) hygiene and safety conditions; (ii) safe handling and disposal of veterinary medical wastes and management of wastes such as manure; and (iii) the emergency response to outbreaks of animal disease (if a large number of animals needs to be destroyed as part of the emergency response program, the project should consider taking necessary measures). The ESMF also describes the institutional arrangements for implementing safeguards.

62. *OP/BP4.09: Pest Management.* This policy is triggered because the project will continue to support scaling up and/or intensification of livestock production activities. Project beneficiaries are likely to adopt integrated pest management practices that may involve the increased use of chemical pesticides, which could have negative environmental and health impacts. The Borrower addresses OP/BP4.09 requirements by integrating a specific section in the ESMF based on the existing Integrated Pest and Pesticide Management Plan (IPMP) developed for PRAPS (P126576). The IPMP section includes specific actions that will reduce the exposure of livestock-rearing communities to pesticides used in livestock production systems.

63. *OP/BP4.11: Physical Cultural Resources.* The proposed project may involve excavations and movement of earth for community facilities. The ESMF provides instructions for handling "chance finds" during the implementation of project activities. It clearly specifies the procedures required for the



identification of cultural property, its protection from theft, and the treatment of discovered artifacts. It also includes standard bidding documents.

64. *OP/BP4.36: Forests.* Afforestation guidelines and measures proposed in the ESMF will be followed to avoid threats to natural forests. As noted in the ESMF, project activities may involve tree cutting, in which case compensatory afforestation activities are envisaged.

### **Safeguards Screening and Mitigation**

65. The ESMF for this project aims to ensure that due diligence is taken to avoid causing harm or exacerbating social tensions and to ensure consistent treatment of social and environmental issues by the Government of Mali and service providers. The ESMF provides guidelines for screening project-supported activities for their likely social and environmental adverse risks and impacts, identifying documentation and preparation requirements, and piloting the investments.

66. In addition to increased risks of insecurity due to the presence of terrorist groups, the ESMF has identified several other potential risks and negative impacts, including the risk of soil pollution by liquid and solid waste from construction sites or by accidental spills involving oils, fuels, or other pollutants; decreased water quality due to pollution in construction sites; dust and smoke generated by site work or processing activities; the risk of water pollution by liquid and solid waste from construction sites or by accidental spills; the cutting of trees and destruction of land cover; diseases and nuisance related to dust and smoke; the risk of accidents during civils works; the risk of expropriation in case of installation on private land; the risk of increased social conflict; and the risk of an increase in HIV/AIDS.

67. The relevant mitigation measures were proposed and will be implemented during the project life cycle. The safeguard screening and mitigation processes will be detailed in the PIM and will include:

- A list of negative characteristics rendering a proposed activity ineligible for support.
- Steps for screening potential environmental and social risks and impacts, mitigation measures, and implementation procedures.
- A proposed checklist of likely environmental and social impacts to be filled out for each project activity.
- Relevant elements of the codes of practice for the prevention and mitigation of potential environmental impacts.
- Sample environmental safeguard procedures for inclusion in the contractor's contracts.
- Guidelines for the preparation of ESMPs.

### **Responsibilities for Safeguard Screening and Mitigation**

68. Despite the fact that several stakeholders will be involved in implementing the project, including the Ministry of Livestock and Fisheries, the main responsibility for safeguard screening and mitigation will be vested with the PCU Environmental Specialist. DNACPN will ensure that environmental and social safeguards are properly addressed during project implementation. All project activities will be systematically subject to safeguards screening. Screening will provide the basis for deciding which safeguard instrument is relevant for the environmental and social risks and impacts related to the project and for specifying the attendant mitigation measures.



### **Alignment between Technical Feasibility Studies and Site-specific Safeguards Developed by Consultants**

69. The consultants charged with completing technical feasibility studies will work closely with the consultants charged with preparing site-specific environmental safeguard instruments. The choice of technical alternatives, including the investment sites, will take into account specific constraints and general considerations presented in the ESMF and RPF, which have potential repercussions for the project's technical and environmental feasibility and the cost of implementation. The consultant completing the technical feasibility studies will propose options on the basis of defined criteria. The consultants in charge of preparing specific safeguard instruments will analyze these options and rank the options to be considered from best to worst.

### **Capacity Building and Monitoring of Safeguard Framework Implementation**

70. There is evidence that the Borrower, despite previous experience with World Bank environmental safeguard policies, has limited capacity for satisfactory implementation of safeguard instruments. The project will certainly rely on expertise developed within the country through past and current projects. If needed, however, it may recruit consultants to ensure that safeguards are addressed properly during project implementation. As part of the capacity building to be provided for implementation of the proposed operation, the safeguards specialists and relevant staff of the concerned ministries, as well as service providers, will receive practical training in the application of the ESMF. During supervision of these activities, the World Bank will assess the implementation of the relevant safeguard instruments (ESMF, ESMPs). During implementation, attention will also be given to conflict resolution mechanisms for populations affected by the project.

### **Consultation and Disclosure**

71. During preparation of the ESMF, almost 100 persons were consulted in Kayes, Koulikoro, Sikasso, Ségou, and Mopti, respectively, in July–August 2017. After being cleared by the World Bank, the ESMF was disclosed within the country, in the sector ministries, in the project areas, and on the World Bank website on October 24, 2017. Systematic consultation with the main stakeholders will occur throughout the project life cycle, and all relevant site-specific safeguard instruments, once approved, will be disclosed through the same channels.

72. The implementing agencies will initiate the consultations as early as possible. To ensure that the consultations are meaningful, relevant material will be provided in a timely manner, in a form and language(s) that the group(s) being consulted find acceptable and accessible. When the studies are completed, the implementing agencies will provide these groups with a summary of the main conclusions of the studies. All safeguard instruments will be available to all relevant stakeholders, including public agencies involved in project implementation, development partners, NGOs, and of course the concerned communities. They will be disclosed within the country and made available at the World Bank website.



### **Implementation Support and Periodic Reporting**

73. The World Bank safeguards team will provide regular guidance during support missions. The team will assess progress on environmental and social safeguards, achievement of overall objectives, as well as the role of the different partners, with a view to reorienting the project, if necessary. The PCU will periodically prepare (at least every six months) a safeguard implementation report as described in the PIM.

### **F. Social Management**

74. The project will support improvements in livestock health and productivity and generate increased employment and income for beneficiaries in the targeted project areas. These interventions are expected to deliver significant social benefits and foster long-lasting, positive impacts on the livelihoods of the populations in targeted areas. The preparation of safeguard instruments and the design of the proposed project activities were informed by results of the social and environmental audit conducted for the PCDA before it closed, and they were refined in light of the results of the socioeconomic analyses carried out during project preparation.

### **Resettlement**

75. Because no indigenous peoples live in the project area, the project does not trigger OP4.10, but because the project is Category B, it triggers the Involuntary Resettlement Safeguard Policy (OP4.12). Because project intervention areas and footprint details are unknown at this juncture, the project will adopt a framework approach to handle any likely social safeguards risks and adverse impacts. As part of this approach, an ESMF and RPF have been prepared by the Borrower, amply consulted upon, and publicly disclosed after World Bank approval, as indicated previously. Their preparation is justified because the project could conceivably have some kind of adverse social impact on the human population in general and vulnerable social groups in particular; nevertheless, any such impacts are considered likely to be limited, small in scale, mostly site-specific, and reversible. There is a risk that certain areas will experience an influx of workers as a result of the high labor demand generated by some activities. The proposed activities are not expected to create any major resettlement issues; they may cause limited temporary displacement but rarely permanent resettlement or relocation of dwellings. The precise characteristics of the PPs and MPs supported under Component 2 are not yet known, but any negative social impacts of the related activities are expected to be site-specific and localized and will be mitigated to satisfaction. PPs and MPs will be selected based on strict eligibility and other selection criteria, and feasibility studies will be required to inform the selection process. The feasibility studies will include a social assessment to identify potential constraints and to design measures to mitigate potential adverse impacts. All PP and MP sites will be screened for involuntary resettlement, based on the RPF, and special social impact assessments and RAPs may be prepared as needed in consultation with affected people.

### **Awareness Campaigns**

76. The implementation of many project activities will require behavioral changes, notably changes in attitudes and beliefs regarding animal husbandry and health practices. Public awareness campaigns will be financed to inform and educate producers and other VC actors about social issues in the livestock sector and about World Bank social safeguard procedures. The communication materials and formats for these campaigns will be culturally relevant and understandable for the beneficiaries, and they will promote the inclusion of women, youth, and other vulnerable groups in project activities.





### **Citizen Engagement**

77. The design, preparation, and implementation of the proposed project activities are based on continuing citizen engagement and stakeholder consultation and participation throughout the project cycle. Three main approaches will be used. The first is collaboration. Representatives of CSOs on the Steering Committee will voice beneficiaries' concerns and participate in the decision-making process regarding project implementation activities. The second is collecting, recording, and reporting on inputs from citizens. During supervision missions and evaluations of the project's achievements, focus group discussions and beneficiary satisfaction surveys will gather feedback periodically from beneficiaries on project implementation (its effectiveness, inclusiveness, quality, delivery, and targeting); this information will be used to improve implementation and address issues raised by beneficiaries to obtain better results moving forward. The third approach is citizen-led monitoring. CSOs and communities will be involved in Bank supervision missions as well as the joint evaluation of project results upon completion of the project. Recurrent consultations with civil society and direct beneficiaries will be part of the project M&E strategy. As noted, the preparation and implementation of safeguard instruments has been and will be part of the consultation process. Citizen engagement and beneficiary feedback will be monitored through the measurement of beneficiaries' satisfaction in relation to project interventions.





### ANNEX 3: IMPLEMENTATION SUPPORT PLAN

#### Mali Livestock Sector Development Support Project

##### A. Strategy and Approach for Implementation Support

1. The strategy for supporting project implementation will focus on successfully mitigating the risks identified at various levels and supporting the risk management efforts proposed in the SORT. The approach entails close monitoring of the implementation of the project's technical design, as well as governance, fiduciary, and safeguard matters. It will consist of: (i) implementation support missions, carried out jointly with FAO as needed for technical support, and (ii) TA in areas of weakness and where new approaches/procedures have been introduced.

2. *Strategy to support Implementation.* One of the biggest implementation challenges identified is that MEP's overall capacity is weak. To respond to this challenge, and to ensure that project resources are being used effectively to achieve the PDO, the supervision strategy will be to use a number of instruments to review progress and respond to implementation issues, including:

- a) *Implementation support missions.* The World Bank Task Team will conduct semi-annual review and implementation support missions to review project implementation performance and progress toward the achievement of the PDO. Given the overall project design and scope, a multidisciplinary team comprising technical specialists, along with fiduciary, environmental, social, and operations specialists, will be needed to support the government in implementing the project. Support from technical partners such as FAO will be sought when needed. The first implementation support mission will take place as soon as possible after IDA Credit/Grant effectiveness to provide startup support through direct and timely feedback on the quality, soundness, and acceptability of implementation plans.
- b) *Mid-Term Review.* A Mid-Term Review will be carried out mid-way in the implementation phase, at the end of PY3. It will include a comprehensive assessment of progress in achieving the project objectives laid out in the results framework. The Mid-term Review will also serve as a platform for revisiting design issues that may require adjustment to ensure satisfactory achievement of the project's objective.
- c) *Other reviews.* Each year, the Bank and Ministry of Finance will consider the need for additional analytical, advisory, and knowledge-sharing activities and/or third-party reviews. Third-party reviews will be especially useful for following up on project activities in areas affected by conflict. Such reviews will be planned over and above the semi-annual implementation support missions.
- d) *Implementation completion.* At the close of the project, the Bank will carry out an implementation completion review to assess the success of the project and draw lessons from its implementation.

3. *Objective of implementation support missions.* The implementation support and oversight missions will have the combined aim of reviewing the quality of implementation, providing solutions to implementation problems, and assessing the likelihood of achieving the PDO. More specifically, they will: (i) review implementation progress by component, including institutional development aspects; (ii) provide solutions to implementation problems as they arise; (iii) review with the PCU the project action



plan and disbursement programs for the next six months; (iv) review the project's fiduciary aspects, including disbursement and procurement; (v) verify compliance of project activities with the Bank's environmental and social safeguard policies; (vi) determine progress toward the PDO against targets in the results framework and assess the quality of implementation by reviewing case studies and results of surveys to measure results indicators; and (vii) review the quality of capacity-building activities, which are crucial to implementing the project effectively. The missions will combine some field visits, field-based focus group discussions, interactive workshops with stakeholders for feedback, and regional and national workshops to highlight implementation issues, pick up lessons emerging from implementation, and share mission recommendations, including agreements on actions moving forward. Missions will also review quarterly/annual reports and various studies.

4. *Technical Assistance.* Implementation support will include technical support from the Bank, FAO, and possibly other bilateral/multilateral agencies for critical aspects of the project, to ensure proper FM and procurement, as well as to monitor social and environmental safeguards. The objective of the technical support would be to help the project teams to internalize good practices and remove implementation bottlenecks as they are identified during implementation support missions. TA will include training workshops to develop core resource teams within implementing units and project teams, helping to finalize manuals, and reviewing and advising on ToRs for required studies and technical support missions.

## **B. Implementation Support Plan**

5. *Technical support.* Some investments planned under the project are relatively complex from a technical standpoint, especially in terms of ensuring that the activities to be funded actually result in the expected efficiency improvements. In addition to the Bank's core supervision team, the FAO Investment Center, OIE, as well as a number of consultants may be mobilized periodically to provide TA to implementing agencies in the form of hands-on training and mentoring.

6. *Focus of support.* The first two years of implementation will see more technical support. Thereafter, the focus will shift to more routine monitoring of progress, troubleshooting, and assessments based on the results framework. The support missions will be complemented by regular short visits by individual specialists to follow up on specific thematic issues as needed.

7. *Financial support.* The project Financial Management Specialist, based in the country office, will review the FM systems, including their continued adequacy; evaluate the quality of the budgets and implementing agencies' adherence to these budgets; review the cycle of transaction recording through to final report generation; evaluate the internal audit function; review IFRs and/or annual Financial Statements; follow up on the advances to the DA; follow up on both internal and external audit reports; and periodically assess the project's compliance with the FM manual as well as the Financial Agreement. Table 13 summarizes the FM implementation support plan.

8. *Procurement support.* On the procurement front, the Bank will provide implementation support to the client through a combination of prior and post reviews, procurement training to project staff and relevant implementing agencies, and periodic assessment of the project's compliance with the procurement manual. Implementation support missions will be geared toward: (i) reviewing procurement documents; (ii) providing detailed guidance on the Bank's Procurement Guidelines; and (iii) monitoring procurement progress against the detailed Procurement Plan. Based on the recommendations of the



fiduciary assessments of the Implementing Agencies, and in addition to the prior review supervision to be carried out from the Bank office, the semi-annual supervision missions will include field visits, of which at least one mission will involve post review of procurement activities.

**Table 13: Financial management implementation support plan**

FM activity	Frequency
<i>Desk reviews</i>	
IFR review	Quarterly
Audit report review of the program	Annually
Review of other relevant information, such as interim internal control systems reports	Continuous as they become available
<i>On-site visits</i>	
Review of overall operation of the FM system (implementation support mission)	One per year
Monitoring of actions taken on issues, highlighted in audit reports, auditors' management letters, internal audit, and other reports	As needed
Transaction reviews	As needed
<i>Capacity-building support</i>	
FM training sessions	During implementation and as and when needed

9. *Safeguards.* The Bank specialists in social and environmental safeguards based in Bamako will have responsibility for supervising safeguard activities. They will conduct supervision of the project's safeguard activities at least twice a year, participate in regional meetings to discuss findings, and draft action plans to improve implementation. OP4.12 is triggered because the project will finance activities in Subcomponents 1.2, 2.1, and 2.3 which can lead to adverse social risks and impacts. The RPF developed by the Borrower will be the basis for reorienting activities during implementation and for the development of site-specific RAPs to mitigate social impacts. Women and youth will be specifically taken into account in the project, as evidenced by project activities specifically intended for their benefit. To minimize conflict and increase social inclusion, the project will follow citizen engagement guidance and promote transparency throughout implementation.

10. *Main focus of implementation support.* Table 14 summarizes the main focus of implementation support during the project's implementation period. Table 15 highlights the mix of skills required to support implementation of the proposed project.

**Table 14: Main implementation support activities**

Time	Focus	Skills needed
First 12 months	<ul style="list-style-type: none"> <li>Project startup</li> <li>Support to implementation activities (sensitization, council/community consultations and planning, capacity building, strengthening implementation capacity, including M&amp;E)</li> <li>Guidance on applying safeguard instruments</li> <li>Development of impact evaluation methodology, and oversight of baseline survey</li> <li>Procurement, FM, M&amp;E, and safeguard training of staff at all levels</li> <li>Establishing coordination mechanisms with complementary projects (PRAPS-ML, WAAPP-ML, PACAM)</li> <li>Support to prepare CERC manual</li> </ul>	<ul style="list-style-type: none"> <li>TTL+ operation officer + co-TTL</li> <li>Livestock</li> <li>Market access</li> <li>Livestock crisis management</li> <li>Financial management</li> <li>Procurement</li> <li>Environment</li> <li>Facilitation of mechanisms for coordination/collaboration</li> <li>Communication</li> <li>M&amp;E</li> </ul>
12–48 months	<ul style="list-style-type: none"> <li>Monitoring implementation performance, including progress</li> <li>Review of annual work plans and disbursement schedule</li> <li>Review strength of councils and cooperatives, quality of participatory process, and capacity-building activities</li> </ul>	<ul style="list-style-type: none"> <li>TTL+ operation officer + co-TTL</li> <li>Livestock</li> <li>Market access</li> <li>Livestock crisis management</li> </ul>



Time	Focus	Skills needed
	<ul style="list-style-type: none"> <li>Review quality of quarterly/annual reports, data, and various produced studies</li> <li>Assess quality of implementation process</li> <li>Assess quality of M&amp;E system (including quality of data collected)</li> <li>Review of audit reports and IFRs</li> <li>Review adequacy of the FM system and compliance with financial management covenants</li> <li>Assess quality of safeguards instruments and their application</li> </ul>	<ul style="list-style-type: none"> <li>Financial management</li> <li>Procurement</li> <li>Environment</li> <li>Facilitation of mechanisms for coordination/collaboration</li> <li>Communication</li> <li>M&amp;E</li> </ul>

**Table15: Skill-mix required to support implementation of the proposed project (per year)**

Skills needed	Staff weeks	Number of trips	Comments
Team Leader	15		CO based
Livestock Specialist (Co-TTL)	12	2	DC based
Value Chain Specialist	6	2	Consultant
Operations Officer	10		CO based
Procurement Specialist	6		CO based
Financial Management Specialist	6		CO based
Environmental Safeguard Specialist	6		CO based
Social Safeguard Specialist	6		CO based
Monitoring and Evaluation Specialist	6	2	Consultant
Communication Specialist	4		CO based
Gender Specialist	2	1	DC based
Conflict and Fragility Specialist	2	1	DC based

Note: CO (Country Office); DC (Washington, DC).

### C. Role of Development Partners in Implementation Support Plan

11. The project was prepared in close collaboration with other development partners, including FAO and bilateral donors. These partners will not finance any of the proposed activities, because they have their own complementary operations, but the PCU within MEP will ensure that collaboration and information sharing will occur systematically during implementation of the proposed project. Partners will also be invited to join implementation missions when and if they so desire. The PCU will encourage the establishment of a task force of development partners involved in the targeted areas, to meet on a regular basis to monitor the matrix of interventions and action plan.

12. The project has been designed to support critical activities that were identified in the targeted VCs and areas but are not supported by other partners. This flexible and pragmatic design will enable the project to build on initiatives supported by other partners (which focus on a complementary set of activities). In turn, this approach is expected to foster synergies and create a framework for more integrated livestock development, in line with the project's objectives and thematic emphasis. Table 16 provides additional detail on the development partners cooperating with the project and the roles they are expected to play.

**Table16: Role of development partners in PADEL-M**

Partner	Institution/country	Role
Major development partners involved in livestock, aquaculture, or natural resource management projects	Agence Française de Développement, SNV, Belgian Cooperation, USAID, Inter-American Development Bank, AfDB, EU, IFAD	-Ensure synergies and complementarities -Contribute to project supervision
Representatives of ILRI and the World Agroforestry Centre (ICRAF)	Consultative Group on International Agricultural Research (CGIAR)	-Provide support for technology transfer
Country representatives Director, Investment Center	FAO	-Contribute to project supervision -Ensure provision of skills mix to support quality of project implementation
Coordinators of Bank projects (PRAPS-ML, WAAPP, PACAM, and others)	World Bank Group	-Ensure synergies and complementarities -Contribute to project supervision



## **ANNEX 4: ECONOMIC AND FINANCIAL ANALYSIS**

### **Mali Livestock Sector Development Support Project**

1. This annex lays out the methodology, assumptions, and results of the economic and financial analysis carried out to assess the impact and viability of the proposed project. The aim is to identify, calculate, and compare project costs and benefits to assess the project's viability, first from the point of view of individual participants in the project (financial analysis) and then from the standpoint of the national economy as a whole (economic analysis). The methodology used is the cost-benefit analysis, which is based on the valuation in monetary terms of project costs and benefits. The approach adopted differs across activities supported by the project. For some activities and related investments, the scope, nature, costs, and potential benefits have already been identified (one example is Component 1, focusing on animal production services, particularly on improved animal health). Most of the benefit-generating activities in Component 2 will be demand-driven, however. Stylized PP/MP models developed for this analysis attempt to represent the wide range of likely investments in the targeted VCs that promoters might submit to the project for funding. Even so, results of these attempts to quantify the benefits that PPs and MPs might yield should be considered indicative and interpreted with caution.

#### **Project Development Impact and Economic Benefits**

2. The project will have tangible socioeconomic benefits that can be quantified either in monetary or physical terms, including: (i) increase in income of direct and indirect beneficiaries; (ii) creation of additional employment, both at the farm level and downstream in the VCs; (iii) reduction of the trade balance deficit through import substitution (eggs, milk, fish) and increased exports (cattle); and (iv) the increase in fiscal revenues resulting from increased turnover of agribusiness enterprises. Some of these benefits can be calculated accurately, but others can be estimated only roughly, such as those accruing from the implementation of PPs/MPs under Component 2. As noted, those activities remain to be defined by actors in the targeted VCs and cannot be identified with precision. The project will also have other less tangible benefits, such as increased capacity of POs, increased share of benefits accruing to producers, increased food security, reduced vulnerability to external shocks (notably climate change and food price volatility), and so on. These benefits are less amenable to quantification, although they might be considerable and may play a key role in reducing inequalities and improving social stability and shared prosperity. In other words, the economic and financial analysis presented here accounts only for tangible benefits, and its results are inevitably conservative.

#### **Financial Analysis**

3. The financial analysis assesses the project's impact on the financial situation of its key stakeholders. The analysis helps to clarify whether the targeted group will have sufficient incentives to participate in the project—in other words, that operating revenues will outstrip operating costs and that incremental benefits arising from investments are positive. This analysis is of paramount importance, since the targeted group must participate if the project is to achieve its objective. The financial analysis was done for PPs/MPs (as PAs or individual initiatives) in the following four targeted VCs: livestock/meat, milk, poultry farming, and fish farming. Two types of analyses have been performed: a profitability analysis to ensure that the return to investment is attractive, and a cash-flow analysis to ensure that promoters will not face liquidity constraints under the PP/MP financing plans.



4. *Methodology and assumptions.* The PADEL-M financial analysis has been carried out for project activities that lend themselves readily to quantification—specifically, activities mainly undertaken in Component 2. A wide array of activities may be promoted as PPs/MPs in the targeted VCs, making it practically impossible to predict precisely what the PPs will be or to account for all possible cases in the analysis. Based on the studies conducted in preparing the project and in view of the agribusinesses visited in the field during the design mission, four stylized PP/MP models have been developed to assess the project's financial viability: (i) cattle fattening, (ii) cow milk production, (iii) egg production, and (iv) fish farming. Consistent with the PP/MP categorization used in Subcomponent 2.3, four PP models of PAs have been prepared for each VC to account for differences in investment size, and one MP model per VC, as shown in Table 17.

**Table 17: Productive Partnership and Microproject models**

	Value chain	Business model	Investment cost (including working capital) CFAF million
PPs	Livestock/meat	Cattle fattening: 25 head	27
		Cattle fattening: 50 head	45
		Cattle fattening: 125 head	86
		Cattle fattening: 225 head	153
	Milk	Cow milk production - 10 dairy cows	27
		Cow milk production - 20 dairy cows	48
		Cow milk production - 40 dairy cows	79
		Cow milk production - 80 dairy cows	140
	Poultry farming	Egg production - 2 000 laying hens	24
		Egg production - 4 000 laying hens	41
		Egg production - 8 000 laying hens	74
		Egg production - 16 000 laying hens	138
	Fish farming	Floating cages: 6 cages of 6mx6mx3m	29
		Floating cages: 10 cages of 6mx6mx3m	48
		Fish ponds - 6 ponds of 20mx12mx1,2m	75
		Fish ponds - 10 ponds of 20mx12mx1,2m	141
MPs	Livestock/meat	Cattle fattening: 8 head	3.1
	Milk	Cow milk production - 2 dairy cows	3.1
	Poultry farming	Egg production - 400 laying hens	3.5
	Fish farming	Floating cages: 1 cage of 6mx3mx3m	2.6

Note: SP = PP = Productive Partnership; MP = Microproject.

5. The financial analysis has been conducted by laying out and projecting detailed farm budgets over a 15-year period, in line with the lifetime period of infrastructure to be constructed. The analysis is based on a comparison of the "with-project situation" to the "without-project situation." The production arising from PPs/MPs is assumed to be incremental to the reference situation. In the without-project situation, it is assumed that additional investments would not take place; therefore, there would be no incremental benefits or expenses. In the with-project situation, the project will support promoters by preparing and co-financing their business plans, strengthening their technical and management capacities, and facilitating their access to credit. In compliance with the accounting convention for farm investment





analysis, it is assumed that investment will take place at the end of the first year, which means that production would not be affected until the second year.<sup>64</sup>

6. Financial analysis is prepared at market prices (financial prices), which are the prices at which goods or services are actually traded. The analysis performed is based on recent prices collected during the project design mission in May 2017. All inputs and outputs are valued at their market prices to establish the financial accounts.

7. In the financial accounts prepared, the outflows comprise investments, incremental working capital requirements, operating expenses, and other recurrent costs. The investments are set in the first year and renewed during the analysis period according to their respective lifetimes. For the cattle fattening and milk production models, investments include barns, warehouses, keeper's lodging, security fence, boreholes, water tanks, motor pump sets, solar generators, straw cutters, and other small equipment. The milk production model includes, in addition, investments in dairy cows and milking machines. For the egg production model, investments comprise henhouses and other facilities, including boreholes, equipment, and furniture. The investment in the fish farming model consists of ponds, floating cages, boreholes, and small equipment.

8. The incremental working capital to finance inputs and pay for hired labor has been factored into the analysis because it is a real resource use. The amount of working capital is calculated so as to cover the operating costs for one production cycle for the cattle fattening model, fish farming, and milk production (respectively three, six, and twelve months). For the egg production model, the working capital covers a period of twelve months, given that actual egg production starts only at the end of the first semester (when chicks become mature). The incremental working capital is entered at the end of the preceding year because the resource should be on hand at the beginning of the cycle. At the end of the project analysis period, the incremental working capital is taken out of the project as part of the residual value. Thus including the incremental working capital in the accounts does not result in double counting.

9. Operating expenses consist of all recurrent expenditures incurred to produce an output. Goods, services, and labor expenditures are usually the main operating expenses. The key operating expenses for the cattle fattening model are the purchase cost of animals, feeds, labor, and veterinary services. The milk production model is similar to the cattle fattening model in terms of operating expenses, except that animal purchase is considered an investment. For the egg production model, the major operating expenses are feeds, chick purchase, labor, and veterinary services. In the fish farming model, the main operating expenses are feeds, fingerling purchase, water, and labor.

10. In addition, costs pertaining to interest charges and taxes have been accounted for in the calculations. Indeed, according to the financing rules planned for the PPs, local financial institutions will finance around 30 percent of the investments (including the working capital). The project will contribute around 60 percent and the beneficiaries will contribute 10 percent.

11. It should be noted that all models have taken into account mortality rates during transport and on the farm to avoid overestimating profitability. Calculations are made on an average basis, given that the number of animals varies throughout the year. Based on realistic assumptions for technical

---

<sup>64</sup> According to this convention, the discounting process used in discounted cash-flow analysis implicitly assumes that every transaction falls at the end of the accounting period.



parameters, the milk production model accounts for the demographic dynamics of herds: all male calves are sold at the age of one year and all female calves are kept for milk production.

12. Inflows comprise the sales of the product and byproducts and the total incremental working capital as a residual value in the last year of the analysis. The stream of total net benefits is computed by subtracting the total annual outflows from the total annual inflows. Next, the net benefits for the without-project results are subtracted from the benefit with the project to obtain the stream of incremental net benefits. The financial internal rate of return (FIRR) and the net present value (NPV) have been calculated on that basis to measure the return on all resources invested on the farm.

13. *Financial results.* As shown in Table 18, all models have good prospects for profitability that should make them quite attractive to small producers, other VC actors, and financial institutions. The FIRR ranges from 17 percent to 51 percent, far exceeding the interest rate charged by local financial institutions (12 percent, on average). The NPV is positive for all models, ranging from US\$ 54,000 to more than US\$ 700,000 for SPs/PPs. For MPs, the NPV ranges from US\$ 2,500 to US\$ 12,000.

14. The results of the financial analysis of these stylized PP/MP models should be regarded with caution, as they are based on assumptions that need to be tailored to the specific context of each production area. Therefore, rigorous, iterative, and participatory methodologies for the preparation and financial analysis of PPs/MPs (such as Rural Invest, developed by FAO) should be considered for the implementation of Component 2. Funding for training of trainers has been set aside for this purpose.

**Table 18: Financial results**

	Value chain	Business model	FIRR	NPV (12%) CFAF	NPV (12%) USD
PPs	Livestock/meat	Cattle fattening: 25 head	17.9%	8,844,656	15,517
		Cattle fattening: 50 head	24.2%	31,258,477	54,839
		Cattle fattening: 125 head	35.8%	121,882,456	213,829
		Cattle fattening: 225 head	37.4%	232,123,007	407,233
	Milk	Cow milk production - 10 dairy cows	21.6%	27,175,895	47,677
		Cow milk production - 20 dairy cows	25.5%	69,933,182	122,690
		Cow milk production - 40 dairy cows	32.5%	182,278,605	319,787
		Cow milk production - 80 dairy cows	37.0%	390,682,985	685,409
	Poultry farming	Egg production - 2 000 laying hens	29.3%	29,610,670	51,949
		Egg production - 4 000 laying hens	39.9%	84,077,594	147,505
		Egg production - 8 000 laying hens	46.9%	191,153,772	335,357
		Egg production - 16 000 laying hens	51.6%	409,448,547	718,331
	Fish farming	Floating cages: 6 cages of 6mx6mx3m	32.1%	33,495,598	58,764
		Floating cages: 10 cages of 6mx6mx3m	34.5%	62,009,943	108,789
		Fish ponds - 6 ponds of 20mx12mx1,2m	34.9%	103,705,528	181,940
		Fish ponds - 10 ponds of 20mx12mx1,2m	38.4%	228,773,821	401,358
MPs	Livestock/meat	Cattle fattening: 8 head	51.3%	7,247,253	12,714
	Milk	Cow milk production - 2 dairy cows	24.7%	5,449,385	9,560
	Poultry farming	Egg production - 400 laying hens	32.4%	5,413,916	9,498
	Fish farming	Floating cages: 1 cage of 6mx3mx3m	22.6%	1,470,497	2,580



## Economic Analysis

15. The economic analysis aims at assessing project viability from the standpoint of society as a whole (in other words, the overall national economy). It is based on the aggregation of individual incremental net benefits calculated through the models developed in the financial analysis, with a few adjustments highlighted below, and in accordance with the targets set in the logical framework.

16. *Methodology and assumptions.* Like financial analysis, economic analysis is predicated on comparison of the “with-project situation” and the “without-project situation” to measure the incremental benefits arising from the project. The methodology used is the cost-benefit analysis at shadow prices, which better approximate efficiency prices of goods and services for society as a whole, often referred to as “economic opportunity costs” or “social opportunity costs.” The analysis covers a period of 20 years, which is considered to be the lifespan of benefits arising from the project. The financial prices and the cost and benefit streams are converted into economic values by eliminating taxes and transfers (notably interest charges from credit in PP models).

17. The analysis is performed in domestic currency at domestic price levels. A shadow exchange rate of XOF 598 for US\$ 1 is used to reflect the opportunity cost of foreign exchange for Mali. That rate was calculated based on data from the World Bank (World Development Indicators) using to the following formula:

$$SER = OER \cdot \frac{[(M + Tm) + (X - Tx)]}{(M + X)}$$

Where: SER stands for the shadow exchange rate,  
OER stands for the official exchange rate,  
M stands for the value of imports,  
Tm stands for tariffs on imports,  
X stands for the value of exports,  
Tx stands for taxes on exports.

18. The economic costs for the project are generated with the Costab software, which deducts from the financial costs the amounts pertaining to taxes and allowances for price contingencies and applies the shadow exchange rate for conversion into local currency of the portion in foreign exchange. To avoid double counting, the amounts for investments taken into account in the financial models (Subcomponent 2.3) are deducted from the total project cost. The extra cost of providing advisory support to promoters (to be financed by the government after the project implementation period) has been included. This cost has been estimated at CFAF 100 million per year.

19. As discussed, the economic benefits accounted for in the calculation of economic profitability are those that are readily quantifiable, deriving from the implementation of PPs and MPs developed in the financial analysis. It is clear that the project will have substantial other benefits, stemming primarily from Component 1. Indeed, improved animal health services, particularly improved vaccination coverage against CBPP and PPR, will translate into reduced mortality and morbidity and thus into an increase in the size and value of the national bovine and small ruminant herds. These impacts cannot be modeled with sufficient accuracy to be considered here, however.

20. Overall, the project intends to support around 200 PPs and 600 MPs over six years. The demand-driven approach of the project makes it difficult to predict the number of PPs/MPs that will be funded in



each VC and the size of those investments. The breakdown used in the analysis is the one agreed with the national project preparation team and forms the basis for the detailed Component 2 cost tables. To be on the safe side, it is assumed that one-fourth (25 percent) of funded PPs/MPs will fail—that is, they will not generate any additional benefit.

21. The carbon footprint of the project, derived using the EX-ACT tool, shows that the project has a total mitigation potential of 1,777,385 tons of CO<sub>2</sub> equivalent (tCO<sub>2</sub>-eq), or 88,869 tCO<sub>2</sub>-eq per year (see Annex 5), which has been valued at US\$ 30 per ton on the basis of the World Bank guidelines on social carbon valuation in project design.

22. *Results.* Excluding costs of Component 1 and Subcomponent 3.1 (crisis response), for which no benefits have been accounted for, and taking into account 60 percent of the project coordination (Subcomponent 3.2) costs, the project would yield an EIRR of 16 percent and NPV of US\$ 31.4 million (at a 6 percent social discount rate),<sup>65</sup> assuming a quite substantial failure rate among the financed PPs/MPs. The project is therefore highly profitable from an economic standpoint. When all project costs are factored into the analysis (including costs of Component 1, Subcomponent 3.1, and all of Subcomponent 3.2), the EIRR is still be around 8 percent.

23. *Sensitivity analyses.* Sensitivity analyses tested two scenarios: (i) the base case, excluding Component 1 and Subcomponent 3.1 costs and taking into account 60 percent of the project coordination costs (relative weight of Component 2), and (ii) a variant taking into account all project costs.

24. *Base case.* This scenario considers only the net benefits derived from Component 2 (PPs/MPs) and those pertaining to the environmental impact, while taking into account Component 2 costs and 60 percent of Subcomponent 3.2 costs, as noted. The sensitivity analysis indicates a very strong resilience to increases in costs and reductions in benefits. The EIRR would be 12 percent if benefits were reduced by 30 percent and if costs increased by 50 percent. If benefits were to lag by two years, the EIRR would still be 13 percent. A summary of the sensitivity analysis for this base case is presented in Table 19.

**Table 19: Summary of sensitivity analysis (base case)**

	Base case	Increase in costs			Benefit increase		Reduction of benefits			Benefits lagged by	
		+10%	+20%	+50%	+10%	+20%	-10%	-20%	-30%	1 year	2 years
EIRR	16%	15%	14%	12%	17%	18%	15%	14%	12%	15%	13%
NPV (FCFA Million)	18,769	17,828	16,887	14,064	21,586	24,404	15,951	13,133	9,374	15,717	12,114
NPV (US\$ Million)	31.4	29.8	28.2	23.5	36.1	40.8	26.7	22.0	15.7	26.3	20.3

a/ excluding Components 1 and Subcomponent 3.1 (response to crises) costs

25. *Scenario with all project costs.* This scenario considers all project costs,<sup>66</sup> while only benefits from Component 2 and those pertaining to the environmental impact are accounted for. The EIRR is 8 percent and the NPV US\$ 11 million. Even under this very conservative scenario, the sensitivity analysis shows

<sup>65</sup> As recommended by the World Bank Chief Economist for project economic analysis (see Note published in January 2016).

<sup>66</sup> The costs include the impact of project investment lending on GHG emissions and carbon sequestration. See the assessment in Annex 5 of the project's net carbon-balance, defined as the net balance of CO<sub>2</sub> equivalent GHG emitted or sequestered as a result of project implementation compared to the without-project scenario.



good resilience to increases in costs and reduction in benefits (Table 20). The EIRR of 6 percent is equal to the value of the social discount rate—if benefits were reduced by 20 percent, or were to lag by two years.

**Table 20: Summary of sensitivity analysis (scenario with all project costs)**

Variant b/											
	Variant	Increase in costs			Benefit increase		Reduction of benefits			Benefits lagged by	
		+10%	+20%	+50%	+10%	+20%	-10%	-20%	-30%	1 year	2 years
EIRR	8%	8%	7%	5%	9%	10%	7%	6%	4%	7%	6%
NPV (FCFA Million)	6,629	4,475	2,320	-4,145	9,447	12,265	3,812	994	-3,979	3,578	-25
NPV (US\$ Million)	11	7	4	-7	16	21	6	2	-7	6	0

b/ taking into account all project costs.

26. *Physical output and risks.* The risk of generating a large supply responses that negatively affects producer prices and hence producer incomes is assessed to be low for the commodities targeted by the project. In fact, the interventions are expected to more than offset any potential negative effects of reduced retail prices on producer prices, because the project should lead to reduced transaction costs and increased value-added as a result of productivity gains and processing activities, increased output, improved quality and economies of scale (the latter also directly affect transaction costs), and the formation of direct linkages among producers and between producers and formal input suppliers, traders, and agribusinesses.

27. *Fiscal impact.* In the short term, the project's fiscal impact will be neutral, given that the government's contribution to project costs is limited (around US\$ 4.8 million over six years). In the medium to long term, however, the potential positive fiscal impact of the project might be substantial, mainly due to: (i) increased output, income, and employment, resulting in increased tax revenues, and (ii) multiplier effects due to increased economic activities in targeted production areas, resulting in sustained demand for goods and services, which is expected to generate additional income and employment effects.

### Rationale for Public Sector Provision/Financing

28. The project will address a number of market failures: (i) the inability of small-scale livestock producers and other VC actors to access investment financing and the inability of commercial banks and networks of microfinance institutions to provide medium-term lending and VC financing products adapted to their needs; (ii) the weak links between small-scale producers and formal, large-scale agribusinesses, traders, and input suppliers in the targeted VCs; and (iii) deficiencies in the improved breeds and animal production input markets, among others. The project also has a redistribution role, as it targets some VCs that have great potential for poverty reduction (notably poultry and small ruminants) and groups that are in many respects excluded from financial and commercial markets. The project also has a political dimension, in the sense that it fits seamlessly with the government policy agenda for transforming agriculture (including livestock and fisheries) into a sustainable and commercially oriented sector. Therefore public intervention is fully justified to promote VC platforms; establish and support productive partnerships between VC actors to overcome market barriers; support the modernization of selected (sedentary) livestock production, marketing, and processing systems, including access to improved technologies (improved genetic material, certified fodder seed, mechanization services, organized bulking and marketing and processing, product quality enhancement, and so on); kick-start and co-finance PPs through MGs combined with enhanced access to short--and-medium-term credit granted by PFIs; and support reforms and modernization of the livestock sector as well as key investment and adaptive



research in the targeted VCs. An IPF is an appropriate instrument to achieve the PDO and intermediate results.

### **Value Added of World Bank Support**

29. The project is well aligned with the priority themes of the current CAS and IFC's agribusiness strategy in sub-Saharan Africa. Ultimately, the project will contribute to the World Bank's ambitious twin goals of ending extreme poverty and promoting shared prosperity and growth.

30. These World Bank-centered arguments aside, the project has significant added value from the standpoint of the government and wider development community. Beyond financing, the added value arises mainly from the technical input of the Bank and FAO,<sup>67</sup> based on international experience with similar VC development projects and support to PAs; the introduction of an innovative financing mechanism mixing MGs and medium-term credit (an evolution from the "classic" productive community-driven development projects); support to raise the capacity of small-scale producers and VC actors during implementation through the training-of-trainers methodology (notably for the ex-ante preparation and financial analysis of PPs/MPs); and knowledge sharing and communication. This important support will complement and strengthen national sources of expertise and business advisory support services to small-scale livestock producers and their organizations, with the result that the project's development impact will increase in ways that go beyond what may be realized by exclusive reliance on the government's own institutions or existing national consulting firms.

31. Bank support also provides real opportunities for establishing public-private partnerships to support VC development, thanks to the Bank's convening power, which makes it possible to assemble VC actors, agribusinesses, and potential PFIs at the same table during project design.

---

<sup>67</sup> FAO actively participated in the technical design under the FAO/World Bank Cooperative Programme.



## **ANNEX 5: GREENHOUSE GAS ACCOUNTING**

### **Mali Livestock Sector Development Support Project**

#### **Corporate Mandate**

1. The World Bank has adopted, in its 2012 Environment Strategy, a corporate mandate to conduct GHG emissions accounting for investment lending in relevant sectors. The ex-ante quantification of GHG emissions is an important step in managing and ultimately reducing GHG emission, and it is becoming a common practice for many international financial institutions.

#### **Methodology**

2. To estimate the impact of agricultural investment lending on GHG emission and carbon sequestration, the World Bank has adopted the Ex-Ante Carbon-balance Tool (EX-ACT), developed by FAO in 2010. EX-ACT allows the assessment of a project's net carbon-balance, defined as the net balance of CO<sub>2</sub> equivalent GHG emitted or sequestered as a result of project implementation compared to a without-project scenario. EX-ACT estimates the carbon stock changes (emissions or sinks), expressed in equivalent tons of CO<sub>2</sub> per hectare and year.

#### **Project Boundary, Key Assumptions, and Data Sources**

3. Table 21 presents details of the with- and without- project scenarios. It is assumed that the numbers of cattle and poultry impacted by the project, as well the volume of aquaculture production, will change during project implementation. It is further assumed that the project will improve 2,000 hectares of moderately degraded grassland through the use of improved inputs and practices. The primary data source was the *Annuaire Statistique* 2014.

#### **Regional and Project Characteristics**

4. The project region, which is the entire national territory, has a tropical dry climate. The dominant soil type is High Activity Clay. The project implementation phase (5 years of actual implementation) will be succeeded by a capitalization phase, which is assumed to be 15 years. This 20-year implementation period is standard in the use of EX-ACT.

#### **Results**

5. The net carbon balance quantifies GHGs emitted or sequestered with the project compared to without the project. Results are summarized in Table 22. Over 20 years, the total carbon emission of the project is estimated at 718,067 tCO<sub>2</sub>-eq, or 35,903 tCO<sub>2</sub>-eq per year. It is important to note that although the bulk of these emissions comes from the increase in livestock numbers, the EX-ACT tool does not capture the projected increase in productivity (and thus decrease GHGs emitted per head of livestock) as a result of PADEL-M operations (see Table 23).





**Table 21: With- and without-project cattle and poultry count (in head per year) and aquaculture production (in tons per year)**

Category	Without PADEL-M	With PADEL-M	Key assumptions
	Head per year	Head per year	
Dairy cattle	159	4,917	a) Without project <ul style="list-style-type: none"> <li>10% of total cattle from PPs and MPs financed by PADEL-M (Component 2) to be raised by 2023 without project financing</li> </ul> b) With project <ul style="list-style-type: none"> <li>Component 1: 10% increase in herd size from improved vaccination</li> <li>Component 2: 45 PPs and 120 MPs to add 4,470 dairy cattle over the course of the project</li> </ul>
Other cattle	2,400	31,152	a) Without project <ul style="list-style-type: none"> <li>10% of total cattle from PPs (Component 2) to be raised by 2023 without project financing</li> </ul> b) With project <ul style="list-style-type: none"> <li>Component 1: 10% increase in herd size from improved vaccination</li> <li>Component 2: 75 PPs and 180 MPs to add 28,320 cattle over the course of the project</li> </ul>
Poultry	52,000	664,000	a) Without project <ul style="list-style-type: none"> <li>10% of total poultry from PPs to be raised by 2023 without project financing</li> </ul> b) With project <ul style="list-style-type: none"> <li>Component 2: 40 PPs and 180 MPs to add 664,000 poultry over the course of the project</li> </ul>
	<b>Tons per year</b>	<b>Tons per year</b>	
Aquaculture	271	3,010	a) Without project <ul style="list-style-type: none"> <li>10% of MP production projection for 2023 likely viable without any project financing. No production possibility likely in the without-project scenario for PPs.</li> </ul> b) With project <ul style="list-style-type: none"> <li>15 PPs and 120 MPs to produce 3,010 tons of fish produce by 2023 as a result of project financing</li> </ul>

**Table 22: Results of the ex-ante GHG analysis**

Project activities	Over the economic project lifetime (tCO <sub>2</sub> -eq)			Annual average (tCO <sub>2</sub> -eq/yr)		
	GHG emissions of "without project" scenario (1)	Gross emissions of "with project" scenario (2)	Net GHG emissions (2-1)	GHG emissions of "without project" scenario (3)	Gross emissions of "with project" scenario (4)	Net GHG emissions (4-3)
Grassland	0	-79,880	-79,880	0	-3,994	-3,994
Livestock and poultry	57,134	817,146	760,012	2,857	40,857	38,001
Aquaculture	3,753	41,887	37,934	188	2,084	1,897
<b>Total</b>	<b>60,887</b>	<b>778,953</b>	<b>718,067</b>	<b>3,044</b>	<b>38,948</b>	<b>35,903</b>

**Table 23: Increase in cattle yields**

	Without project	With project
Dairy cattle (kg/animal/yr)	110	180
Other cattle (kg/animal/yr)	113	135



## **ANNEX 6: SELECTED BIBLIOGRAPHIC REFERENCES**

### **Mali Livestock Sector Development Support Project**

- FAO. 2008. Mali Revue du Secteur Avicole.
- FAO. 2013. Politique de Développement Agricole (PDA) du Mali, <http://faolex.fao.org/docs/pdf/mli145852.pdf>, May.
- IMF. 2015. "Mali: Third Review under the Extended Credit Facility Arrangement: Request for Waiver of Performance Criteria, and for Modification of Performance Criteria." IMF Country Report No. 15/151. Washington, DC.
- MEP. 2010. Politique Nationale de Développement Durable de l'Élevage (2010-2025). September.
- MEP. 2013. Politique Nationale de la Pêche et de l'Aquaculture. December.
- MEP. 2016. Le Système National de Vulgarisation et d'Appui-Conseil en Elevage. April.
- OIE. 2009. Performance of Veterinary Services (PVS) – Gap Analysis, Mali.
- UNESCO. 2010. "Adult and Youth Literacy 1990–2015: Analysis for 41 Selected Countries."
- World Bank. Various years. World Development Indicators database.
- World Bank. 2005. Mali Agricultural Competitiveness and Diversification Project (Projet de Compétitivité et Diversification Agricoles–PCDA). Report No. 30326 – ML. June 6.
- World Bank. 2011. West Africa Agriculture Productivity Program. PAD. Report No. 58328-AFR. February 28.
- World Bank. 2014. "Strategies to Increase Agricultural Productivity and Improve Market Participation in Mali's Drylands: Evidence from LSMS-ISA 2014." Report P156684.
- World Bank. 2015. Regional Sahel Pastoralism Support Project. PAD. Report No. PAD1091. May 4.
- World Bank. 2015. "Priorities for Ending Poverty and Boosting Shared Prosperity: Mali Systematic Country Diagnostic." June.
- World Bank. 2015. Projet Régional d'Appui au Pastoralisme dans le Sahel (PRAPS-Mali). PAD. June.
- World Bank. 2016. Mali Rural Transport and Infrastructure Development Project. PAD. Report No. PAD1570. May 10.
- World Bank. 2016. Cameroon Livestock Development Project. PAD. Report No. PAD1664. September.
- World Bank. 2017. Burkina Faso Livestock Sector Development Project. PAD. Report No. PAD2313. May.
- Worldometers. <http://www.worldometers.info/world-population/mali-population>.



ANNEX 7: MAP

Mali Livestock Sector Development Support Project

