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Report No: PAD5422

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED CREDIT

IN THE AMOUNT OF EUR 326.3 MILLION
(US$350.0 MILLION EQUIVALENT)

TO THE

REPUBLIC OF NIGER

FOR A

LIVESTOCK AND AGRICULTURE MODERNIZATION PROJECT (LAMP)

AS PHASE 1 OF THE MULTI-PHASE PROGRAMMATIC APPROACH (MPA)
LIVESTOCK AND AGRICULTURE MODERNIZATION PROGRAM

WITH AN OVERALL FINANCING ENVELOPE OF US$1,000.0 MILLION EQUIVALENT

June 6, 2024

Agriculture and Food Global Practice
Western and Central Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2024)

Currency Unit =	CFA Franc (FCFA)
FCFA 612 =	US$1
US$1 =	EUR 0.93

FISCAL YEAR
January 1 - December 31

Regional Vice President:	Ousmane Diagana
Regional Director:	Chakib Jenane
Country Director:	Clara Ana Coutinho De Sousa
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ABBREVIATIONS AND ACRONYMS

ANFO	National Association of Onion Industry Professionals *(Association Nationale des Professionnels de la Filière Oignon)*
APCA	Agriculture Advisory Services Promotion Agency *(Agence de Promotion du Conseil Agricole)*
BCEAO	Central Bank of West African States *(Banque Centrale des États de l'Afrique de l'Ouest)*
CCDR	Country Climate and Development Report
CEGs	Credit Enhancement Grants
CERC	Contingent Emergency Response Component
CNRA	National Agricultural Research Council *(Conseil National de la Recherche Agronomique)*
CRI	Corporate Results Indicator
CPF	Country Partnership Framework
CSA	Climate-Smart Agriculture
ECOWAS	Economic Community of West African States
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESRS	Environmental and Social Review Summary
EIRR	Economic Internal Rate of Return
EIU	Economist Intelligence Unit
EU	European Union
FAO	Food and Agriculture Organization
FISAN	Food and Nutritional Security Investment Fund *(Fonds d'Investissement pour la Sécurité Alimentaire et Nutritionnelle)*
FLID	Farmer Led Irrigation Development
FOs	Farmer Organizations
FSRP	Food Systems Resilience Program
FUCOPRI	Federation of Rice Cooperative Unions *(Fédération des Unions des Coopératives de Producteurs de Riz)*
FUGPN	Federation of Unions of Farmers Groups of Niger (*Fédération des Unions de Groupements Paysans du Niger*)
FUMA	Federation of Maradi Farmers Unions (*Fédération des Unions de producteurs de Maradi*)
FUOPAN	Federation of Unions of Farmer-based Organisations in Niger *(Fédération des Unions des Organisations Professionnelles Agricoles du Niger)*
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoN	Government of Niger
GRS	Grievance Redress Service
HVA	High Value Agriculture
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
INRAN	National Institute of Agronomic Research of Niger *(Institut National de la Recherche Agronomique du Niger)*
IPF	Investment Project Financing
IPFN	Cowpea interprofessional Association *(Interprofession de la Filière Niébé)*

IPR	Implementation Progress Reports
IWRM	Integrated Water Resource Management
LMP	Labor Management Procedure
M&E	Monitoring and Evaluation
MFD	Maximizing Finance for Development
MIS	Management Information Systems
MOAL	Ministry of Agriculture and Livestock
MPA	Multi-Phase Programmatic Approach
NDC	Nationally Determined Contribution
NPLs	Nonperforming Loans
NPSC	National Project Steering Committee
NPV	Net Present Value
ONAHA	National Office for Large Scale Irrigation *(Office National des Aménagements Hydroagricole)*
PARIIS	Sahel Irrigation Initiative Support *Project (Projet d'Appui Régional à l'Initiative pour l'Irrigation au Sahel)*
PASEC	Climate-Smart Agriculture Support Project
PDES	Economic and Social Development Strategic Plan *(Plan de Development Economique et Social)*
PDO	Project Development Objective
PDN	Pressurized Distribution Networks
PFI	Participating Financial Institution
PIM	Project Implementation Manual
PLR	Performance and Learning Review
PMU	Project Management Unit
PPCG	Partial Portfolio Credit Guarantee
PRAPS	Regional Sahel Pastoralism Support Project *(Projet Régional d'Appui au Pastoralisme au Sahel)*
PRSP	Resilience Program for the Safeguard of the Nation *(Programme de Resilience pour la Sauvegarde de la Patrie*)
RECA	National Network of Chambers of Agriculture *(Réseau National des Chambres d'Agriculture)*
RCU	Regional Coordination Unit
SAHFI	Sahelian Financial Company *(Société Sahelienne de Financement)*
SCD	Systematic Country Diagnostic
SMEs	Small and Medium-sized Enterprises
SMIs	Small and Medium-sized Industries
SPS	Sanitary and Phytosanitary Standards
SRI	Systems for Rice Intensification
TA	Technical Assistance
USD	United States Dollar
WAEMU	West African Economic and Monetary Union
WUA	Water User Association

TABLE OF CONTENTS

DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Niger	Livestock and Agriculture Modernization Project (LAMP)		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P179276	Investment Project Financing (IPF)	Substantial	

Financing & Implementation Modalities

[✓] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[✓] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[✓] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternative Procurement Arrangements (APA)	[ ] Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date	Expected Program Closing Date
28-Jun-2024	28-Sept-2029	30-Jun-2036
Bank/IFC Collaboration	Joint Level	
Yes	Complementary or Interdependent project requiring active coordination	

MPA Program Development Objective

MPA FINANCING DATA (US$, Millions)

MPA Program Financing Envelope	1,000.00

Components

Component Name	Cost (US$)
Component 1: Building Resilient Agricultural Productive Capacity	250,000,000.00
Component 2: Improving Agriculture and Livestock Markets	30,000,000.00
Component 3: Facilitating Access to Finance	47,000,000.00
Component 4: Project Coordination and Institutional Strengthening	23,000,000.00
Component 5: Contingent Emergency Response Component	0.00

Organizations

Borrower:	Ministry of Economy and Finance
Implementing Agency:	Ministry of Agriculture and Livestock

MPA FINANCING DETAILS (US$, Millions)

MPA Financing Envelope:	1,000.00
of which Bank Financing (IBRD):	0.00
of which Bank Financing (IDA):	1,000.00
of which Other Financing sources:	0.00

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	Yes
Is this project Private Capital Enabling (PCE)?	Yes

SUMMARY

Total Operation Cost	**400.00**
Total Financing	**400.00**
of which IBRD/IDA	**350.00**

Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Development Association (IDA)	350.00
IDA Credit	350.00

Non-World Bank Group Financing

Commercial Financing	46.00
Unguaranteed Commercial Financing	46.00
Counterpart Funding	4.00
Borrower/Recipient	4.00

IDA Resources (US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
National Performance-Based Allocations (PBA)	350.00	0.00	0.00	0.00	350.00
Total	**350.00**	**0.00**	**0.00**	**0.00**	**350.00**

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	0.00	30.00	75.00	100.00	85.00	55.00	5.00
Cumulative	0.00	30.00	105.00	205.00	290.00	345.00	350.00

PRACTICE AREA(S)

Practice Area (Lead) | **Contributing Practice Areas**

Agriculture and Food	Water; Finance, Competitiveness and Innovation

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary Financial Management Risk rating from Specialist: Substantial as of 2024-05-16T16:23:45Z Procurement Risk rating from Specialist: Substantial as of 2024-05-17T00:00:00Z	Substantial
7. Environment and Social Environment Risk rating from Specialist: Substantial as of 2024-05-15T21:08:46Z Social Risk rating from Specialist: Substantial as of 2024-05-15T21:08:46Z	Substantial
8. Stakeholders	Moderate
9. Other	Substantial
10. Overall	Substantial
Overall MPA Program Risk	

POLICY 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

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description
Regional Coordination Units - Section I.A.1(b) of Schedule 2: No later than ninety (90) days after the Effective Date, or such later date as agreed by the Association, establish and thereafter maintain, throughout Project implementation, a Regional Coordination Unit ("RCU") in each Participating Region, with adequate resources, composition and mandate satisfactory to the Association, as set forth in the Project Implementation Manual
National Project Steering Committee - Section I.A.2 of Schedule 2: No later than ninety (90) days after the Effective Date, or such later date as agreed by the Association, the Recipient shall establish, and thereafter maintain, throughout Project implementation, a national Project steering Committee ("National Project Steering Committee")

Technical Committee - Section I.A.3 of Schedule 2: The Recipient shall, no later than ninety (90) days after the Effective Date, or such later date as agreed by the Association, establish and thereafter maintain, throughout the Project implementation, a technical committee, with composition, mandate and resources satisfactory to the Association, to be responsible for monitoring the implementation of the technical aspects of the Project, as further detailed in the PIM
Committee of Independent Experts - Section I.A.4 of Schedule 2: No later than ninety (90) days after months after the Effective Date, or such later date as agreed by the Association, the Recipient shall establish and thereafter maintain, throughout the Project implementation, a Committee of Independent Experts
Memorandum of Understanding - Section I.A.5 of Schedule 2: To facilitate the implementation of the Project, the Recipient, through the PMU shall, no later than thirty (30) days after the Effective Date, or such later date as agreed by the Association, enter into one or more Memorandum of Understanding(s) with each of the Recipient's agencies/entities with responsibility on the technical aspects of the Project under terms and conditions acceptable to the Association
SMP-Section I.F.2 of Schedule 2: No later than 90 (ninety) days after Effective Date, or such later date as agreed by the Association, the Recipient shall prepare, adopt, disclose, and implement a Security management Plan (SMP) for the Project.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	Section 4.01(a)	The Project management unit ("PMU") has been established and key staff have been appointed/recruited under terms of reference and in a manner acceptable to the Association.	IBRD/IDA
Effectiveness	Section 4.01 (b)	The Project Implementation Manual ("PIM") has been prepared and adopted in form and substance acceptable to the Association.	IBRD/IDA
Disbursement	Section III.B.1(b)	No withdrawal shall be made for payments under Category (2), unless and until all of the following conditions have been met in respect of said expenditures: (i) the FISAN Partnership Agreement has been signed under terms and conditions acceptable to the Association and is in	IBRD/IDA

		full force and effect; and (ii) the CEG Manual has been adopted by the Recipient and by the FISAN in form and substance acceptable to the Association.	
Disbursement	Section III.B.1 (c)	For payments under Category (3), unless and until all of the following conditions have been met in respect of said expenditures: (i) the SAHFI Subsidiary Agreement has been signed by the Recipient and the SAHFI SA under terms and conditions acceptable to the Association and is in full force and effect; (ii) the PPCG Manual has been adopted by the Recipient and by the SAHFI SA in form and substance acceptable to the Association; (iii) the SAHFI SA has established, adopted and disclosed an ESMS under terms and conditions acceptable to the Association; (iv) the SAHFI SA has selected and hired an environmental specialist and a social specialist, or an environmental and social specialist, with qualifications, experience and terms of reference acceptable to the Association; (v) the SAHFI SA has established a separate account for the PPCGF, and (vi) at least one (1) PPCG Agreement has	IBRD/IDA

		been executed under terms and conditions acceptable to the Association.	

I. STRATEGIC CONTEXT

A. Country Context

1. **With a Gross Domestic Product (GDP) per capita of US$654.3 (2022), Niger remains one of the poorest countries in the world.** Niger has one of the highest population growth rate in the world, with a population of 28 million (2024). Over 50 percent live in extreme poverty, of which 95 percent are in rural areas. There are significant gender disparities.[1] Niger's Human Development Index for 2021 was 0.4 — among the lowest ranking at 189 out of 191 countries. Niger also ranks at 155 out of 157 countries on the Human Capital Index, with 80 percent of the adult population being illiterate and life expectancy at birth estimated at about 62 years. With nearly half of the population (49 percent) under the age of 15 and the same proportion in the productive age group (15-64), Niger has an opportunity to build human capital and use it as an asset for economic growth.

2. **Niger's economic performance is highly volatile because of its high dependence on agriculture (accounting for 44.3 percent of GDP), which exhibits excessive variability due to climate change.** For instance, overall economic performance fell from 10.5 percent in 2012 to 1.4 percent in 2021 because of a slowdown in cereal production, before bouncing back up to 11.5 percent in 2022 largely due to improvements in agricultural performance. This economic volatility has a particularly negative impact on the poor. In addition, high international prices of energy, fertilizers, and food have disproportionately affected the poor by exacerbating the existing food insecurity.[2] However, with recent sanctions lifted and access to financing partially restored, GDP growth is estimated to rebound to 9.1 percent in 2024 (from 2.0 percent in 2023) and average 4.5 percent in 2025-26, boosted by large oil exports.

3. **The country's political context is characterized by instability, even though agriculture and livestock productivity have remained a constant priority across regime changes.** Since the July 2023 unconstitutional regime change, Niger is led by a military transition government. This led to economic sanctions, border closures and disruption in external financing flows for more than six months. In line with its Operational Policy on De Facto Governments (OP7.30), the World Bank Management conducted an assessment and decided that, as of April 10, 2024, all disbursements on existing operations and new financing could resume once Niger is current with its payments to the World Bank. The financial and economic sanctions imposed by the Economic Union of West-African States (ECOWAS) on Niger after the change in government, were lifted on February 24, 2024. The transition government has confirmed that increasing agriculture productivity remains a core development priority, as has been the case for all previous governments and as is consistently reflected in their respective strategies and development plans. Moreover, international partnerships and aid have been leveraged to bolster agricultural development, reflecting a continuous commitment across political administrations to address the sector's challenges. This enduring focus on agriculture underscores its vital role in fostering economic stability and social well-being in the country. Ensuring that the youth, women, and vulnerable groups are gainfully employed through supporting agriculture (crop and livestock) intensification can reduce poverty and put communities on a trajectory of recovery and economic growth while lowering the incidence of conflicts.

4. **Food and nutrition insecurity is a major concern for Niger.** For instance, recent World Food Program data shows that more than 3.3 million people were classified as acutely food insecure during the 2023 lean season (June-August).[3] An estimated 4.3 million Nigeriens (2.4 million of whom are children) are in needed humanitarian assistance.[4] Niger's global acute malnutrition is estimated at 12.7 percent, and 42 percent of children under 5 years are stunted. Several factors—including high fertility rates, low productivity, climate-related shocks, land degradation and desertification, and conflict—

[1] The UNDP's Gender Development Index (GDI), which measures gender gaps in health, education and living standards, was 0.36 in 2021, in contrast with 0.44 for males, placing Niger among the lowest ranked countries. In 2018, 63.2 percent of Nigerien women were either out of the labor force or in unpaid employment, compared to 32.5 percent of men (World Bank, 2018).

[2] Niger overview, World Bank- September 22, 2022.

[3] WFP - Niger Annual Country Report 2023.

[4] UNICEF - Niger Humanitarian Situation Report (9 April 2024): https://www.unicef.org/appeals/niger/situation-reports

contribute to Niger's food and nutrition insecurity. These factors have been aggravated by the socioeconomic impacts of the recent political crisis and related sanctions, disrupting economic growth, heightening inflation, and leading to increase in extreme poverty rates.

5. **Climate change is expected to worsen Niger's current vulnerabilities, especially for those whose livelihoods rely on the agri-food sector.** Niger is one of the most vulnerable countries to extreme droughts, floods, heatwaves, and desertification, resulting in debilitating impacts on crops, livestock, productive infrastructure, and human settlements. Over the past two decades, Niger has faced at least nine major drought events and five major flood events, which have acutely affected the country's rural population and predominantly rainfed agriculture sector. Climate change, coupled with low productivity, contributes to the country's food crisis, which, on average, occurs every four years.[5] Niger is characterized by a hot and arid climate with precipitation occurring mostly from May to October, while the rest of the year receives little to no rainfall. These conditions are expected to worsen because of climate change, resulting in longer dry periods and more erratic precipitation patterns. The number of extreme heat events is projected to increase significantly, with a mean temperature increase of around 2-4 degree Celsius by the end of the century.[6] While future projections on precipitation tend to show high natural annual variability, there is an expected increase by almost 25 percent in the amount of rainfall experienced during the rainy season by the 2050s. Heavy precipitation events are also likely to occur at least twice as many times resulting in significant flood risk.

6. **The above-mentioned chronic and acute climate forecasts will have adverse implications for Niger's agriculture sector and economy.** Compared to a medium-growth baseline, climate change is estimated to reduce Niger's annual GDP by 2.2 percent by 2050 under the wet and optimistic climate scenarios and by 11.9 percent under the dry and pessimistic climate scenarios.[7] *First*, given that crop production is predominantly rainfed, yields depend on water availability and are prone to climate-induced drought. At the same time, the length and intensity of the rainy season is increasingly unpredictable, and the use of irrigation remains limited. Notably, production of millet, sorghum, maize, and groundnut is predicted to fall by an average of 17 percent, 12 percent, 33 percent, and 16 percent, respectively by the year 2050. *Second*, livestock is susceptible to heat stress, which reduces feed intake, reproduction rates, milk production, and longevity. Changing temperature and precipitation trends are also expected to impact rangeland productivity, water availability for livestock, and exacerbate pest and disease dynamics. *Third*, climate change is likely to damage Niger's roads and agriculture value chain infrastructure, thereby reducing access to essential inputs and markets, increasing postharvest losses and exacerbating food safety (SPS) challenges. These will exacerbate existing gaps in the current capacity of national agencies and institutions to anticipate and prepare for such emerging threats.

7. **Niger is faced with multiple challenges of fragility, conflict, and violence.** Niger's fragility is rooted in several drivers: (i) cross-border insecurity due to the surge of violent extremist groups that can fuel intercommunal violence, (ii) climate change and environmental degradation, marked with recurrent droughts and desertification; (iii) competition over natural resources, aggravated by demographic pressure, climate change, and the presence of armed groups; [8] (iv) exclusion and inter and intra-group inequality amidst decreasing economic opportunities, particularly among youth, women, and minorities; (v) difficulty for the State to deliver essential services that are critical for its legitimacy, and (vi) weak governance that can generate grievances among excluded groups. Conflict events and fatalities remained significant during 2018 - 2024, indicating ongoing instability.[9] The highest number of conflict events were recorded in 2022 (572 events) whereas the year 2021 saw the highest fatalities (1,493 deaths). Violent incidents, mostly due to violent extremist organizations, criminal networks, and self-defense groups, are concentrated in the western border areas with Mali and

[5] IMF Selected Paper. Economic Effects of Climate Change and Food Insecurity in Niger, 2023.
[6] Niger Country Profile. Climate Change Knowledge Portal (CCKP). Future climate scenarios considered are SSP 3-7.0 (pessimistic scenario) and SSP 2-4.5 (optimistic scenario).
[7] G5 Sahel Country Climate Development Report (CCDR), 2022.
[8] Niger Risk and Resilience Assessment (RRA), World Bank 2016, 2019
[9] Armed Conflict Location & Event Data Project (ACLED): https://acleddata.com/explorer/

Burkina Faso (where the frequency of violent incidents is about 60 percent higher than in Niger) and the eastern Lake Chad area. As a result, the local economies in these regions have been severely affected, depriving thousands of livelihood activities and leading to significant humanitarian crises.

B. Sectoral and Institutional Context

8. **The agriculture (crop and livestock) sector is central to Niger's socio-economic development**. It is a major employer, providing jobs to 84 percent of the labor force, many of whom are women and youths. More than 90 percent of Niger's poor households rely on the sector for their livelihoods. Niger has about 2.5 million agricultural households, 95 percent of whom farm less than 3 ha under mixed crop-livestock production systems. The crop subsector is dominated by staples, principally millet (46 percent of total cropped area), cowpea (32 percent), and sorghum (18 percent).[10] With respect to the livestock subsector, the national herd is estimated at more than 18 million cattle, 35 million small ruminants, 2 million camels, and 19 million poultry. About two-thirds of the ruminant livestock population is raised under mixed crop-livestock production systems, while the rest is produced under mobile pastoral systems and a few under semi-intensive/intensive production systems.

9. **Overall, Niger's agricultural growth has been chronically low and highly volatile.** Over the last decade, the sector's growth has averaged 4 percent per annum,[11] considerably below the 7 to 8 percent annual growth rates often cited as necessary to achieve government objectives with respect to economic growth, employment, food security, and poverty reduction. Additionally, this growth has been volatile mostly due to droughts and floods, resulting in heavy reliance on food imports to bridge the persistent deficits.[12] This has been accentuated by low levels of agricultural productivity. Average yields of cereals in Niger stand at 0.56 ton/ha against a potential of 4.0 ton/ha, and only 36 percent of the average yields for Sub-Saharan Africa. Similarly, milk, beef, and egg productivity are below potential. Key constraints to improved productivity include: (i) limited access to improved technologies (such as improved seeds and livestock breeds); (ii) reliance on rainfed agriculture; (iii) lack of access to finance; and (iv) high postharvest losses and low value addition, which implicitly undermine profitability and technology adoption.

10. **Several demand and supply factors limit widespread use of improved seeds and livestock breeds**. The use of improved seed (i.e., productive and resistant to drought, waterlogging, pests and diseases, or even winds) is estimated at about 10 percent. On the demand side, the cost of improved seed remains out of reach for many smallholder farmers. The government, with support from some of its development partners, has sought to overcome this constraint by purchasing and distributing seed to farmers. However, this approach is likely to stunt the growth of the private sector in developing widespread distribution networks. Seed sector reforms in combination with smart input systems (such as input e-vouchers) that would facilitate farmers' input acquisition and promote private sector growth, and which have been successfully piloted in the country, need to be scaled up. Supply side constraints include inadequate production of foundation seeds that are adapted to market needs so that they can be further multiplied and distributed by the private sector. Other supply-side constraints include inadequate testing for adaptation of promising technologies by local research institutions and the absence of sustainable commercialization channels that facilitate last mile access by small farmers. Regarding livestock, the National Center for Genetic Improvement and the Centers for Multiplication of Highly Performing Animals need to be equipped, teams of inseminators trained, as well as farmers trained on heat detection. Other actions needed include propagating forage production and fodder conservation techniques.

11. **Similarly, low levels of irrigation development are hampering agricultural productivity and climate resilience.** Low and erratic rainfall patterns constrain both crop and livestock productivity and resilience to climate shocks. Although

[10] Millet and sorghum represent between 80 and 90 percent of the population's caloric intake.
[11] Mainly driven by an expansion in area under production rather than improvements in Total Factor Productivity (which stood at less than 1 percent per year over the period).
[12] About 72 percent of products are imported.

irrigated agriculture yields are significantly higher than rainfed agriculture yields, just 10 percent (about 210,000 ha out of at least 2 million ha) of Niger's potentially irrigable area is currently under irrigation. With Niger's current irrigation systems being largely inefficient, there is a pressing need to rehabilitate them to improve water and energy savings. Sustainability of past irrigation investments has been impeded by lack of re-investment into equipment, network maintenance and professional land preparation services.

12. **Credit and lending to agriculture in Niger is very small, both in absolute terms, and as a share of the total lending from commercial banks.** According to data from FAOSTAT, the banks' loan portfolio for agriculture amounted to only US$15.61 million, equivalent to 1 percent of the total outstanding loan portfolio.[13] Key constraints include: (i) the sector's high perceived risks; (ii) difficulties to provide suitable collateral; and (iii) financial products and services that are ill-suited to farmers' needs, among others. Several credit programs by different actors aimed at filling this void have lacked coordination and a coherent framework. This reluctance of banks and microfinance institutions (MFIs) towards lending has limited farm investments in more productive inputs and services. To this end, the government initiated, in 2017, a unifying financing mechanism, namely the Investment Fund for Food and Nutritional Security (FISAN)[14] with three facilities: *Facility 1*: *"Support for Agricultural Financing"* which supports private investments through credit and other instruments (e.g., guarantees) to leverage financial sector funding; *Facility 2*: *"Financing of Structuring Agricultural Investments"* for supporting infrastructure and other structures of a public and non-profit nature; and *Facility 3*: *"Financing of agricultural advice, applied agronomic research and capacity building"*. Since 2021, FISAN has managed a guarantee fund of CFA 1.7 billion (US$2.8 million equivalent) funded by the Government of Niger (GoN), Belgium, France, and Luxemburg. FISAN's efforts are complemented by the Sahelian Financial Company (*SAHFI SA- Société Sahélienne de Financement*) established in 2005 as a joint initiative between the European Union (EU) and the State of Niger for providing guarantees to small and medium enterprises and small and medium industries (SMEs/SMIs). However, these two institutions need capacity building and additional funds for lending or providing loan guarantees.

13. **High postharvest losses, as well as low value addition, hamper profitability and implicitly disincentivize technology adoption, thus undermining productivity and resilience.** Postharvest losses can be very high, especially among vegetables and fruits. For instance, onion losses under poor storage can be as high as 30 percent, although with adequate storage this can be reduced to around 5 percent.[15] Climate change is increasingly a driver of postharvest losses in the country, primarily due to inadequate infrastructure that is not designed to withstand increasing temperatures or flood risks from extreme precipitation events. Climate-resilient storage infrastructure is needed to reduce these postharvest losses as well as to extend the marketing season. Although immediate postharvest sales, often at a very low price, occur to meet urgent family needs, good storage is needed to extend the marketing window, thus generating better prices for farmers. Postharvest infrastructure can facilitate other value adding processes, including drying, de-husking, cleaning, polishing, which incentivizes investments in productivity enhancing technologies. They can also enhance access to short-term finance, for example, through Warehouse Receipt Systems and other commodity-based financing mechanisms. With respect to livestock, milk collection and preservation centers are critical constraints. There is need to improve postharvest infrastructure and integrate small scale producers into inclusive and commercially competitive value chains managed by dynamic and innovative local SMEs and farmer organizations.

14. **Limited diversification and agro-processing are increasingly placing Niger's agricultural offerings out of sync with the evolving market demand.** The structure of Niger's agriculture has changed very little over the last three decades. As indicated earlier, millet, sorghum, and cowpea occupy 96 percent of cultivated area. Similarly, the agriculture sector is characterized by limited and underdeveloped value-addition and agro-processing. Yet, the growing urban and export markets require a different mix of products, including rice, fresh products, good quality meat and generally more high

[13] The agricultural orientation index for credit, which is calculated by dividing agriculture's share of bank lending by agriculture's share of GDP, is the lowest in the WAEMU region.
[14] FISAN was adopted by the Council of Ministers on August 2, 2017, through Decree No. 2017-665/PRN of August 2, 2017.
[15] Étude sur la chaîne de valeur oignon au Niger, FAO 2021.

quality and processed products. Considering that the availability of good quality land in Niger is limited, diversification into new products without jeopardizing food security will require increasing the productivity of current staples to maintain food security, while releasing land for other crops and animal fodder. In addition, diversification – especially for year-round vegetable production – will require irrigation development and good storage infrastructure to reduce postharvest losses. Producing for an increasingly health-conscious market also requires adequate food safety standards and reliable market information systems for a constant feedback loop between consumers and producers. Agro-processing activities (such as slaughterhouses, dairy processing, rice mills) face major infrastructural limitations and lack a consistent supply of raw materials (as over 85 percent of the agricultural produce is for home consumption), indicating the need for increasing agricultural productivity and marketable surplus.

15. **There are considerable gender gaps in Niger's agriculture sector.** Women managed farm plots are 19 percent less productive than plots managed by men.[16] This is largely attributed to Nigerien women having lower access to agricultural inputs such as improved seeds, fertilizers, pest control inputs, improved storage of perishable products, training and technologies, feed and veterinary services, and finance compared to men. Furthermore, women have limited time for their own farm activities because of their household obligations. According to the 2017 Systematic Country Diagnostic (SCD - Report No. 115661-NE) for Niger, 34 percent of Nigerien women are out of the labor force as opposed to 10 percent of men, and those employed receive lower earnings. In addition, women are generally concentrated at the lower levels of the value chains (e.g., weeding, irrigation, harvesting, and minimal processing).

C. Relevance to Higher Level Objectives

16. **The proposed Program is fully aligned with the FY18-22 Country Partnership Framework (CPF) for Niger (Report No. 123736-NE), the Performance and Learning Review (PLR- Report No. 169145-NE) which extended the CPF through FY23[17], as well as with other corporate goals.** It would directly contribute to the CPF's Objective 1 – *Increased rural production with diversified output in the agriculture and livestock sector* by increasing crop and livestock productivity and by enhancing resilience to climate change through its support for irrigation and value chain development. It would also contribute to the CPF's goal of *mitigating risks of conflicts and fragility* by fostering economic growth and job creation in fragile areas. The project is aligned with the main recommendations of the Country Climate Development Report (CCDR) for the G5 Sahel Region, which include supporting the adoption of improved soil and water management practices and increasing the uptake of relevant climate-smart agriculture (CSA)[18] and irrigation technologies. The proposed Program is also aligned with two goals of the World Bank (WB) Western and Central Africa Region Priorities 2021-2025 – Supporting a Resilient Recovery, namely Goal 2 – *Removing the bottlenecks that prevent firms from creating more and better jobs* through boosting agriculture productivity and linking agriculture value chains to markets, and promoting *private sector investment and job creation in the sector;* and Goal 4 – *Ramping up climate resilience* through expanding irrigation production to adapt the agriculture production systems to climate variabilities and building end-to-end resilient agriculture value chains focused on productivity and efficiency.

17. **The Program is aligned with Niger's strategic goals and development commitments.** LAMP supports the Republic of Niger's long-term development strategy, Vision Niger 2035, which focuses on sustainable and inclusive growth to alleviate poverty and build a middle-class economy by 2035. The Program is also aligned with the country's economic and social development strategic plan 2022-2026 (PDES) and its successor, the Resilience Program for the Safeguard of the Nation 2024-2026 (*PRSP- Programme de Resilience pour la Sauvegarde de la Patrie*), which is in an advanced state of preparation and that maintains the same priorities in terms of the agriculture and food sector. At sectoral level, the

[16] Country Partnership Framework (CPF) for Niger (FY18-22).
[17] A new Country Engagement Note is under development.
[18] CSA refers to approaches in agriculture that aim to (i) sustainably increase productivity and incomes; (ii) adapt to and build resilience to climate change; and (iii) reduce and/or remove GHG emissions, where possible (FAO Sourcebook 2013).

program contributes to the Sustainable Livestock Development Strategy (SDDEL 2013- 2035) and the National Rice Development Strategy (SNDR 2021-2030). The Program contributes to these priorities by contributing to increasing agriculture productivity through adoption of irrigation, use of improved technologies and practices, and improved access to inputs and services to farmers, while creating the conditions for improved access to markets.

18. **The Program will support Niger to achieve its climate commitments and priorities.** The Program will support Niger in achieving its updated (2021) Nationally Determined Contribution (NDC) and contribute to the efforts toward climate change mitigation and adaptation. *On mitigation*, the NDC prioritizes measures in the Agriculture, Forestry and Other Land Use (AFOLU) and energy sectors, including scaling up CSA technologies and sustainable land management practices across all agroecological zones to sequester carbon in soils and trees, reduce demand for wood energy, and improve energy efficiency while increasing the resilience of ecosystems and livelihoods. *On adaptation*, the NDC prioritizes promotion of CSA practices, including climate-adapted, high-yielding seed varieties, improved animal breeding systems, promotion of small-scale irrigation and off-season cropping, among others. Niger's National Adaptation Plan (2022) outlines strategic actions and priorities for agricultural development, including promoting food security, natural resource management, and increasing the resilience of the population and ecosystems, all of which the Program supports. By investing in climate-smart technologies, innovations, and management practices (TIMPS) and building the capacity of farmers on increasing water-use efficiency, water conservation and use of renewable energy, the Program will contribute to mitigating greenhouse gas (GHG) emissions, enabling Niger to transition to low-carbon agriculture and livestock production. The Program also contributes to Niger's adaptation priorities through the promotion of certified, climate-resilient, and high yielding seeds, seed systems reforms, and irrigation development.

D. Multiphase Programmatic Approach

(i) Rationale for Using MPA

19. **The Multi-Phase Programmatic Approach (MPA) presents a compelling opportunity to bolster Niger's medium- and long-term development initiatives.** Central to this effort is the alignment with the country's overarching vision, Vision Niger 2035, which aims to foster sustainable and inclusive growth to uplift communities from poverty and establish a robust middle-class economy by 2035. Additionally, the MPA complements the GoN's aspiration for the structural transformation of the economy, particularly through unlocking the country's agricultural potential. Alongside the forthcoming national development plan (PRSP), Vision Niger 2035 stands as a pivotal strategic framework guiding the nation's trajectory under its new leadership.

20. This MPA, compared to a standalone Investment Project Financing (IPF), would have several key advantages:

- **People-centered and long-term approach:** the MPA allows for sustained and comprehensive support to the agriculture sector in Niger, addressing both short term needs and long-term development goals. The long-term outcomes of the proposed MPA—namely, improved food and nutrition security, increased livelihood, and climate resilience—have been and will continue to be high priorities for Niger. Compared to standalone IPFs, an MPA signals a strong and long-term commitment of the World Bank to support the country in improving the livelihoods of its citizens. Continuity and momentum are paramount, as a discontinuous approach heightens the risk of eroding gains made through prior investments. Through the proposed overlapping phases, MPA will enable continuity of implementation and focus on the capacity building of institutions for effective and sustainable implementation of investments with high potential for transformative impact.
- **Resource optimization and adaptive learning.** The MPA allows a forward-looking learning agenda, which is critical to the MPA's design and implementation and will help mitigate technical design risks. The learning agenda of the proposed MPA focuses on optimizing impact and efficiency through programmatic institutional strengthening and

key investments. By breaking the project into multiple phases, resources can be allocated more efficiently, and lessons learned from earlier phases can inform and improve subsequent phases. The MPA allows for the gradual scale-up of investments in the program areas and, if relevant in the latter phases, would allow the flexible use of different instruments.

- **Holistic Development:** It enables a holistic approach to address the complex challenges faced by the agri-food system in Niger, including issues related to infrastructure, technology, market access, and capacity building. Specifically, the program seeks to increase productivity and commercialization of agriculture and boost food and nutrition security in an inherently complex context characterized by low capacity, resource degradation, vulnerability to climate change, fragility, conflict, and violence. This will require investments in a myriad of activities, including efforts to enhance climate resilience, improve market access, facilitate access to finance, strengthen the role of the private sector, and streamline institutional coordination, which are complex development objectives that require an adaptive and programmatic approach. Moreover, the implementation environment is complex, involving engagement across multiple sectors and institutions. A multiphase programmatic approach offers the advantage of sustained commitment, facilitating strategic alignment, and coordination among stakeholders.

21. **In summary, the MPA approach**; (i) offers a strategic platform to support implementation of the country's long-term development program with sustainable outcomes; (ii) offers financial continuity to enable the government to plan over a longer term; (iii) provides a risk-mitigation approach to implementation, building on adaptive management and ensuring integration of lessons learned into the program; and (iv) through proposed overlapping phases, it will enable continuity of implementation and focus on the capacity building of institutions for effective and sustainable implementation of investments with high potential for transformative impact.

(ii) Program Results Chain

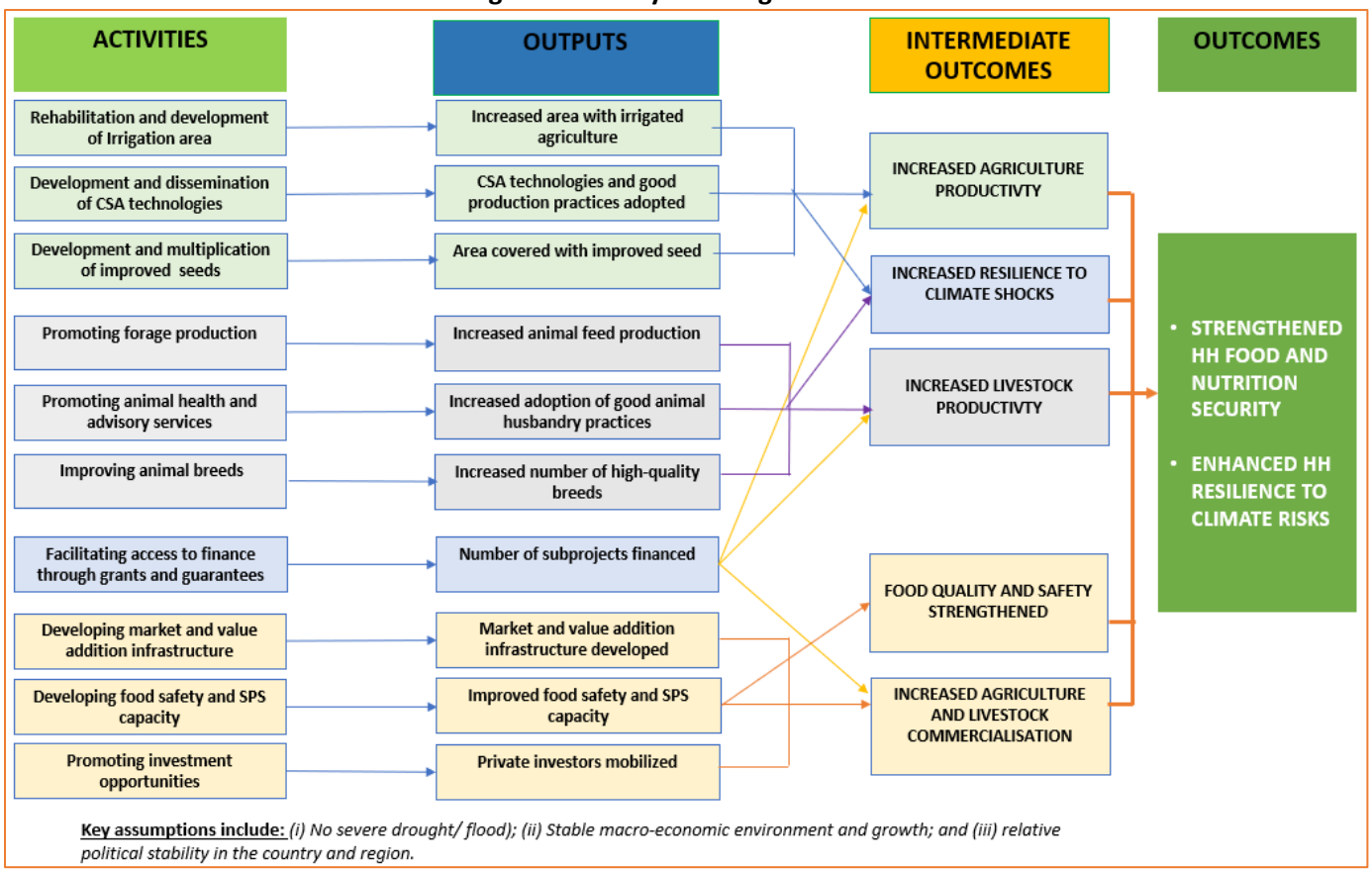
22. **The Program's theory of change is presented in Figure 2 below.** Higher-level outcomes resulting from the MPA are strengthened food and nutrition security and enhanced climate resilience for the targeted population. The MPA will invest in the key subsectors, livestock, crop, water, and finance, capitalizing on multisectoral collaboration, and convening and streamlining international partner investments.

23. **Food security is hampered by very low crop and livestock productivity exacerbated by excessive volatility due to climate change, resulting in the country's growing reliance on food imports and food aid for vulnerable populations.** The efforts to improve food and nutrition security are hampered by the sector's poor performance and climate change. Agricultural performance is hampered by low CSA technology adoption – including improved seeds, limited irrigation to stabilize and diversify output, low-performance animal breeds, poor quality and inadequate feed and fodder. Other constraints include limited infrastructure to stem post-harvest losses and improve marketing efficiency and lack of access to credit exacerbated by a poorly developed financial sector. As the agricultural sector is dominated by poor smallholder farmers, state intervention is required to promote crop and livestock productivity through better access to inputs, technology, and markets, while stimulating increased private involvement along the crop and livestock chains, especially in input distribution as well as the downstream segments of the value chains such as transformation/value addition and distribution. Investments in agribusiness development and job creation, diversification to nutritious value chains (such as horticulture and livestock), and food safety and quality are critical to improve food and nutrition security (FNS). All these challenges are highly interconnected and are, therefore, better pursued together.

24. **While Phase 1 will build resilient crop and livestock productive capacity, improve agriculture marketing, and facilitate access to finance, subsequent phases will maximize the economic values obtained by these investments, scale up successful activities, and enable further innovations.** For instance, (i) Phases 2 and 3 will emphasize mid- and up-stream activities (such as value addition and agribusiness development) further maximizing returns on the key market

infrastructure activities of the first phase; (ii) Phases 2 and 3 will amplify the impact of Phase 1 investments in seed development, testing, and multiplication by expanding distribution and fostering wider adoption; (iii) subsequent phases will facilitate better sequencing and progressive deepening of policy reforms in tandem with changes in the country's political context; and (iv) as implementation capacity is strengthened, they will facilitate progressive coverage of the communes in the initial project regions as well as possible addition of other regions.

Figure 2. Theory of change for LAMP



Note: HH = Household

(iii) Program Development Objective with Key Program DO Indicators with Baselines and End Targets

25. **The Program Development Objective (PrDO) is to enhance climate resilience and food and nutrition security of households in the Program areas.** The key PrDO indicators, both of which are corporate Scorecard indicators, include (i) *People with strengthened FNS (Target: 5,000,000), and (ii) People with enhanced resilience to climate risks (Target: 3,000,000).*

Program Framework

26. **The program framework is depicted in Table 1 and includes a proposed MPA financing envelope of US$1 billion over a 12-year implementation period.** The program comprises three overlapping phases, each with a duration of 5–6 years. These phases are designed to overlap, ensuring synergy and the integration of lessons learned from previous phases. This approach also guarantees seamless continuation of essential activities during the transition to the next phase.

Table 1. Program Framework: Livestock and Agriculture Modernization Program (LAMP) 2024–2036

Phase #	Operation ID	Sequential or Simultaneous	Phase's Proposed DO	IPF or PforR	Estimated IBRD Amount (US$ million)	Estimated IDA Amount (US$ million)	Estimated Other Amount (US$ million)	Estimated Approval Date	Estimated Environmental & Social Risk Rating
1	P179276	Simultaneous	*To increase productivity, commercialization, and climate resilience for project beneficiaries*	IPF	0.00	350.00	0.00	June 28, 2024	Substantial
2		Simultaneous		IPF*	0.00	350.00	0.00	FY28	Substantial
3		Simultaneous		IPF*	0.00	300.00	0.00	FY31	Substantial
Total					0.00	1,000.00	0.00		
Board Approved Financing Envelope							**1,000.00**		

Note: *During implementation, the feasibility of a PforR, especially as a tool to promote policy reforms will be assessed.

27. **Phase 1 (US$350 million-2024-2030).** During this first phase, emphasis will be on building resilient crop and livestock productive capacity (through investments in irrigation, germplasm, and animal genetics); building the foundation for improved agriculture marketing; and facilitating access to agriculture finance. By boosting productivity and climate resilience of farmers, Phase 1 contributes to the overall MPA objective of improving food and nutrition security.

28. **Phase 2 (US$350 million- 2028-2033).** Building on the achievements of Phase 1, Phase 2 will focus on advancing value chain development to optimize farm-to-market linkages. Investments in this phase will include (i) scale up investments in irrigation development; (ii) professionalize water user associations (WUAs) to operate and maintain irrigation infrastructure, thereby ensuring sustainability; (iii) integrating/linking smallholder farmers and herders to input, output, and financial markets; (iv) investing in agribusiness development, and value addition (building on the critical market infrastructure financed under Phase 1); (v) improving export competitiveness of select value chains; (vi) scaling up the credit enhancement and guarantee schemes to more innovative financial products and services; and (vii) supporting key institutional and policy reforms targeting overall growth of the sector as well as improving its competitiveness.

29. **Phase 3 (US$300 million-2031-2036).** This phase will consolidate and scale up the strategic investments under Phases 1 and 2. Leveraging the implementation arrangements and improved institutional capacity from the preceding two phases, Phase 3 will focus on scaling up investments, including in large scale irrigation, innovative value chain and agribusiness development, and digital agriculture technologies. Depending on the budget execution and considering associated risks of using country systems, the use of a PforR will be considered for Phases 2 and 3.

Learning Agenda

30. **A robust learning agenda is central to the MPA's design and implementation and will help mitigate technical design risks.** The learning agenda of the proposed MPA focuses on strengthening impact and efficiency from programmatic service delivery for beneficiaries. This learning will pertain to such critical areas as factors behind the high cost of irrigation development in Niger and options available for lowering these costs. To this end, Phase 1 support Niger to develop reference unit costs for each zone and irrigation type, that will be updated annually. The learning agenda will also include creating an understanding of the reforms necessary to improve overall sustainability of irrigation investments, identifying investments and policies required to improve overall competitiveness of select value chains, incentives necessary to attract more private sector financing for specific segments of value chains (e.g., irrigation), and the feasibility of emerging irrigation models, including performance-based irrigation management. Progress on the learning agenda will be regularly evaluated and learning goals will be updated in advance of subsequent phases.

II. PROJECT DESCRIPTION

A. Project Development Objective

(i) PDO Statement

31. The Project Development Objective (PDO) is to increase productivity, commercialization, and climate resilience for project beneficiaries.

(ii) PDO Level Indicators

32. **The PDO level indicators are:**

(i) Area provided with new/improved irrigation or drainage services (ha) – Corporate Results Indicator CRI
(ii) Increased average yield of targeted agriculture products among targeted beneficiaries (%)

(iii) Increased average yield of selected animal products among targeted beneficiaries (%)
(iv) Increased volume of targeted crop value chains sold by beneficiary households (%)
(v) Increased volume of targeted livestock products sold by beneficiary households (%)
(vi) People with enhanced resilience to climate risks (number, % of which are female) – Corporate Scorecard
(vii) People with strengthened food and nutrition security (number) – Corporate Scorecard (PrDO indicator)

B. Project Components

33. **The project approach is based on the following core principles**: (i) geographic concentration of investments in selected production basins to maximize impact that can crowd-in future economic activities. The selected areas for Phase 1 are in the regions of Dosso, Diffa, Maradi, Tahoua, Tillaberi, and Zinder (see map in Annex 8); (ii) targeting value chains identified as key priorities for the country, namely rice, onion, cowpea, and livestock – including live animals, meat, and dairy (see Annex 2 for details). These were selected considering the following criteria: (a) proven existing market demand and existing distribution channels; (b) high growth and poverty reduction potential; (c) relevance to priorities expressed in government development policies; and (d) prospects for success. Considering the key role women and youth play in all segments of the selected value chains, the project will strive to address gender gaps and will especially facilitate access by women and youth to productive resources, advisory services, innovative technologies, and credit; (iii) targeting a series of activities that self-reinforce for amplified results; and (iv) seeking to achieve the largest possible dissemination of technologies that are already tested in the Sahel region to achieve sustainable impact.

34. **In addition, the project builds on and complements several past and current operations.** With respect to irrigation and water access, the project builds on lessons learned from the Sahel Irrigation Initiative Support Project (PARIIS, P154482), the Niger Integrated Water Security Platform Project (P174414), and the Niger Climate Smart Agriculture Support Project (P153420), especially regarding selection of technology with positive returns. With respect to livestock development, it builds on lessons learned from the Regional Sahel Pastoralism Support Project (PRAPS, P173197), including those related to ensuring sustainability of livestock water points and managing intercommunal tensions. The project will seek geographic co-implementation with the Niger Accelerating Electricity Access Project (P174034) to facilitate access of supported farmers and other value chain actors to energy for certain activities such as irrigation and postharvest handling. It will also seek geographic co-implementation with the Rural Mobility and Connectivity Project (P164498) and the Southern Niger Connectivity and Integration Project (P179770) to facilitate access to markets. To facilitate access to finance, the Project draws lessons from Bank financed projects in a similar context, including the Madagascar Financial Inclusion Project (P161491), Burkina Faso Financial Inclusion Support Project (P164786), and Guinea Financial Inclusion (P173304). In addition, the Project will build on the West Africa Food Systems Resilience Program (FSRP, P172769) regarding approaches to resilience of Niger's agriculture and food systems.

35. **In view of all the above, the project is designed along three interrelated technical components:** (i) Building resilient agricultural productive capacity; (ii) Improving agriculture and livestock markets; and (iii) Facilitating access to finance. A fourth component will focus on project coordination and institutional strengthening for the Ministry of Agriculture and Livestock (MOAL). The project includes a zero cost contingent emergency response component (CERC).

Component 1: Building Resilient Agricultural Productive Capacity (US$250 million equivalent of IDA)

36. **This component's objective is to sustainably increase crop and livestock productivity, strengthen farmers' resilience to climatic shocks, and diversify agricultural production**. The support under this component is organized around three subcomponents - one focusing on the crop subsector, the other targeting support to the livestock subsector, and a subcomponent on applied agricultural research. Each of these subcomponents contribute to climate adaptation and/or mitigation, as detailed in Annex 6.

Subcomponent 1.1: Support to Improved Crop Productivity and Climate Resilience (US$215 million)

37. **This subcomponent will be led by MOAL and will focus on**: (i) improving access to improved seeds/germplasm; (ii) improving access to irrigation; and (iii) organizing and strengthening local producers in the targeted value chains for technology transfer purposes.

38. **To enhance access to improved (drought-tolerant) seeds/germplasm, the project will finance**: (i) scaling up existing e-voucher systems to reach more farmers so they can access improved certified seed, with the desired climate smart agriculture characteristics; (ii) advisory services to farmers and farmers' organizations (FOs) on the selection and proper utilization of improved certified seeds; and (iii) improvements in seed quality control and certification, and in coordinating national seed demand and supply (e.g., providing demand forecasts to guide suppliers). It will support certified drought-tolerant seeds that are able to withstand high temperatures while advisory services will guide farmers on selecting appropriate seeds and on ensuring optimum productivity. The project will also promote private sector participation in production and distribution of improved seeds, including by fostering closer collaboration between research and the private sector, making available the appropriate foundation seed to them, sharing projections on seed demand, among others. Strengthening the seed sector will also include institutional strengthening of the National Seed Committee and the official seed control and certification structure (*Direction du Contrôle et de la Certification des semences (DCCS)*).

39. **Regarding irrigation, the project will support irrigation development for crop and fodder production.** This includes (i) 9,900 ha of small-scale irrigation, of which 4,200 ha is expected to be developed by the private sector, and (ii) 8,200 ha of medium and large-scale irrigation (new: 5600 ha, rehabilitation: 2600 ha). The medium and large scale irrigation will be principally developed for rice production (using surface water resources). The small scale, shallow groundwater-based irrigation systems (not exceeding 10 meters deep), will principally be for onion, cowpea, and rice production. As appropriate, other highly remunerative systems, such as low cost protected farming for fruits and vegetables will also be financed. All irrigation developments will be designed with a strong focus on innovative technologies that use renewable energy and efficient water conveyance systems. The MOAL has launched studies to further define irrigation investments in line with the National Rice Development Strategy (SNDR and the Irrigation Promotion Strategy (*SPIN - Stratégie de Promotion de l'Irrigation au Niger*). The project will assess and support, where relevant, new models for irrigation implementation including Pressurized Distribution networks (PDN), Community Irrigated Farms (CIF), and Farmer Led Irrigation Development (FLID), drawing on IFC's experience in the region. The project will adopt a framework approach whereby investments will be selected on an ongoing and dynamic basis in accordance with set criteria, such as land tenure status, community participation, technical preparation, sustainability, and environmental and social considerations. The Project Implementation Manual (PIM) will detail the framework approach to identify interventions (see Annex 3).

40. **The Project will support the Government to develop a price reference system for the main materials and equipment used in irrigation, thereby improving the governance and procurement of irrigation development.** This reference system will be an integral part of the national price reference system (established and implemented by the Government in accordance with Order No. 0055/MEF of 15 March 2012), which is currently under revision. The reference price framework will guide the Government and its partners to better execute future irrigation developments and will serve as a basis for development partners to finance irrigation development in the country. The Project support includes feasibility studies, detailed designs, environmental and social impact studies, management plans, infrastructure development, trainings, supports to agricultural inputs including the purchase of seeds, machineries and agricultural technologies, and the provision of support for the establishment/strengthening of WUAs to ensure sustainable operation and maintenance of the irrigation systems. The irrigation infrastructure will incorporate climate considerations in their design. Rehabilitating existing irrigation infrastructure will also reduce leakages and improve water availability, and efficient water use will build drought adaptive capacity and climate resilience. To expedite project implementation, LAMP will build on and update existing studies done under the PARIIS and Kandadji project.

41. **The project will support TA for**: (i) organizing and strengthening the management and business skills of farmer organizations; (ii) training member farmers on different aspects of increasing agricultural productivity by utilizing CSA practices and to improve postharvest management; and (iii) promoting digital technologies and extension services. Producer organizations like Network of Chambers of Agriculture (RECA) will play a key in aggregation of farmers to benefit from irrigation development. Leading FOs could participate in trainings through IFC's Agribusiness Leadership Program, with the objective of a transition to "Farming as a business" and private sector participation for financing under Component 3. In addition, the project will complement ONAHA's capacity building efforts which have been ongoing since 2017 including those related to enhancing its organizational efficiency, technical competency, planning capacity, and monitoring and evaluation of its programs.

Subcomponent 1.2: Support to Improved Livestock Productivity and Climate Resilience (US$30 million)

42. **This subcomponent will be led by MOAL and will primarily focus on sedentary livestock production systems (cattle, sheep, goats, and poultry)**, complementing the Regional Sahel Pastoralism Support Project (PRAPS, P173197) which focuses on the pastoral systems. The project will support investments aimed at improving meat and dairy production. Project activities will focus on: (i) genetic improvement to increase adaptation to heat and other stressors, maximize feed conversion and minimize enteric fermentation, and increase livestock productivity; (ii) increased fodder and feed production; (iii) greater access to water; and (iv) improved advisory services to increase farmers adoption of good animal husbandry services. While overall animal health services are addressed under the PRAPS, the proposed project will create incentives for private sector veterinary networks (SVVPs) to expand their coverage to remote communities. These will include supplying them with veterinary kits for transporting liquid nitrogen, making semen and vaccines available at nearby distribution centers, among others.

43. **For genetic improvement, the project will focus on** increase adaptation to heat, disease risks, improve productivity while contributing to reduced emissions (see Annex 6). Among others, support will go towards: (i) building, rehabilitating, and equipping artificial insemination (AI) and breed improvement centers (such as the Centre de Multiplication du Bétail (CMB) and other breeding units); (ii) training of technical staff on AI; (iii) public and private provision of AI services to ensure farmers' access to improved genetic resources; (iv) training farmers on heat detection; and (v) the distribution of high-performance male sheep and goats to women groups for breed improvement of small ruminants (e.g., with respect to adaptation to high temperatures and disease risks).

44. **The project will**: (i) support sustainable production and distribution of improved drought-tolerant fodder seeds; (ii) promote production of *bourgou* on saline soils[19]; (iii) promote feed preservation techniques including hay and silage production; and (iv) train farmers on improved livestock feeding practices (which support adaptation and reduce enteric methane emissions).

45. **The project aims to enhance access to water for animals through**: (i) the rehabilitation and construction of water points; and (ii) establishment and training of water management committees to ensure their maintenance.

46. **To support farmers to improve their animal husbandry practices, the project will:** (i) *for ruminants*, finance training for farmers on proper animal housing, feeding, hygiene, animal welfare, etc.; (ii) *for poultry* (layers and broilers), support prospective commercial investors through financial mechanisms under Component 3. In addition, the project will finance activities to reduce mortality including awareness campaigns, training on safeguards and reporting protocols to fight the spread of Avian Influenza, and promotion of low-cost supplemental feeding practices; and (iii) strengthen the poultry disease surveillance system.

[19] Bourgou is a fodder plant that attenuates salinity and makes the soils suitable for other crops after 2 to 3 production campaigns.

Subcomponent 1.3: Support to Applied Agricultural Research (US$5 million)

47. **The objective of this subcomponent is to facilitate rapid availability of climate-smart technologies for enhancing productivity, adaptation, and resilience to climate change.** This subcomponent will be led by the National Agricultural Research Council (CNRA), which coordinates all agricultural research and development across different institutions in the country, and the National Institute of Agronomic Research of Niger (INRAN). The focus will primarily be on crop-related research as pertinent animal-related research is being handled under the FSRP.

48. **The main activities to be financed include**: (i) ramping up the multiplication of foundation seed of climate-smart seeds (with higher productivity and other desirable features e.g., moisture stress tolerance, fast-maturity, pest and disease resistance, etc.) to enable local seed companies to scale up seed production; (ii) testing for local adaptation of germplasm sourced regionally and from various centers of excellence, and releasing the suitably adapted materials for local multiplication and distribution; (iii) testing innovations and crop management practices that enhance water use efficiency, conserve soil moisture and improve soil quality, improve carbon sequestration, ensure safe and effective plant protection – including integrated crop pest management systems, enhance nutrient/fertilizer use efficiency, among others, for immediate release and use by farmers; and (iv) development of AgTech applications and services, including remote sensing tools, communication links between research and field users, support to data collection and analysis, and monitoring climate effects on agricultural productivity. These adaptive trials, climate-smart and crop management practices will contribute to climate adaptation and mitigation (see Annex 6).

Component 2: Improving Agriculture and Livestock Markets (US$30 million equivalent of IDA)

49. **This component aims to improve market access and competitiveness of selected agriculture and livestock value chains**. The project will finance: (i) critical and climate-resilient market infrastructure; (ii) building of food safety and sanitary and phytosanitary (SPS) capacity; and (iii) mobilizing transformative private investors and strengthening market advisory and information services. All project financed infrastructure will follow climate-resilient and energy-efficient design standards (e.g., reliance on solar power as an energy source and on water harvesting as the main source of water for livestock). Activities will focus on climate proofing of priority market infrastructure and prioritize energy efficiency considerations contributing to climate adaptation and mitigation (see Annex 6 for details).

Subcomponent 2.1: Supporting priority market infrastructure (US$26 million)

50. **Project support under this subcomponent focuses on financing critical market infrastructure** to reduce postharvest losses, extend the "marketing season" of agriculture and livestock products, and reduce multiple layers of intermediary aggregators through greater consolidation, hence enhancing market efficiency and competitiveness. These investments will be based on a needs assessment to be conducted during the first year of implementation. The market infrastructure will be managed by semi-public or private companies (cooperatives, interprofessionals, agribusinesses) that would operate the infrastructure under concession arrangements with the Government.[20] In partnership with IFC, the project will support regular consultations with agribusinesses engaged in the targeted value chains.

51. **For the selected crop value chains, the project will specifically finance**: (i) construction of suitable (cool, dry, and well-ventilated) storage facilities, energy-efficient warehouses, and equipment for processing; (ii) establishment of standards and guidelines for onion quality, sorting, storage, preservation, and packaging; (iii) building energy-efficient rice mills to be operated by cooperatives and farmers' organizations in collaboration with the private sector;[21] and (iv) technical assistance to strengthen the capacity of FOs, cooperatives, federations of FOs, women led farmer groups, and

[20] Evidence on large wholesale markets show that above 80 percent of the market infrastructures world-wide are under public or semi-public ownership whereas 55 percent of the market management is conducted by private or semi-public companies.
[21] Niger's current milling efficiency stands at 65 percent, leaving room to improve milling efficiency and reduce postharvest loss, which can reduce GHG emissions.

SMEs that participate in the selected value chains (for instance, the National Association of Onion Industry Professionals (ANFO) and its regional federation in Tahoua.

52. **For the livestock value chain, the project will finance:** (i) common assets for milk value addition such as milk collection and cooling centers, in coordination with industrial processors; (ii) the completion and operationalization of the abattoir in Maradi;[22] (iii) training to all actors of these value chains (including pastoralists, herders, and businesses) to strengthen compliance with strict health standards, in collaboration with the livestock/dairy/meat associations (such as the Collective of Pastoral Associations of Niger – CAPAN, the Association for the Revitalization of Livestock in Niger – AREN, the National Federation of Breeders of Niger (FNEN/DADDO), and the Nigerien Association of Milk Interprofessional Federations – ANFILAIT). These interventions will be designed with climate and energy-efficiency considerations.

Subcomponent 2.2: Strengthening food safety and sanitary and phytosanitary capacity (US$2 million)

53. **The objective of this activity is to strengthen institutional capacity to ensure food quality and safety.** This will entail strengthening the General Directorate for Plant Protection and the General Directorate of Veterinary Services under MOAL to perform sanitary inspections and risk-based disease surveillance and control, and to ensure food safety in line with global and regional standards.

54. **The project will support**: (i) capacity building of responsible agencies to conduct regular and periodic assessment of quality and safety risks in selected agri-food value chains, including risks of pesticide and veterinary drug residues (this will be preceded by a capacity needs assessment to understand the gaps, and to design appropriate solutions); (ii) capacity building of responsible agencies to conduct regular and periodic animal disease surveillance such as Avian Influenza and contagious bovine pleuropneumonia; and (iii) assessment of risk monitoring and evaluation systems. Capacity strengthening will include training and awareness raising on climate risk and impact including on animal health, and food safety. The project's support to surveillance will contribute to improved detection and surveillance to respond to the transmission of infectious disease linked to changing temperature and precipitation events.

Subcomponent 2.3: Mobilizing transformative private investors (US$2 million)

55. **The objective of this subcomponent is to mobilize private investors with technical and financial capacity that will develop the project supported value chains.** Private investments by lead firms and other investors with demonstrated capacities will be essential along the key value chain nodes – e.g., irrigation, technology adoption, development and distribution of key inputs, transformation, value chain digitalization, market infrastructure, logistics and market access. This will increase the impact of these private investments through linkages with local farmer associations, SMEs, and investors. Transformative private investors will be crowded-in through de-risking facilities under Component 3. The project will finance: (i) mapping of potentially transformative private investors; (ii) mapping of land areas where investors could invest; and (iii) prefeasibility studies for the main opportunities identified. If successful under Phase 1, these private investors will play a larger role in the subsequent phases and will be key sources of private capital to the sector.

56. **This activity will also create market linkages along the selected value chains. The project will**: (i) finance the establishment of industry dialogue platforms to facilitate interactions between producers and downstream value chain actors (together with IFC); (ii) facilitate partnerships between farmers and other value chain actors (warehouse owners, processors, wholesalers, and traders), including through contract farming; and (iii) support the development and dissemination of quality standards. It will also build the capacity of selected producers and processers to raise awareness and compliance with the quality requirements for target markets. The project will assess the potential for scaling up of digital-enabled aggregators, in partnership with IFC, in Niger. The Chamber of Agriculture (CRA) under MOAL will be responsible to implement this activity.

[22] The abattoir, which was supported by the Niger Climate Investment Support Project (P14889), was not completed by the time that the project closed. According to the MOAL, construction works are ongoing by the Government.

Component 3: Facilitating Access to Finance (US$47 million equivalent of IDA)

57. **The objective of this component is to increase access to financial services for the agriculture and livestock sectors.** Specifically, the project will enable access to credit enhancement grants and guarantees for commercial loans from local financial institutions for value chain participants (private producers, agribusinesses, FOs) to improve access to production inputs and services, value addition infrastructure and equipment, and markets. The project will utilize FISAN and SAHFI to deliver financial services to project beneficiaries. The project will also support TA to these two institutions to improve their performance, as well as to other participating financial institutions to develop financial products and services that are more suitable for agriculture clients. One of the financial products to be promoted is warehouse receipt financing, to take advantage of the warehouses to be constructed under the project. The sub-projects and other financed activities under this component contribute to climate adaptation and/or mitigation, as detailed in Annex 6.

Subcomponent 3.1: Sub-project financing (US$45 million).

58. **Financing through FISAN (US$25 million).** This will be in the form of Credit Enhancement Grants (CEGs) managed under FISAN's Facility 1. The design of the CEGs will be described in the Procedural Manual, which will be a supplement to the PIM, clarifying the financing process, the size of grants, and the selection criteria, among others. The investment support mechanism through the CEGs will have two separate windows. Window 1 (from US$25,000 to US$200,000) will target small to medium investments by individuals (especially women and youth), producer groups (with SMEs), traders, processors, and service providers. The project will first provide TA to build their organizational and financial management skills and production systems and commercial capacity, before they access the funding. Window 2 (from US$200,000 to US$500,000) will target larger investments by lead agribusiness SMEs and FOs. The Project will finance investments aimed at increasing production capacity, energy and operational efficiency, including orienting their operations towards more climate-resilient systems, and integrating smallholder producers into their operations (such as capacity building to producers/ suppliers to adopt CSA technologies, quality improvement of their produce, etc.) [23]

59. **Financing through SAHFI (US$20 million).** This endowment will be a separate guarantee trust fund within SAHFI, independent from other funds under SAHFI management and SAHFI's capital. Funds will be disbursed to SAHFI in tranches according to the volume of credits registered under the guarantees. The fund endowment is expected to have a multiplier effect on participating financial institutions' (PFI) number of loans. For this project, SAHFI will scale up the existing partial portfolio credit guarantee (PPCG) fund, as done successfully in other World Bank - supported projects in Madagascar, Burkina Faso, and Guinea. A subsidiary agreement will be signed between SAHFI and the project, to set guidelines on the use of WB funding including selection criteria for the PFIs and the borrowers to be served. Regular PPCG will be offered on credit to firms participating in the agricultural value chains covering up to 70 percent of the credit risk. As in the case of the CEGs, a Procedural Manual, will be developed to clarify the financing process, size of the guarantees, and the selection criteria, among others. There will be possibility for the SAHFI to provide guarantee to credit for borrowers that are not benefiting from grants. The subsidiary agreement will clearly set out the usage of the endowment across CEGs and Credit only schemes. Assessment of SAHFI's capacity to receive project funds has been conducted and conditions are met as deemed necessary (see Annex 5).

Subcomponent 3.2: Technical Assistance for FISAN, SAHFI, and PFIs (US$2 million)

60. **The objective of this subcomponent is to strengthen the performance of the two key institutions that are the cornerstones of financial access schemes to the agri-food sector in Niger, namely FISAN and SAHFI as well as select PFIs.** The subcomponent will also sharpen PFIs' skills in agricultural lending. In collaboration with IFC, the project will also support FISAN, SAHFI, and the PFIs to adopt innovative approaches to agriculture equipment acquisition (e.g., equipment leasing, and climate risk mitigation through crop and zone-specific index insurance mechanisms).

[23] Besides the size brackets, the differences between Windows 1 and 2 is the share of the grants, which is smaller for sub-projects under Window 2.

61. **For FISAN, the project will strengthen its expertise in critical areas, such as mainstreaming climate adaptation and mitigation aspects into its financial services.** These will also include irrigation, rural engineering, crop and livestock production, agribusiness, fiduciary, environmental and social safeguards, and gender. The project will also improve FISAN's overall management, governance, and organizational framework, as well as strengthen its ability to support financial institutions in designing financial products that are more suitably adapted for agriculture and livestock development. It will also strengthen its analytical capacity (such as ability to assess market failures, regulatory weaknesses and inadequacies and discern the pertinent reforms needed to guide the support to its clients to implement their sub-projects).

62. **In the case of SAHFI, the TA will develop SAHFI's capacity in**: (i) developing and implementing policies to include MFIs in addition to banks; (ii) developing and implementing policies to assess and manage guarantees issued to cover portfolios of loans (as opposed to individual loans); (iii) accompanying and supporting its activities to issue and manage guarantees for loans to agricultural value chains; and (iv) complying with the World Bank's ESS9. In addition, the TA will contribute to enhancing the quality of SAHFI's services and financial performance. The TA is expected to help: (i) improve cost-effectiveness; (ii) reduce transaction costs for guaranteed institutions; (iii) increase growth of guaranteed portfolios; and (iv) bring positive operational results. In the case of the PFIs, the project (in collaboration with IFC), will provide TA to help them design financial products that are suitable to their agricultural clients (disbursements, repayment structures, maturity periods, etc.). The project will support the development and acquisition of a digitized loan processing system with end-to-end secured monitoring, which will reduce delays and increase transparency of the financing process. FISAN will manage such a platform with possible access for the PFIs to process and pre-approve loans. The platform will provide periodic reports and tracking options for all loan requests and will constitute a database of borrowers. SAHFI will also have an interface to the platform and ensure the guarantees are applied.

63. **The project will hire a private firm to build FISAN's capacity to efficiently manage the CEG mechanism**. The Project Management Unit (PMU) will lead the procurement process of the firm. The firm will, among other things: (i) build capacity of the FISAN; (ii) develop the request for proposal (RFP) for the CEGs; and (iii) lead the technical review of the sub-project selection.

Component 4: Project Coordination and Institutional Strengthening (US$23 million equivalent of IDA)

64. This component will focus on all aspects of overall project management, including fiduciary and safeguards aspects, Monitoring and Evaluation (M&E), knowledge management, and communication. It will also address critical cross-cutting institutional strengthening and training needs identified. It has two subcomponents.

Subcomponent 4.1. Support to Project Coordination, Monitoring and Evaluation (US$15 million)

65. **The objective of this subcomponent is to ensure effective and transparent project management and M&E systems.** The project will finance: (i) the operational costs for project management both at the central and regional level, including the costs of civil servants who will be working exclusively on the project on technical aspects agreed upon contracts agreed by both parties; (ii) monitoring and implementing the requirements of the World Bank's Environmental and Social Framework (ESF); (iii) monitoring and evaluation (M&E); (iv) communication and knowledge management activities; and (v) citizen engagement activities and the project's grievance redress mechanism, among others.

Subcomponent 4.2: Support to Institutional Strengthening (US$8 million)

66. **Under this subcomponent, the project will support activities aimed at**: (i) improving the long-term capacity of the MOAL and other agencies to promote sector growth, including ONAHA, ministry responsible for of hydraulics, FISAN, and RECA, and (ii) institutional strengthening of the ministry for improved coordination for the development and implementation of a medium to long-term sectoral strategy. Activities to be financed by the project include: (i) strengthening extension and the technical backstopping capacity of Government staff at all levels, filling the identified human resource gaps by financing higher technical qualifications of appropriate staff; (ii) establishing a rigorous M&E and

Management Information Systems (MIS) and in their coordination with other ministries; (iii) supporting the capacity of the ministry to establish an effective fiduciary system for project funds management; and (iv) support institutional coordination for the implementation of government programs and to create awareness on climate change .

Component 5: Contingent Emergency Response Component (CERC) (US$0)

67. A CERC with zero allocation may be used to contribute to an emergency response through the timely implementation of activities in response to an eligible national emergency. A CERC is included in the project in accordance with the World Bank IPF Policy (paragraphs 12 and 13, for Situations of Urgent Need of Assistance and Capacity Constraints). This will allow for rapid reallocation of uncommitted funds under the credit in the event of an eligible emergency as defined in the World Bank Operational Policy on Rapid Response to Crises and Emergencies (OP 8.00). A Contingent Emergency Response Manual will be prepared as an annex to the PIM (CERC annex). The environmental and social instruments required for the CERC are prepared, disclosed, and adopted in accordance with the CERC Manual and the Environmental and Social Commitment Plan (ESCP). For the CERC to be activated, and financing to be provided, the Government will need to: (a) submit a request letter for CERC activation, and the evidence required to determine the eligibility of the emergency, as defined in the CERC annex, an Emergency Action Plan, including the emergency expenditures to be financed; and (b) meet the environmental and social requirements as agreed in the Emergency Action Plan and ESCP.

68. **Project cost.** The indicative project cost is US$400 million inclusive of contingencies; of which IDA contribution is US$350 million (Table 2), contribution by the beneficiary farmers and private agribusiness to their sub-projects is US$46 million and Government contribution is US$4 million. The project is processed under the Investment Project Financing (IPF) instrument.

Table 2. Project cost by component and source of financing (US$ million)

Component	IDA	Gov't	Beneficiaries	Total Project cost
1. Building Resilient Agricultural Productive Capacity	**250.00**			**250.00**
1.1 Support to Improved Agricultural Productivity and Climate Resilience	215.00			215.00
1.2 Support to Improved Livestock Productivity and Climate Resilience	30.00			30.00
1.3 Support to Applied Agricultural Research	5.00			5.00
2. Improving Agriculture and Livestock Markets	**30.00**			**30.00**
2.1 Supporting priority market infrastructure	26.00			26.00
2.2 Strengthening food safety and sanitary and phytosanitary capacity	2.00			2.00
2.3 Mobilizing transformative private investors	2.00			2.00
3. Facilitating Access to Finance	**47.00**		**46.00**	**93.00**
3.1 Sub-project financing	45.00		46.00*	91.00
3.2 Technical Assistance to FISAN and SAHFI, and PFIs	2.00			2.00
4. Project Coordination and Institutional Strengthening	**23.00**	**4.00**		**27.00**
4.1 Support to Project Coordination, Monitoring and Evaluation	15.00	3.00		18.00
4.2 Support to Institutional Strengthening	8.00	1.00		9.00
5. Contingent Emergency Response Component	**0.00**			**0.00**
Total	**350.00**	**4.00**	**46.00**	**400.00**

**This includes private capital mobilized from beneficiaries as commercial loans (US$40 million) and own contributions (US$6 million).*[24]

[24] Based on the current operation by FISAN and SAHFI (40% grant, 50% loan, and 10% borrower contributions, and a 1:2 guarantee-to-loan ratio).

C. Project Beneficiaries

69. **Direct Beneficiaries**. The primary target beneficiaries are farmers, farmers' organizations, WUAs, and small- and medium private agribusinesses that are interested in intensifying their production, enhancing value-addition (including through processing, better storage), or in improving logistics (such as climate-controlled transportation, especially of highly perishable products such as milk, meat, fruits, and vegetables). The project will particularly target women and youth. Other direct beneficiaries include the public institutions (primarily staff of the MOAL) as well as FISAN, SAHFI and PFIs involved in project implementation that would benefit from capacity building. Communities in the project area will benefit from increased job opportunities during the implementation of various Project activities (e.g., irrigation development, animal watering points). The project is expected to reach 600,000 farmers (including youth and women) with agricultural assets or services. This translates to over 4 million total beneficiaries (with average family size of 7). The project will leverage at least US$46 million in terms of private capital mobilization (PCM) to the agriculture sector.

D. Rationale for World Bank Involvement and Role of Partners

70. **Niger's food security is increasingly precarious, accentuated by low productivity, high population growth and the growing threats from climate change and the Fragile Conflict and Violence situation.** The country's ability to reverse this trend is hampered by its limited fiscal space, low capacity, a hostile external economic environment, and a weak private sector (including the financial sector), among others. World Bank support to Niger is primarily needed in creating an enabling environment for the improved performance of the smallholder farmers who are the backbone of the country's agricultural sector by promoting the use of CSA practices, such as irrigation and improved seeds and livestock breeds, reducing postharvest losses, and enhancing value addition. Strong partnership with the private sector will be promoted, including in the production and distribution of improved seed, private provision of veterinary services, processing, and distribution of agricultural (including livestock) products, as well as with the local financial sector. Within the World Bank Group, IFC will play an important role in engaging the private sector, including co-organizing a private sector workshop to increase private sector investment into the sector. IFC will leverage its vast network and knowledge in Africa and globally to ensure that the project profoundly transforms the agricultural sector of Niger, by empowering smallholder farmers and accelerating their linkage into competitive value chains and financing mechanisms and promoting the adoption of private sector-driven solutions in critical areas (such as AgTech, climate-smart technologies, digitalization).

E. Lessons Learned

71. **The proposed Program design is based on lessons from successes and failures in implementing agriculture and livestock investment projects in Niger and elsewhere.** These include the following:

a) *Ownership of project interventions and anchoring these in past and ongoing efforts, addressing gaps, and scaling up successful pilot interventions.* Close alignment with national initiatives is a vital guiding principle in the Program strategy to avoid duplication and isolated interventions. The proposed Program builds on and complements interventions in the sector by MOAL. It concentrates investments in high-potential areas within the Program targeted zones to address binding constraints, achieve greater economies of scale, and crowd-in economic activities. To the extent feasible, it will channel technical and financial support to the sector through implementation mechanisms set up by Niger authorities.

b) *Tackling challenges in an integrated fashion and through a demand-driven approach are essential for achieving tangible results.* The Program focusses not only on improving farm productivity but also on facilitating market access and increasing local processing for value addition. It promotes demand-driven investments along the different segments of selected value-chains in an integrated way (from production to processing and marketing).

c) *Supporting private investments in the targeted value chains to address the main issue of SMEs' access to finance.*[25] The Program adopts a comprehensive approach combining: (i) careful selection of promising investment proposals; (ii) provision of assistance to investors to carry out detailed proposals meeting financing institutions' requirements; (iii) de-risking financial institutions' lending by providing credit enhancing grants for complementing investors own funds, and providing a partial guarantee for financial institution loans; and (iv) provision of assistance to investors to launch their activities on a sound basis.

d) *Recognizing that private sector service provision has proven to be efficient*. The proposed Program relies on private service providers while continuing to reinforce the capacity of the government administration to deliver those public services falling under its mandate, such as planning, research and extension, sanitary control, and M&E.

e) *Considering gender roles and the needs of youth in Program design is important*. Women and youth have important roles along the value chains in the Program, presenting a credible opportunity to adopt a comprehensive strategy for facilitating their access to assets, finance, and decent jobs to improve their well-being. For example, the Program will increase employment for young men and women in rural areas by promoting postharvest technology (small agro-processing enterprises) and developing their entrepreneurial skills.

f) *Applying flexible and adaptive implementation in FCV situations*. The project operates in an FCV context and will apply adaptive strategy that enables project implementation in alternative sites based on the security situation. To this end, a Security management Plan (SMP) will be prepared guide project implementation. The project will also leverage investments from ongoing to mitigate potential conflicts in the project areas.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

72. The project will be implemented under the overall leadership and oversight of a National Project Steering Committee (NPSC), comprised of Ministry of Economy and Finance (MEF), MOAL, and Ministry of Hydraulics. The committee will also include representatives of the private sector, FOs, and civil society so they contribute to good governance and voice their concerns as needed. The main responsibilities of the NPSC will be to: (i) advise the project on strategic directions and supporting activities; (ii) approve the Annual Work Plan and Budgets (AWPB), including the annual financial report; (iii) oversight the audit function (internal and external); and (iv) review Implementation Progress Reports (IPRs) and advise on the effectiveness of ongoing activities and any adjustments needed in the AWPB.

73. A Project Management Unit (PMU) will be established and attached to the MOAL, and will have a regional unit in each of the six project regions. The PMU shall be established before project effectiveness and maintained throughout the project period with qualified staff with terms of references (ToRs) satisfactory to the World Bank. The PMU will be led by a Project Coordinator (to be nominated by the government) and include the following competitively selected staff: (i) *at central level*, fiduciary specialists (including a financial specialist, an accountant, an internal auditor, and two procurement specialists), safeguards specialists (a social specialist and an environmental specialist), a gender/GBV specialist, security specialist, an M&E specialist, and a communications specialist; and (ii) *at regional level*, an accountant in each project region. The remaining technical staff of the PMU will be civil servants seconded from within MOAL, or other government departments, to work exclusively on the project.[26] The list of positions to be mobilized by MOAL will be approved by and can be modified with consent of the Steering Committee and the World Bank, conditional on project implementation requirements and availability of resources for the project management component. All PMU staff, including the civil

[25] Project design incorporates the guidelines of WBG's "Maximizing Finance for Development (MFD, 2017) and the lessons from the World Bank review of MGs published in 2016, "How to Make Grants a Better Match for Private Sector Development."

[26] At the central level, the technical staff include a lead coordinator for each of the three technical components, an irrigation or civil engineer, an agronomist, a livestock specialist, an agribusiness specialist, an innovation or a research specialist, and a lead M&E specialist). At the regional level, six regional coordinators, three environment and social safeguards assistants each covering two regions, and M&E assistant (one per region).

servants, will be exclusively dedicated to the project activities and receive performance incentives agreed by the World Bank. Reliance on MOAL technical experts is designed to build capacity of the ministry, and to ensure ownership and sustainability of the project, which is especially important in an MPA context. To mitigate the associated risks, the legal, financial, and operational arrangements (recruitment/nomination, evaluation and payment) will be detailed in the PIM.

74. The PMU will (i) prepare bi-annual reports and AWPBs; (ii) carry out periodic assessments against targets, and in partnership with MOAL, propose subsequent actions and necessary adjustments; (iii) prepare disbursement applications; (iv) ensure all procurement activities are undertaken; (v) facilitate audits; (vi) carry out outreach campaigns; (vii) hire resource persons and consultants; and (viii) oversee implementation of sub-projects, including the inspection of works and delivery of goods. The PMU will establish agreements with governmental agencies and institutions mandated to carry out the project activities. These agencies and institutions will directly implement project activities according to a well-defined plan outlined in each agreement. The project will also hire a private implementation firm to support FISAN, the PFIs, and SAHFI to lead the technical review of the sub-project selection. The PMU will lead the procurement process of the firm. Annex 1 provides further details.

B. Results Monitoring and Evaluation Arrangements

75. The Program will implement a robust M&E system to monitor and evaluate the PrDO indicators as well as the project performance indicators as defined in the results framework (see Section VII). The system will collect and process high-quality data and allow the Bank and Government to assess progress and react immediately should any issues arise. To collect data, the M&E system will use a mix of conventional participatory approaches and digital methods involving beneficiaries and other external stakeholders. This will permit to circumvent difficulties that may arise because of the poor security situation. The M&E system will serve both as a day-to-day management tool and as a mechanism to assess project impacts. The system will support project implementation by ensuring that baseline and follow-up surveys and data for key performance indicators are available and regularly updated. By linking technical and financial data on the project's progress, the system will pave the way for developing a comprehensive Management Information System.

76. The M&E manual will provide details regarding the definition of the indicators in the results framework and the methodology and instruments to be used for data collection, the institutional arrangements for M&E functions, and the mechanism for information dissemination. The PMU will liaise closely with MOAL and participating institutions regarding their data collection, management, and analysis, including development of computerized data management and beneficiary mapping system. A baseline survey will be conducted during the first year of implementation to verify and complete the baseline data and targets presented in the results framework. Given the difficult security conditions likely to prevail in certain project areas, the project will partner with specialized service providers to monitor and evaluate progress of project activities. To the extent possible it will also resort to using remote sensing techniques (e.g., GEMS tool) and an Iterative Beneficiary Monitoring (IBM) approach – a feedback mechanism that collects qualitative information about deliverables on regular basis using existing survey mechanisms. The PMU will prepare M&E reports every six months covering project implementation and results monitoring.

C. Sustainability

77. **First, the MPA is firmly anchored in key national policies and development projects**. The most prominent ones are the Resilience Program for the Safeguard of the Nation (PRSP), the Country-level Food and Agriculture Delivery Compact that was announced at the Dakar Declaration on Food Sovereignty and Resilience (Dakar 2) (Dakar, January 2023), and Vision 2035. This cements the country's commitment to the Program's success during the lifetime of the MPA and beyond.

78. **Second, the project is designed through a highly participatory process.** This included extensive consultations, over the last 15 months, with government and sector counterparts, banking sector representatives, producers, development partners, and others. This enabled the project team to draw on different areas of expertise, consider all technical and

institutional views, and build strong stakeholder ownership. This consultative process will be maintained, including through citizen engagement mechanisms, throughout the entire project implementation period.

79. **Third, project supported investments have high intrinsic viability**. Public investments, such as storage facilities for farm products, or publicly funded irrigation schemes, will have demonstrable high financial and economic returns, and organizational mechanisms will be put in place to ensure their effective management, including through FOs and WUAs. MOAL is responsible for major rehabilitation works for irrigation infrastructure, either through the National Office for Large Scale Irrigation (*ONAHA – Office National des Aménagements Hydroagricoles*) or a private contractor. For small scale irrigation, beneficiaries, through infrastructure management committees, are responsible for periodic maintenance and rehabilitation of the system or part thereof (pumps, shallow wells, etc.). The project includes activities to reinforce the capacity of beneficiaries and WUAs. As stated earlier, most of the technologies promoted under the project are simple and are already widely used in the Sahel region, with no complicated features or high maintenance requirements. Similarly, private investments facilitated by the project will have demonstrable profitability to their promoters.

80. **Fourth, the MPA will support a robust institutional capacity building program through the entire Program period.** The MPA will strengthen the capacity of key institutions involved in implementing Government's programs that have a strong bearing on this project, in particular MOAL and FISAN, thus enabling them to provide the required services in a sustainable manner. Project beneficiaries and private sector actors will also receive capacity building as appropriate.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical Analysis

81. **The project technical design is sound as it has considered experiences from the World Bank's relevant project portfolio in Niger, within the region, and elsewhere.** To maximize impact, the project will focus not on the administrative boundaries but on the production basins to converge activities for increasing productivity and market access in those areas. The project will finance both hardware (irrigation schemes, postharvest and market infrastructures) and soft infrastructure (provision of agriculture and livestock services, dissemination of good crop and animal husbandry practices) investments to increase production and access to markets and to finance. The project design places a great emphasis on strengthening farmers organizations led by qualified experts instead of a system led by public sector through technical ministries which remain limited in terms of personnel and capacities. Professional organizations have the advantage of being managed by technical experts and therefore of being constantly attentive to the demands of their members and working through them allows avoiding a top-down approach which has yielded limited results in the sector. The project will work with RECA, both the National Network and its Regional Chambers of Agriculture, in collaboration with the existing and well-structured value chains, to provide advisory services for their members.

82. **The project adopts a multi-faceted approach to building climate resilience in Niger's agriculture and livestock production systems.** These project interventions are designed based on science-based evidence and propose a range of interventions to enhance the climate resilience of the farming systems through enhanced water use efficiency and productivity including to promote the sustainable management of irrigation systems, improved soil health, and increased crop and livestock productivity. To ensure that markets are available for the increased crop and livestock production, the project will also enhance the marketing of selected value chains by developing relevant market infrastructure and increasing access to finance.

83. **Citizen Engagement.** The project explicitly supports the engagement and participation of stakeholders and beneficiaries through consultative processes, engagement in local-level planning and monitoring, and feedback mechanisms. The project will conduct a beneficiary satisfaction survey to inform improvements and calibrations to project

activities. Feedback mechanisms have been developed to ensure transparency, accountability, and learning, and continuous dialogue with local beneficiaries and other stakeholders. For example, during implementation, the project will ensure consultations with local groups and local leaders, including women, to incorporate traditional and local knowledge. The project will also support inclusion in access to economic opportunities, especially for the most vulnerable groups. The specific elements of the framework for citizen engagement include: (i) support for the engagement of local rural communities in community based pastoral management; (ii) support for community engagement in irrigation development, rehabilitation, and management; and (iii) a project-level feedback and grievance mechanism (GM), designed to process concerns and questions from beneficiaries and other stakeholders at various levels (regional to local), with a view to resolving concerns within specific timeframes. The protocol, mechanisms, and elements of the citizen engagement framework will be detailed in the PIM.

84. **Gender.** The project will generate inclusive project benefits and meaningful social inclusion and embed gender-focused interventions in all components to close some of the gender gaps. For each project activity, gender gaps have been identified as part of project preparation and factored into the project design (see Annex 7). The project has a strong focus on women and youth, with above 45 percent of the project beneficiaries expected to be women. Specific activities include: (i) increasing women's and youth access to CSA technologies and practices (Component 1); (ii) enhancing women's and youth access to information, advisory services, technology and innovation of small agri-enterprises; (iii) increasing access to market infrastructure to women-led cooperatives and SMEs (Component 2); and (iv) facilitating women and youth to gain better access to credit (Component 3). The project's M&E framework will focus on assessing the project's impact on women and youth and how the project is contributing to close the gender gaps in the sector.

85. **Maximizing Finance for Development (MFD).** Aligned with the Bank's MFD approach, the project is expected to mobilize a minimum of US$46 million in private sector investment. This investment will be primarily in the form of co-financing selected activities by agri-food SMEs combining own capital with loans from PFIs, leveraged by the CEGs and PPCGs under Component 3. The private sector investment is expected for various activities under Components 1 and 2. The project will employ three mechanisms to attract/leverage these additional funding: (i) CEGs through FISAN, which will be conditioned upon obtaining supplemental funding from commercial sources, in addition to the beneficiaries own contribution; (ii) guarantees by SAHFI for loans from PFIs towards various sub-projects; and (iii) public-private partnerships arranged in collaboration with IFC. Additionally, the project will enable additional private financing by supporting the scaling up of input e-voucher system and through its capacity-building support to enhance the performance of value chain actors. The project can be considered Private Capital Enabling (PCE) as private investments is captured though relevant Results Indicators.

Economic and Financial Analysis

86. **The project's activities are expected to generate three main benefit streams**. *First*, producers and their organizations will benefit from productivity gains and resilience induced by increased access to improved climate-smart technologies and innovation (e.g., improved seeds, landscape management, irrigation and other infrastructure, livestock genetic improvement). *Second*, private producers, agribusinesses, and FOs will benefit from higher access to business and financial services and other risk sharing instruments as well as access to market information systems. *Third*, the project activities will generate environmental benefits such as natural resource protection and reduced GHG emissions through the adoption of climate-smart sustainable technologies. Although not quantified at this stage, the project will generate benefits in terms of employment growth, increased food and nutrition security, improved health, enhanced institutional capacity and policy and regulatory frameworks, and greater community participation, among others.

87. **The project's interventions are economically justified**, generating a net present value (NPV), with a 6 percent discount rate, of US$253.5 million and an economic internal rate of return (EIRR) of 20 percent over a 20-year period, not accounting for the environmental externalities. These economic results are robust across different scenarios. For example,

if project costs were to go up by 30 percent, the EIRR would reduce to 17.7 percent and the NPV to US$227.3 million. If benefits were to drop by 30 percent, the EIRR would drop to 15.9 percent and the NPV to US$142.5 million (see Annex 4).

88. **Greenhouse Gas (GHG) Accounting.** A GHG analysis demonstrated that the project would reduce GHG emissions by 414,927 tons of CO2eq to be mitigated over a period of 20 years (or roughly 20,746 tons of CO2eq per year). When evaluating these environmental benefits based on of the social price of carbon, the overall economic results of the project increase to NPVs of US$269.34 million (and an EIRR of 21 percent), and US$285.1 million (and an EIRR of 22 percent), based the low and high range carbon pricing, respectively.

Paris Alignment

89. **The operation is aligned with the goals of the Paris Agreement on both mitigation and adaptation.** *On mitigation,* all interventions supported are neutral or encourage the country's progress towards low-carbon development. *On adaptation*, the main climate risks identified are floods, erratic precipitation and storms, extreme heat, and droughts. Risk reduction measures included adequately reduces these risks to the project's investments and outcomes, limiting the project's exposure to an acceptable level of residual risk. The detailed Paris Alignment explanation is provided in Annex 6.

B. Fiduciary

(i) Financial Management

90. **The FM aspects of the project will be managed by MOAL through the PMU.** A Financial Management (FM) assessment was carried out to evaluate and recommend the appropriate FM arrangements for the LAMP. The objective of the assessment was to determine whether MOAL has adequate FM arrangements to ensure that: (a) the project funds will be used for purposes intended in an efficient and economical way; (b) the project financial reports will be prepared in an accurate, reliable, and timely manner; (c) the project assets will be safeguarded; and (d) the project is subjected to a satisfactory auditing process. The assessment included budgeting, staffing, financial accounting, financial reporting, funds flow, disbursements, and internal and external auditing arrangements.[27]

91. **The assessment revealed** that MOAL has vast experience in implementing World Bank - financed projects (e.g., PARIIS, FSRP, PRAPS, and PASEC) and has established an acceptable FM organization for these projects, which includes: (i) the use of a manual of administrative, finance and accounting procedures (currently under revision); (ii) an FM team comprising of experienced accountants led by an FM Specialist, (iii) the use of TOM2PRO accounting software which has the necessary FM module. In addition, the projects implemented under MOAL have established (i) a treasury management system that features one Designated Account (DA) for each financial partner; (ii) a periodic reporting system; and (iii) an annual audit requirement.

92. **The assessment concludes that MOAL's FM organization meets the minimum criteria required for World Bank-financed projects.** However, the fiduciary risk is assessed to be Substantial due to key risks including: (i) security concerns in some implementing areas; (ii) the numbers of stakeholders at national and subnational level; (iii) limited capacity of some implementing partners and of MOAL staff to handle simultaneously World Bank and other donor funded projects; (iv) the large number of financial transactions to be carried out with beneficiaries based in the countryside; and (v) delays in disbursements. To mitigate these risks, MOAL will need to implement several actions. These include preparing the PIM (including for FM and manuals for the CEGs and PPCGs); recruiting a FM specialist, two accountants (one senior), and internal and external auditors – all to be completed by effectiveness and with TORs satisfactory to the World Bank. Appropriate internal control and payment procedures (eligibility of the performance incentives) will be put in place to ensure effectiveness of services and eligibility of expenditures related. Besides, MOAL will open a DA in a commercial bank

[27] FM assessments were carried out in compliance with OP/BP 10.00 and related Directives and Guidance Notes, including **Bank Directive**: Financial Management Manual for WB IPF Operations issued February 4, 2015, and effective from March 1, 2010; and the **Bank Guidance**: Financial Management in WB IPF Operations Issued and Effective February 24, 2015, last February 28, 2017.

and acquire a computerized accounting information system for the management of the proposed project (and subsequently deploy it to the Regional Coordination Unit- RCU). More details are provided in Annex 1.

(ii) Procurement

93. **World Bank Procurement Regulations for IPF Borrowers**. Procurement will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers' (Procurement Regulations) Fourth Edition dated September 2023, with due consideration to 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated July 1, 2016, and other provisions stipulated in the Financing Agreement. The Systematic Tracking of Exchanges in Procurement (STEP) will be the World Bank system to be used for procurement planning, review, and no objection, including prior review procurements, as well as contract management information, and complaints handling. All post review procurements will also be uploaded in STEP in real time.

94. **Project Procurement Strategy for Development (PPSD) and Procurement Plan (PP)**. The PPSD and the PP (for the first 18 months) have been prepared by the Borrower and agreed with the World Bank. They define the applicable procurement arrangements, selection methods, and market approaches for each of the contracts to be financed out of the grant proceeds. The PMU will ensure that procurement procedures and market approach are fit for purpose and are appropriate to the size, value, and risk associated with the project operating context (see Annex 1).

95. **Procurement assessments of MOAL were conducted as part of project preparation.** The objective was to evaluate and recommend the appropriate arrangements for the LAMP. MOAL has rich prior experience in procurement management under World Bank financed projects such as PARIIS, FSRP, PRAPS II, PASEC, and PRAPS. Besides World Bank financed projects - it has been responsible for implementing and supervising financial and technical assistance activities for projects financed by development partners although some risks were observed for which mitigations have been taken. The residual procurement risk after implementing the mitigation measures remains substantial. Assessment will continue throughout the project cycle and the ratings will reflect the periodic assessments outcomes. The World Bank will provide continuous support to MOAL to ensure effective and efficient procurement.

C. Legal Operational Policies

96. **The project triggers OP/BP 7.50 because some of the proposed investments will take place on the Niger river (shared by Benin, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Guinea, Mali, Niger, and Nigeria) and Lake Chad basins (shared by Cameroon, Chad, Niger, and Nigeria), which are international waterways.** In accordance with the Policy, Niger has notified the riparian countries and there were no objections to the project. Based on the outcome of the notification process and the assessment that the project will not cause appreciable harm, the Regional Vice President gave approval to finalize Project preparation on May 23, 2024.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Area OP 7.60	No

D. Environmental and Social

97. **An environment and social assessment was carried out to evaluate and recommend the appropriate arrangements.** The project's environmental risk is assessed as Substantial. The potential negative impacts can be summarized as follows: (i) the multiplication of pathogens related to poor management of solid and liquid wastes that will be generated on construction sites; (ii) soil structure modification due to the movement of machinery; (iii) the increase in

soil erosion and sedimentation of streams and water bodies; (iv) disturbance of sensitive ecological areas and micro-habitats; (v) destruction or loss of natural habitats during right-of-way preparations and during the opening and operation of borrow pits and quarries; (vi) disturbance of wildlife tranquility; (vii) pressure on water resources related to the needs of the work site; and (viii) misuse of chemicals and pesticides. Using fertilizers and pesticides and livestock effluents are potential sources of watercourses, groundwater and soils' pollution and endanger human and animal health. Furthermore, support for livestock activities could exacerbate the removal of plants that influences floristic composition and the structure of the grazed vegetation, particularly in arid and semi-arid zones. Damage on ecosystems due to the undermined capacity of the vegetation regeneration and when the surface horizons of the soil are seriously degraded by wind or water erosion. Supporting agro-processing and marketing infrastructure such as slaughterhouses could present operational phase risks such as infiltration and pollution of the groundwater; air pollution due to foul odors and dust; transmission of diseases due to poor management of the slaughterhouses. The potential for indirect and cumulative impacts exists, although they can be avoided or mitigated. Project intervention areas have largely been identified and irrigation development will be concentrated around the Niger river, with likelihood of using water from readily available sources. The client has prepared and disclosed all relevant ESF instruments including the Environmental and Social Management Framework (ESMF), Stakeholders Engagement Plan (SEP), Integrated Pest Management Plan (IPMP), Resettlement Policy Framework (RPF), Environmental and Social Commitment Plan (ESCP), Labor Management Procedure (LMP), Sexual Exploitation and Abuse/Harassment (SEA/SH Action Plan), and Security Risk Assessment (SRA).

98. **The social risk has been determined to be substantial as various potential risks have been identified.** In addition to the risks mentioned in the previous paragraph, the most significant social risks identified include the (i) involuntary resettlement (including permanent and temporary physical or economic displacement of populations located within the immediate vicinity of the proposed investments); (ix) the Borrower's capacity to manage grievance mechanisms, labor, sexual exploitation and abuse/harassment (SEA/H) risks, stakeholder engagement, supervision challenges and exclusion of vulnerable social groups in remote areas; and (x) project-level factors that increase potential security and SEA/H risks (e.g. project activities in locations of planned project activities in very remote and insecure areas and/or rural areas with high rates of poverty).

V. GRIEVANCE REDRESS SERVICES

99. ***Grievance Redress.*** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, visit https://accountability.worldbank.org.

VI. KEY RISKS

100. **The overall risk of the MPA Program is rated Substantial.** At the MPA Program level, the key risks to achieving Program Objectives are related to political and macroeconomic uncertainty. While changes in government, if and when

they do occur, could potentially result in changes in counterparts, this risk is mitigated by the fact that food security and agricultural productivity have remained a priority across regime changes and that is likely to remain so. For all governments in Niger over the past 50 years, increasing agriculture and livestock productivity has remained a core development priority, as consistently reflected in their respective strategies and development plans.

101. **The overall risk for this project (Phase 1) is also rated Substantial.** This reflects substantial macroeconomic risk, combined with substantial political and governance, institutional, fiduciary, safeguards risks. Additionally, Niger is vulnerable to multiple fragility and conflict risks, health/pandemic risks, climate shock risks (e.g., droughts, floods) that could shift the GoN priorities to emergency and security response.

102. **Political and governance risks: Substantial.** On July 26, 2023, Niger experienced an unconstitutional change in government, which led to economic sanctions, border closures and disruption in external financing flows for more than six months. Currently, while financing from most development banks has resumed, most development activities financed by EU partners have not. While further political instability could affect this operation's implementation, the mitigation of this risk lies in the design of the overall Program which takes a people-centered approach, targeting the fundamental needs of the people of Niger—*food and nutrition security,* and addresses food security and agricultural productivity issues that have consistently remained a priority across regime changes. For instance, the preparation of this project started under the previous regime and resumed with the current, with similar project design and priorities. Furthermore, the project preparation held extensive consultations to ensure that it addresses issues with a broad consensus across a wide spectrum of stakeholders and will support TA, civil society engagement, and communication.

103. **Macroeconomic risks: Substantial.** With sanctions lifted in 2024, growth could rebound to 9.1 percent in 2024 and average 4.5 percent over 2025-26, boosted by large-scale oil exports, while the non-oil industry and service sectors face a challenging recovery. With the onset of oil exports, the current account deficit is projected to narrow from 9.3 percent of GDP in 2023 to 7.7 percent in 2024. However, growth prospects could be weakened by the expected impacts of withdrawal from ECOWAS: lower non-WAEMU ECOWAS trade, higher investors' risk premia, and increased regional financing costs. The fiscal sector will continue to face financing constraints, even with the clearance of arrears due to limited access to external financing and costlier domestic financing. Inflation is expected to remain above 3 percent in 2024-26 as the resumption of large imports from the region is offset by higher import costs due to the exit from the ECOWAS free trade area.

104. **Institutional capacity and sustainability risks: Substantial.** Institutional capacity to implement project activities can be a challenge, particularly in the regions. To mitigate this risk, the project is proposing a targeted technical assistance to the coordination units and technical agencies for effective implementation of the project. Besides the central PMU, six regional units will be established to enhance on-ground monitoring of activities and interactions with local authorities, decentralized government agencies, partners, and contractors.

105. **Fiduciary risks: Substantial.** Notwithstanding progress over the recent past, overall fiduciary governance is still confronted by some challenges such as security concerns in some implementing areas and disbursement delays. In addition, the project involves a multitude of actors and beneficiaries which may lead to weak compliance with the Bank requirements particularly in areas that are facing security issues. The detailed mitigation measures, including adopting the PIM with FM procedures, are discussed in Annex 1.

106. **Environmental and social risks: Substantial.** While the project is expected to have important environmental and social benefits, the environmental and social risks are substantial as already noted above. The client and project stakeholders are familiar with the World Bank's environmental and social safeguard procedures, although additional support is required to reinforce their capacity on the Environmental and Social Framework (ESF). The anticipated impacts as well as the guidelines for managing them are defined in the ESF instruments.

107. **Other risks - Security: Substantial.** Persistent insecurity could divert human resources from the implementation and monitoring of the project activities. The Bank team will work closely with the Client and PMU, which will recruit a Security Specialist. This specialist will monitor the security situation at project sites and adapt implementation strategy accordingly. The strategy will consider the flexibility to select alternative sites based on the security situation Moreover, as agreed in the ESCP, the project will prepare and implement a Security management Plan (SMP) that will proactively assess the security situation and guide project implementation. Furthermore, the project will: (i) leverage efforts under existing national and regional project investments (such as livestock mobility corridors, support on climate-smart technologies and inputs, building capacity for land management authorities, and establishing community conflict management committees) to mitigate conflicts related to resource competition. The security specialist will work closely with the community conflict management committees in the project areas; (ii) promote citizen engagement; (iii) facilitate access to grievance redress mechanisms to effectively tackle governance challenges; and (iv) finance investments to mitigate medium- to long-term fragility drivers**.**

VII. RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Closing Period
Increasing agriculture and livestock productivity	
Increased average yield of agriculture products among targeted beneficiaries (Percentage)	
	Sept/2029
	40.00
➢Rice (Percentage)	
	45.00
➢Onion (Percentage)	
	40.00
➢cowpea (Percentage)	
	35.00
Increased average yield of selected animal products among targeted beneficiaries (Percentage)	
	Sept/2029
	30.00
➢Meat (small ruminants) (Percentage)	
	25.00
➢Meat (large ruminants) (Percentage)	
	30.00
➢Milk: Increase in milk output (Liter)	
3.00	6.00
Increasing climate resilience	
People with enhanced resilience to climate risks (Number of people) CRI	
	Sept/2029
	1,500,000
➢People with enhanced resilience to climate risks – Youth (Number of people) CRI	

	Sept/2029
	500000
➢People with enhanced resilience to climate risks – Female (Number of people) CRI	
	Sept/2029
	675000
Area provided with new/improved irrigation or drainage services (Hectare(Ha))	
	Sept/2029
	18000
➢Area provided with new irrigation or drainage services (Hectare(Ha))	
	Sept/2029
	13400
➢Area provided with improved irrigation or drainage services (Hectare(Ha))	
	Sept/2029
	4600
Increasing commercialization	
Increased volume of targeted crop value chains sold by beneficiary households (Percentage)	
	Sept/2029
	30.00
Increased volume of targeted livestock value chains sold by beneficiary households (Percentage)	
	Sept/2029
	30.00
Strengthening food and nutrition security	
People with strengthened food and nutrition security (Number of people) CRI	
	Sept/2029
	2,500,000
➢People with strengthened food and nutrition security – Youth (Number of people) CRI	
	Sept/2029
	1,000,000
➢People with strengthened food and nutrition security – Female (Number of people) CRI	
	Sept/2029
	1,000,000

Intermediate Indicators by Components

Baseline	Closing Period
Component 1: Building Resilient Agricultural Productive Capacity	
Farmers reached with agricultural assets or services (Number)	
	Sept/2029
	600000.00
Land area under sustainable landscape management practices (Hectare(Ha))	
	Sept/2029
	20000.00
Land area sown with improved seeds in the project area (Percentage)	
	Sept/2029
	20.00
Farmers adopting good animal husbandry practices (Number)	
	Sept/2029
	20,000.00
Component 2: Improving Agriculture and Livestock Markets	
Agriculture market infrastructures built or rehabilitated (Number)	
	Sept/2029
	530.00
➢Warehouses and temporary storage for rice (Number)	
	Sept/2029
	60.00
➢Warehouses and temporary storage for cowpeas (Number)	
	Sept/2029
	450.00
➢Storage facility for onions (Number)	
	Sept/2029
	20.00
Livestock market infrastructure built or rehabilitated (Number)	
	Sept/2029
	37
➢Livestock markets built or rehabilitated (Percentage)	
	Sept/2029
	18
➢Milk collection centers built or rehabilitated (Number)	

	Sept/2029
	18
➢Slaughterhouses (new and existing) supported (Number)	
	Sept/2029
	1
Farmer and herder cooperatives linked to markets (Number)	
	Sept/2029
	50.00
Component 3: Facilitating Access to Finance	
Women-led firms with increased access to agriculture finance (Number)	
	Sept/2029
	200
Number of sub-projects financed by the project (Number)	
	Sept/2029
	600.00
Amount of loans extended to the agriculture sector leveraged by the CEGs and PPCGs (Amount(USD))	
	Sept/2029
	40000000
Component 4: Project Coordination and Institutional Strengthening	
Percentage of grievances addressed within the project approved timeline (Percentage)	
	Sept/2029
	100.00
Beneficiaries satisfied with project delivered services (Percentage)	
	Sept/2029
	85.00
An effective MIS system in place for the agriculture and livestock ministry and the FISAN (Yes/No)	
	Sept/2029
	Yes
Component 5: Contingent Emergency Response Component	

Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Increasing agriculture and livestock productivity	
Increased average yield of agriculture products among targeted beneficiaries (Percentage)	
Description	This indicator measures the percentage increase in the yield of target crops per hectare produced by the targeted project beneficiaries who receive support.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly crop surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Rice (Percentage)	
Description	This indicator measures the percentage increase in yield per hectare of irrigated rice due to project intervention.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly crop surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Onion (Percentage)	
Description	This indicator measures the percent increase in onion yield in tons per hectare.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly crop surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
cowpea (Percentage)	
Description	This indicator measures the percent increase of cowpea yield in tons per hectare.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly crop surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Increased average yield of selected animal products among targeted beneficiaries (Percentage)	
Description	This indicator measures the percentage increase in cattle weight (red meat production) per production cycle among targeted project beneficiaries who receive project support.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly crop surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Meat (small ruminants) (Percentage)	
Description	This indicator measures the percent increase in kilograms of carcass weight for small ruminants.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly livestock surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU

Meat (large ruminants) (Percentage)	
Description	This indicator measures the percent increase in kg of carcass weight for large ruminants.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly livestock surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Milk: Increase in milk output (Liter)	
Description	This indicator measures the increase in liters of milk output.
Frequency	Annual
Data source	Annual Survey data
Methodology for Data Collection	Yearly livestock surveys administrated with representative sample of targeted project beneficiaries and control group
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Increasing climate resilience	
Area provided with new/improved irrigation or drainage services (Hectare(Ha)) CRI	
Description	This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).
Frequency	Every 6 months
Data source	Agricultural land and production surveys
Methodology for Data Collection	Annual surveys on agricultural land and drainage services
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Area provided with new irrigation or drainage services (Hectare(Ha)) CRI	
Description	Measures in hectares the total area of land provided with new or improved irrigation or drainage services.
Frequency	Every 6 months
Data source	Agricultural land and production surveys
Methodology for Data Collection	Annual surveys on agricultural land and drainage services
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Area provided with improved irrigation or drainage services (Hectare(Ha)) CRI	
Description	Measures in hectares the total area of land provided with new or improved irrigation or drainage.
Frequency	Every 6 months
Data source	Agricultural land and production surveys
Methodology for Data Collection	Annual surveys on agricultural land and drainage services
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
People with enhanced resilience to climate risks (Number of people)	
Description	This indicator measures the number of people with strengthened resilience against the risks of climate change. The project is expected to increase climate resilience through investments and activities by the project during the intervention period, where data and methodologies exist. It will consider how the interventions enhance resilience of their beneficiaries by including structural investments, non-structural or capacity development elements, and improvements to the enabling environments and institutional frameworks for climate resilience. These interventions could include, for example: access to climate-resilient infrastructure and climate smart agricultural and/or livestock technologies and practices.
Frequency	Annual

Data source	Management Information Systems (MIS) and annual surveys
Methodology for Data Collection	Annual surveys of beneficiary farmers
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
People with enhanced resilience to climate risks – Youth (Number of people)	
Description	Same as above but targeted to youth
Frequency	Annual
Data source	Management Information Systems (MIS) and annual surveys
Methodology for Data Collection	Annual surveys of beneficiary farmers
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
People with enhanced resilience to climate risks – Female (Number of people)	
Description	Same as above but targeted to women and girls
Frequency	Annual
Data source	Management Information Systems (MIS) and annual surveys
Methodology for Data Collection	Annual surveys of beneficiary farmers
Increasing commercialization	
Increased volume of targeted crop value chains sold by beneficiary households (Percentage)	
Description	It measures the increase in the volume of agricultural output (as % of total production) that is sold to the market.
Frequency	Baseline, midline and end of project
Data source	Farmers and value chain actors
Methodology for Data Collection	Farm and market surveys
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Increased volume of targeted livestock value chains sold by beneficiary households (Percentage)	
Description	This measures the increase in the volume of livestock output (as % of total production) that is sold to the market.
Frequency	Baseline, midline and end of project
Data source	Farmers and value chain actors
Methodology for Data Collection	Farm and market surveys
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
People with strengthened food and nutrition security (Number of people)	
Description	This indicator measures the number of people with strengthened food and nutrition security (FNS). The project is expected to FNS through investments in agriculture productvity and climate change adaptation. This is a corporate Scorecard indicator and its measurement method is under development.
Frequency	Annual
Data source	Management Information Systems (MIS) and annual surveys
Methodology for Data Collection	Annual surveys of project beneficiaries
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
People with strengthened food and nutrition security – Youth (Number of people)	
Description	Same as above but targeted to youth
Frequency	Annual
Data source	Management Information Systems (MIS) and annual surveys
Methodology for Data Collection	Annual surveys of project beneficiaries
Responsibility for Data	Ministry of Agriculture and Livestock, supporting institutions, and PMU

Collection	
People with strengthened food and nutrition security – Female (Number of people)	
Description	Same as above but targeted to women and girls
Frequency	Annual
Data source	Management Information Systems (MIS) and annual surveys
Methodology for Data Collection	Annual surveys of project beneficiaries
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Component 1: Building Resilient Agricultural Productive Capacity	
Farmers reached with agricultural assets or services (Number)	
Description	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.
Frequency	Annual
Data source	Progress reports, MIS
Methodology for Data Collection	Farm and market surveys
Responsibility for Data Collection	Ministry of Agriculture and Livestock and other project implementing agencies
Land area under sustainable landscape management practices (Hectare(Ha))	
Description	The indicator measures, in hectares, the land area for which new and/or improved sustainable landscape management practices have been introduced. Land is the terrestrial biologically productive system comprising soil, vegetation, and the associated ecological and hydrological processes; Adoption refers to change of practice or change in the use of a technology promoted or introduced by the project; Sustainable landscape management (SLM) practices refers to a combination of at least two technologies and approaches to increase land quality and restore degraded lands for example, agronomic, vegetative, structural, and management measures that, applied as a combination, increase the connectivity between protected areas, forest land, rangeland, and agriculture land.
Frequency	Annual
Data source	Agricultural land and production surveys
Methodology for Data Collection	Annual surveys on agricultural land and drainage services
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Land area sown with improved seeds in the project area (Percentage)	
Description	This indicator measures the percentage increase in the sown acreage covered with improved seed (of agricultural crops including staples and/or high value crops) because of project support. This percentage increase refers to the incremental impact of project support compared to baseline or to the control group.
Frequency	Annual
Data source	Agricultural crop production surveys
Methodology for Data Collection	Farm surveys
Responsibility for Data	Ministry of Agriculture and Livestock, supporting institutions, and PMU

Collection	
Farmers adopting good animal husbandry practices (Number)	
Description	This indicator captures the number of farmers who adopted improved livestock practices, including improved breed, animal health, feeding practices, among others.
Frequency	Annual
Data source	Livestock surveys
Methodology for Data Collection	Annual livestock and agriculture surveys
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Component 2: Improving Agriculture and Livestock Markets	
Agriculture market infrastructures built or rehabilitated (Number)	
Description	This indicator measures the total number of agriculture market infrastructure (including storage facilities, warehouses, and market places) supported by the project.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Warehouses and temporary storage for rice (Number)	
Description	This indicator measures the total number of rice warehouses built or rehabilitated with project support.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Warehouses and temporary storage for cowpeas (Number)	
Description	This indicator measures the total number of cowoea warehouses built or rehabilitated with project support.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Storage facility for onions (Number)	
Description	This indicator measures the total number of onion storage facilities built or rehabilitated with project support.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Livestock market infrastructure built or rehabilitated (Percentage)	
Description	This indicator measures the total number of livestock infrastructure (including milk collection centers, slaughterhouses/abbatoirs, and market places) supported by the project.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU

Milk collection centers built or rehabilitated (Percentage)	
Description	This indicator measures the total number of milk collection centers supported by the project.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Slaughterhouses (new or existing) supported (Percentage)	
Description	This indicator is related to the support provided to the completion and operationalization of the abattoir in Maradi.
Frequency	Baseline, mid term, and end of project
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Farmer and herder cooperatives linked to markets (Number)	
Description	This indicator measures the total number of livestock markets supported by the project.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Component 3: Facilitating Access to Finance	
Women owned/led sub-projects financed by the project (Number)	
Description	Component 3 provides agriculture credit and faciliate access to finance by targeting women farmers and women managed/led firms. Not only does it provides them grants, but it also links *women farmers, women groups, and women managed/owned SMEs* to financial institutions (such as banks and MFIs). This will contribute to closing the large gender gap in access to finance in the sector. The project provides technical assistance to facilitate formalization and access to information to women farmers, thereby enhancing their eligibility for the grants in the project and integration in the financial sector The project will provide women targeted training in business development and financial literacy to a significant amount of beneficiaries.
Frequency	Every 6 months
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	MOAL/PMU, FISAN, SAHFI
Number of sub-projects supported by the project (Number)	
Description	This indicator measures the total sub-projects approved and financed by the the project.
Frequency	Every 6 months
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	MOAL/PMU, FISAN, SAHFI
Amount of loans extended to the agriculture sector leveraged by the CEGs and PPCGs (Amount(USD))	
Description	This is the amount of private capital that will be mobilized or leveraged by the project's CEGs and PPCGs. This includes private capital mobilized from beneficiaries as commercial loans (US$40 million).
Frequency	Quarterly
Data source	Financial and audit reports
Methodology for Data	Financial and audit reports

Collection	
Responsibility for Data Collection	MOAL/PMU, FISAN, SAHFI
Component 4: Project Coordination and Institutional Strengthening	
Percentage of grievances addressed in a timely manner (Percentage)	
Description	Measures the percentage of complaints or grievance addressed/dealt with/ in a timely and satisfactoy manner.
Frequency	Monthly
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Share of target beneficiaries with rating "satisfied" or above with services provided by the project interventions (Percentage)	
Description	This indicator measures the beneficiary satisfaction from project services and support.
Frequency	Annual
Data source	PMU reports
Methodology for Data Collection	PMU reports
Responsibility for Data Collection	Ministry of Agriculture and Livestock, supporting institutions, and PMU
Component 5: Contingent Emergency Response Component	

Annex 1: Implementation Arrangements and Support Plan

A. Project Implementation Arrangements

1. **National Project Steering Committee**. The LAMP will be implemented under the overall leadership and oversight of the National Project Steering Committee (NPSC). The NPSC, which will be chaired by the General Secretary of the Ministry of Agriculture and Livestock (MOAL), will comprise officials from other key sector ministries (Commerce, Environment, Hydraulics, and Economy and Finance), and other entities involved in implementing the project, including the National Network of Chambers of Agriculture (RECA-Niger), CNRA, the National Institute of Agronomic Research of Niger (INRAN), and the Agriculture Advisory Services Promotion Agency (APCA). The committee will also include representatives of the private sector, participating financing institutions, farmers' organizations, and civil society, so that they contribute to good governance and voice their concerns as needed. The main functions and responsibilities of the NPSC are to: (i) advise the project on strategic directions and supporting activities; (ii) approve the Annual Work Plan and Budget (AWPB); (iii) oversee the audit function (internal and external); and (iv) review the Implementation Progress Reports (IPRs) and advise on the effectiveness of ongoing activities as well as on any adjustments needed on the Annual Work Plan.

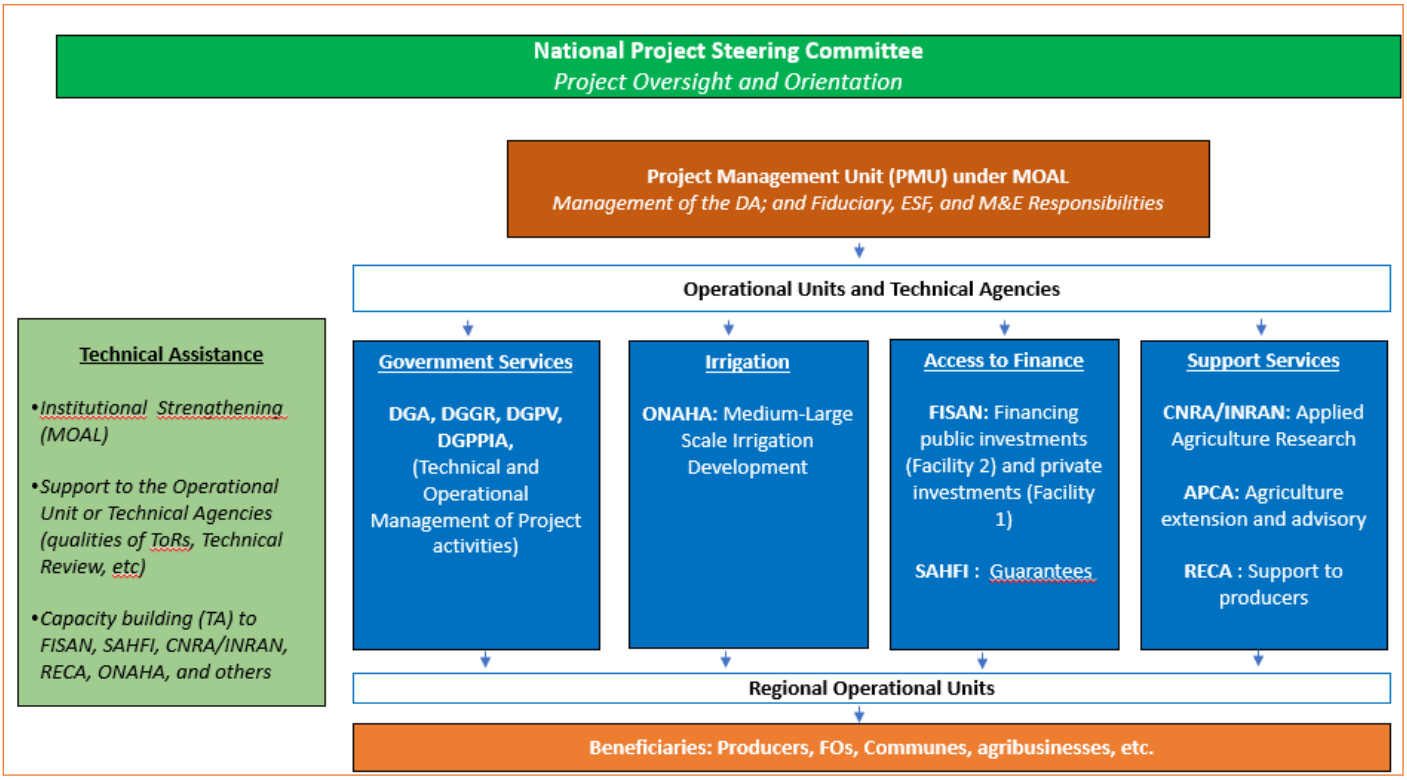
2. **Project Management Unit (PMU)**. A PMU will be established for coordinating, planning, and monitoring project activities. The PMU will be hosted by MOAL under the direct supervision of the Secretary General. The PMU, which will have a regional unit in each of the six project regions, will be responsible for overall day-to-day implementation and coordination. The PMU will be led by a Project Coordinator (to be nominated by the government) and include the following competitively selected staff: (i) *at central level*, fiduciary specialists (including a financial specialist, an accountant, an internal auditor, and two procurement specialists), safeguards specialists (a social specialist and an environmental specialist), a gender/GBV specialist, security specialist, an M&E specialist, and a communications specialist; and (ii) *at regional level*, an accountant in each project region. The remaining technical staff of the PMU will be civil servants recruited within MOAL, or other government departments, to work exclusively on the project. The list of positions to be mobilized by MOAL will be approved by and can be modified with consent of the Steering Committee and the World Bank, conditional on project implementation requirements and availability of resources for the project management component. All PMU staff, including the civil servants, will be exclusively dedicated to the project activities. It should be noted that using MOAL technical experts is part of the World Bank and the Government's desire to build capacity of the ministry, and to ensure ownership and sustainability of the project, which is especially important in an MPA context. To mitigate the associated risks, the legal, financial, and contractual arrangements will be put in place through the PIM.

3. **Regional Coordination Units (RCUs).** The project will establish Regional Coordination Units in each participating project region, with adequate resources, composition, and mandate satisfactory to the Association, as set forth in the PIM. The RCU will be (i) responsible to assist the central PMU in carrying out relevant project activities at the regional level, including the preparation of the AWPBs, procurement, financial management, follow-up and implementation of environmental and social safeguards measures, M&E of project outputs and outcomes, and general implementation of project activities; and (ii) headed by a regional coordinator and staffed with competent personnel in adequate numbers, with qualifications, experience, integrity and terms of reference satisfactory to the Association and as set forth in the PIM.

4. The PMU will (i) prepare bi-annual reports and AWPB; (ii) carry out periodic assessments against targets, and in partnership with MOAL, propose subsequent actions and necessary adjustments; (iii) prepare disbursement applications; (iv) ensure all procurement activities are undertaken; (v) facilitate audits; (vi) carry out outreach campaigns; (vii) hire resource persons and consultants; and (viii) oversee implementation of sub-projects, including the inspection of works and delivery of goods. The PMU will establish agreements with governmental agencies and institutions mandated to carry out

the project activities (Figure A1.1).[28] These agencies and institutions will directly implement project activities according to a well-defined plan outlined in each agreement. The project will also hire a private implementation firm to support FISAN, the PFIs, and SAHFI to lead the technical review of the sub-project selection.

Figure A1.1 Institutional Arrangements



***Note**: Hands-on Expanded Implementation Support (HEIS) for procurement can be considered during implementation.*

5. The technical agencies will be responsible to: (i) plan specific project activities and work streams as well as budgeting and executing the approved annual work plan; (ii) provide technical input on day-to-day implementation problems as well as developing solutions to critical challenges; (iii) track and report on progress; and (iv) supervision and quality control of services provided; including gender inclusion, environmental and social safeguards (particularly resettlement), and M&E. Where needed, the project will finance technical assistance to strengthen their ability to perform their duties. These responsibilities will be detailed in the PIM.

Monitoring and Evaluation

6. Monitoring and evaluation (M&E) activities will be the responsibility of the PMU (in coordination with the line ministry), who will compile, consolidate, and report data and information from all implementing agencies and beneficiaries.

[28] These include: (i) Thee concerned MOAL Directorates (namely: the General Directorate of Agriculture – DGA, the General Directorate of Rural Engineering – DGGR, the General Directorate of Plant Protection – DGPV, and the General Directorate of Pastoral Development, Production and Animal Industries – DGPPIA); (ii) Other government agencies (namely: the National Office of Hydro-Agricultural Developments – ONAHA, the Agriculture Advisory Services Promotion Agency – APCA, the National Agriculture Research Council – CNRA, the National Institute of Agronomic Research of Niger – INRAN, and the Investment Fund for Food and Nutritional Security – FISAN); and (iii) Private sector/other stakeholders (namely: Sahelian Finance Company – SAHFI).

B. Financial Management

7. **In line with the guidelines as stated in the FM Manual for World Bank IPF Operations** that became effective on March 1, 2010, and was last revised on February 10, 2017, an FM assessment of MOAL was conducted. The objectives of the assessment were to determine whether MOAL has adequate FM arrangements to ensure that: (i) the project funds will be used for purposes intended in an efficient and economical way; (ii) the project's financial reports will be prepared in an accurate, reliable, and timely manner; (iii) the project's assets will be safeguarded; and (iv) the project is subjected to a satisfactory auditing process. The review of the FM's existing systems included budgeting, staffing, financial accounting, financial reporting, funds flow/disbursements, and internal/external audit arrangements.

8. **The FM assessment concluded that the MOAL has in place, for the projects under its management, basic FM arrangements and a good track record in implementing World Bank funded projects**. For this project, the MOAL will establish a dedicated PMU for its implementation. The review of the external audit reports received, revealed that the projects' financial statements were certified with an unqualified opinion except for the FSRP which first audit report is due on June 2024 and for the PRAPS II which first audit report received a qualified opinion and for which and remediation action plan had been elaborated and corrective action ongoing.

9. **FM risks and mitigation measures.** The fiduciary risk is substantial due to key risks related to security concerns, multiple project stakeholders, limited implementation capacity, and delays in disbursements. To mitigate these risks, the client will (i) prepare and adopt the PIM including FM procedures such as internal controls, budget process, assets safeguards, description of roles and responsibilities of all stakeholders and grant/guaranties mechanism and modalities etc.; (ii) establish a PMU with key staff in adequate numbers and with TORs, qualifications, experience and integrity satisfactory to the Association and as set forth in the PIM; (iii) open a DA in a commercial bank acceptable to the World Bank; and (iv) no later than one month of project effectiveness, recruit an external auditor with ToRs acceptable to the World Bank.

Planning and Budgeting Arrangements

10. **The PMU, in close collaboration with all involved implementing partners and technical units, will prepare an AWBP for implementing project activities considering the project's objectives.** The AWPB will be approved by the NPSC and submitted to the WB for no-objection not later than November 30 of each year proceeding the year in which the work plan will be implemented. The budgetary discussions will begin at least six months before the fiscal year of implementation and will consider the procurement plan as the starting point. Once the budget is approved, the budget execution will be monitored through the automated accounting software to serve as a basis for a budget execution monthly follow-up, based on variance analysis report comparing planned with actual expenditures that will be part of the quarterly unaudited IFR.

Accounting arrangements

11. **FM manual.** The PIM detailing administrative, procurement, FM, safeguards, and M&E procedures and arrangements for the project will be elaborated and adopted by the MOAL in form and substance satisfactory to the World Bank, before the project effectiveness date.

12. **Accounting staff.** The project FM team will be comprised of one FM specialist, one senior accountant and one accountant at central level and one accounting assistant for each region. The team at the central level will be recruited before the project effectiveness date. The regional accounting assistants will be recruited within three months after the project's effectiveness date. The FM team will be recruited based on terms of references (ToR) satisfactory to the World Bank.

13. **Accounting information systems.** A computerized FM system will be acquired and installed within three months after the project's effectiveness date. The accounting software to be procured will include the following modules to be

integrated: budgeting, general accounting, cost accounting, reporting, M&E, fixed assets management, preparation of withdrawal applications, and tracking of disbursements by donors. The accounting software will be deployed in each of the project implementation regions and will include the proposed project activities.

14. **Accounting standards.** The PMU will use the new SYSCOHADA accounting standards which are commonly used among the West African Francophone countries, the SYCBNL. The chart of accounts would be prepared to reflect various project components to facilitate the preparation of relevant monthly, quarterly, semiannual, and annual financial statements. The annual financial statements will be prepared in accordance with SYCEBNL /SYSCOHADA accounting standards and relevant International Public Sector Accounting Standards using a computerized accounting system.

Internal Control and Internal Auditing

15. **Manuals.** FM procedures will be detailed in the PIM to be elaborated and adopted in form and substance satisfactory to the World Bank before the project effectiveness date. The FM procedures will cover at least the following aspects: institutional arrangements, budget and budgetary control, disbursement procedures and banking arrangements, receipt of goods and payment of invoices, internal control procedures, accounting system and transaction records, reporting requirements, and audit arrangements. The FM procedures will also include guidance for handling project funds by any relevant entity involved in the project implementation, as well as annexes with template forms and reports such as asset control form and register; budget formats; monthly, quarterly, and semiannual reports; annual financial statements; and so on. The project will prepare and adopt grants and guarantees manuals, clarifying the financing/guarantees process, size of grants/guarantees, selection criteria, the management of guarantees among others.

16. **Internal audit functions.** At the central level, a qualified and experienced internal auditor will be recruited with ToRs acceptable to the World Bank and will provide support to the PMU as well as the six regions. The internal auditor will be recruited before the project effectiveness date. The project internal auditor will advise on the adequacy of project systems of internal controls and will conduct reviews of the implementation of project's activities. The role of project internal auditor will also include following up on implementation of appropriate actions to improve effectiveness of risk management, control, and governance processes at all levels and training of project's staff. The internal auditor will be trained in risk-based audit. Additional training will be recommended as part of continuing professional education. The NPSC is expected to have a fiduciary oversight function.

Funds Flow and Disbursement Arrangements

17. P**roceeds of the financing will be used by the project for payments of eligible expenditures as defined in the Financing Agreement and further detailed in the annual work plans and budgets and Procurement Plans.** Disbursement arrangements were designed in consultation with the Borrower after considering the assessment of the implementing agency's FM capacities and anticipated cash flow needs of the operation.

18. **Disbursements arrangements.** The disbursement methods that would be used under this project will be based on the Disbursement Guidelines for IPF, dated February 2017. As a result, all World Bank disbursement methods will apply (i) direct payments to a third party for works, goods, and services upon the Recipient's request; (ii) special commitments and letters of credit; (iii) reimbursements for expenditures incurred under the project; and (iv) advances. Further details about disbursements to the project are included in the disbursement procedures described in the Disbursement and Financial Information Letter (DFIL) and the administrative, financial, and accounting procedures manual. The PMU will maintain the project Designated Account (DA) and the regional functional bank accounts managed by the regions. If the DA remains inactive for more than six months, the Borrower may be requested to refund to IDA amounts advanced to the DA. IDA will have the right, as reflected in the Financing Agreement, to suspend disbursement of the funds if reporting requirements are not complied with.

19. **Banking arrangements for DA.** The MOAL, through its PMU will open one segregated DA denominated in West

African CFA franc in a commercial bank on terms and conditions acceptable to the World Bank. The project's DA will function under the co-signature of the project coordinator and the FM specialist. All transactions will be verified by the FM specialist.

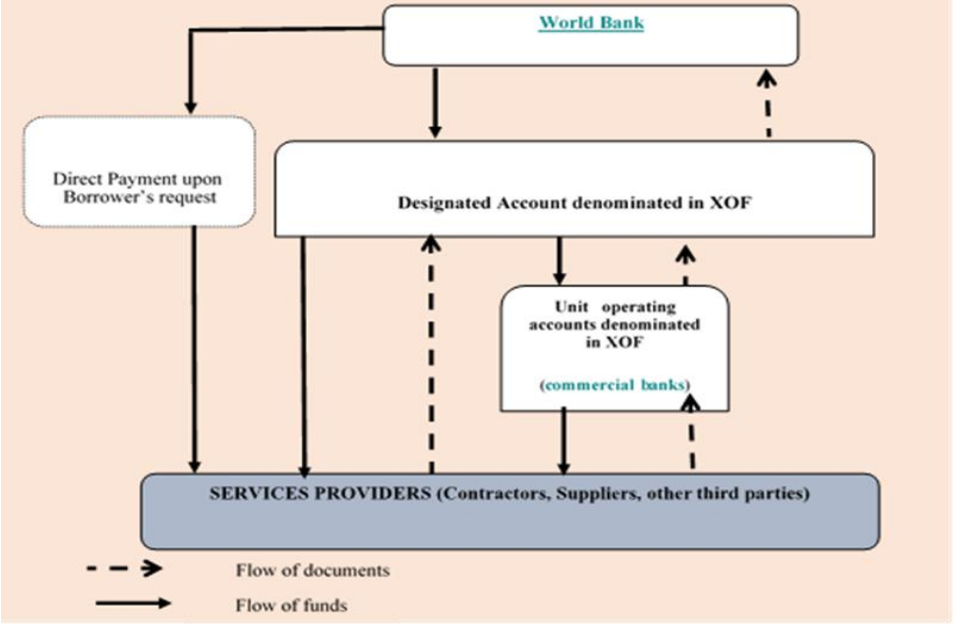
20. **Flow of funds.** Funds flow arrangements for the project through the DA and regional bank accounts are as follows:

a. IDA will make an initial advance disbursement into the project DA in CFA francs upon receiving a withdrawal application from the Recipient. From the implementing entity's DA, funds transfer will be made to the beneficiaries and the regional accounts (see Figure A1.2).

b. Replenishment of funds from IDA to the DA and from the PMU to the six regional bank accounts will be made upon evidence of satisfactory utilization of the advance, reflected in statement of expenditures (SOEs) and/or on full documentation for payments above SOEs thresholds. Replenishment applications would be required to be submitted regularly on a monthly basis. Further details will be included in the disbursement procedures described in the DFIL and the PIM.

c. **Payments to other implementing Agencies:** The project will make payments to other implementing agencies regarding the specified activities in the components of the project. Payments will be made in accordance with the payment modalities, as specified in the respective agreements/memorandum of understanding. In addition to these supporting documents, the project will consider the findings of the internal and external auditors while approving the payments. The project will reserve the right to verify the expenditures ex-post, and refunds might be requested for non-respect of contractual/convention clauses.

Figure A1.2 Funds Flow



Financial Reporting Arrangements

21. **IFRs**. In line with the World Bank's FM guidelines, the PMU will be required to prepare and submit quarterly-unaudited IFRs to account for activities funded under this project. The IFRs would provide enough pertinent information for a reader to establish whether (i) funds disbursed to projects are being used for the purpose intended; (ii) the project implementation is on track; and (iii) budgeted costs will not be exceeded. The IFRs will include the following (i) an introductory narrative discussion of project developments and progress during the period, to provide context to (or other

explanations of) financial information reported; (ii) a Sources and Uses of funds Statement, both cumulatively and for the period covered by the report, showing separately funds provided; (iii) a statement of the use of funds by components, cumulatively and for the period covered by the report; (iv) the DA reconciliation, including bank statements and general ledger of the bank accounts; (v) the disbursement forecasts of the upcoming six months; and (vi) an explanation of variances between the actual and planned. The FM manual will cover the IFR preparation procedure.

22. **Annual financial reporting.** In compliance with International Accounting Standards and IDA requirements, the PMU will produce annual financial statements. These include (i) a balance sheet that shows assets and liabilities; (ii) a statement of sources and uses of funds showing all the sources of project funds and expenditures analyzed by project component and/or category; (iii) a list of material assets acquired or procured to date with project funds; (iv) notes related to significant accounting policies and accounting standards adopted by management and underlying the preparation of financial statements; and (v) a management assertion that project funds have been disbursed for the intended purposes as specified in the relevant financing agreements.

23. **Audit arrangements**. In line with World Bank's policy the PMU is required to submit annual project financial statements audited in accordance with international standards on auditing (ISA), by an independent external auditor appointed based on ToRs acceptable to IDA. The external auditor will express an opinion on the project financial statements in compliance with ISA. In addition to the audit report, the external auditor will prepare a Management Letter containing the auditor's assessment of the internal controls, accounting system and compliance with financial covenants in the financing agreement, suggestions for improvement, and management's response to the auditor's management letter. The audit reports shall be submitted to IDA within six months after the end of each financial year.

24. **Implementation Support and Supervision Plan.** The World Bank's FM implementation support will be consistent with a risk-based approach and will involve collaboration with the World Bank's task team, Letter of Appointment and procurement. The supervision intensity will be based initially on the PAD FM risk rating and subsequently on the updated FM risk rating during implementation. On-site review will cover all aspects of FM, including internal control systems, the overall fiduciary control environment, and tracing transactions from the bidding process to disbursements as well as SOE review. Additional supervision activities will include desk review of periodic IFRs, quarterly internal audit reports, audited annual financial statements and management letters as well as timely follow up of issues that arise. The World Bank task team will provide support monitoring the timely implementation of the action plan.

Table A1.1. Implementation Support Plan

FM activity	Frequency
Desk reviews	
IFR review	Quarterly
Audit report review of the project	Annually
Review of other relevant information such as interim internal control systems reports	Continuous as they become available
On-site visits	
Review of overall operation of the FM system	Semi-annually (implementation support mission)
Monitoring of actions taken on issues highlighted in audit reports, auditors' management letters, internal audit, and other reports	As needed, but at least during each implementation support mission
Transaction reviews	As needed
Capacity-building support	
FM training sessions by WB FM team	During implementation and as needed

25. **Supervision Plan:** Based on the risk rating of the project and the current FM arrangements, it is expected that in the

first year of implementation, there will be four quarterly on-site visits to ascertain adequacy of systems and supplemented by desk reviews of IFRs and audit reports. The FM supervision mission's objectives will include ensuring that adequate FM systems are maintained for the project throughout project life. In adopting a risk-based approach to FM supervision, the key risk areas of focus will include assessing the accuracy and reasonableness of budgets, their predictability and budget execution, compliance with payment and fund disbursement arrangements, and the ability of the systems to generate reliable financial reports.

C. Procurement Arrangements

26. **Procurement responsibilities**. The procurement activities will be carried out by the PMU. A qualified procurement specialist will be hired as part of the key personnel. Furthermore, MOAL will be responsible for the coordination and quality control of all procurement-related activities funded by the proposed project.

27. **All goods, works, and non-consulting services will be procured in accordance with the requirements set forth**. The approved selection methods include Goods, Works, and Non-Consulting Services of the Procurement Regulations and the consulting services will be procured in accordance with the requirements set forth or referred to in section VII. The approved selection methods include Consulting Services of the Procurement Regulations.

28. **Procurement Risks.** The MOAL via existing PMUs manages the procurement of the current agriculture projects with experienced staff and acceptable performance on procurement arrangements. Hence the institutional and implementation arrangements of the project would be inspired by these arrangements currently in place. There will be a PMU with different types/tiers of appointments: (i) individual consultants that will be competitively selected (FM, Procurement, Contract Management, E&S, M&E, Internal audit, communications, etc.); (ii) Civil servants to be selected that will exclusively work for LAMP; and (iii) civil servants to be assigned to work on specific tasks on LAMP while still performing other Government duties. The project implementation area covers multiple regions and many counterparts are involved. Furthermore, the sanctions and the political situation will make it difficult to attract qualified Consultants and contractors. The following measures are proposed to mitigate the risks mentioned above: (i) elaborating a PPSD that takes into account previous experience and the Niger current context; (ii) identifying critical activities to be supported by HEIS which can be considered during implementation (following relevant Bank procedure); (iii) raising awareness and communicating with potential suppliers/ contractors and consultants about the upcoming tenders; (iv) promoting flexibility to work remotely, including by international consultants; (v) additional procurement resources; (vi) training to the procurement team on specific procurement topics relevant to the project (vii) closer procurement implementation support from the Bank Team; and (viii) the use of technology (MIS) to monitor procurement and contracts' implementation and alert timely on any potential deviation from the plan.

29. **Oversight and Monitoring Arrangements.** The PPSD and associated Procurement Plan (PP), which have been prepared and agreed with before Negotiations, define what project contracts will be subject to the World Bank's prior review and those that will be subject to the World Bank's post review only. Aside from ex-ante review of contracts indicated in the PPSD and PP, the World Bank will also conduct post reviews of at least 10 percent of the project contracts that are not subject to Bank's prior review. In addition, the World Bank will regularly follow up on the progress of project procurement during Project Implementation Support Missions.

Annex 2: Selected Value Chains for Project Support

1. **Agriculture and livestock are critical sectors in Niger's economy.** They are major sources of employment and contribute significantly to food security, making them major public policy priorities. Rice, cowpea, horticulture (especially onion) and livestock are particularly important in this regard.

Rice value chain

2. **Niger produces around 121,000 tons of paddy on 23,000 ha or about 84,000 tons of milled rice annually.** Demand has risen sharply because of the strong growth in the urban population. As a result, current production on 23,000 ha meets only about 15-20 percent of the country's needs, with the difference made up by imports. About 70 percent of the rice is produced by smallholder farmers on large, irrigated perimeters with an average yield of 6 tons/ha per cycle (or 12 tons/ha per year). Those perimeters are well organized under the supervision of both the *Office National des Aménagements Hydroagricole* (ONAHA) and Farmers Organizations. The remaining 30 percent is produced by small private farmers cultivating lowland areas with supplemental pumped water irrigation and obtaining yields of 3-5 tons/ha in a single cycle during the rainy season, and those farmers cultivating rice without any supplemental irrigation who obtain low yields of 0.2 tons/ha on average. However, Niger has large irrigation potential for rice cultivation on about 270,000 ha.[29] Its development would be greatly aided by the surface water soon to be regulated by the major Kandadji dam and by a climate that permits two rice harvests per year.

3. **The following priority actions would help Niger become a more successful rice producer and bring the country closer to rice self-sufficiency**: (i) rehabilitation and/or development of rice production infrastructure in the Niger valley; (ii) strengthening upstream segments of the value chain led by the private sector; (iii) improving extension services focusing on O&M of irrigation schemes as well as intensive rice production technologies; (iv) supporting farmers' organizations and ONAHA's technical services to ensure effective coordination; (v) facilitating access to credit; (vi) constructing drying and storage infrastructure in production areas; and (vii) mobilizing private investment in rice processing and commercialization including supporting contract farming between producers and processors/traders.

Cowpea value chain

4. **In 2020, cowpea production was estimated at 2.6 million tons, produced by more than 2 million farmers on an area of 5,720,000 ha.** It is considered that 20 percent of the cowpea production is self-consumed, 40 percent is oriented to the national market, while the rest is exported. The average yield is estimated at 450 kg/ha. Main problems encountered on cowpeas cultivation include: (i) poor quality seeds; (ii) high cost of inputs; (iii) limited to finance thus restraining investments; (iv) high impact of pest attacks; (v) lack of suitable storage facilities in the villages; and (vi) use of toxic chemicals during storage in production areas and by wholesalers which threaten food safety.

5. **The strategy to improve the cowpea value chain includes:** (i) improving cowpea seed quality; (ii) facilitating acquisition of improved seeds (such as through a voucher project); (iii) improvement of extension services with regional chambers of Agriculture and/or large farmers organizations (FUGPN Mooriben, FUMA Gaskiya or FUOPAN Sa'a) in the driver's seat; (iv) operationalizing the cowpea interprofessional organization (IPFN-Inganci-Wake); (v) supporting investments in output collection infrastructure in rural areas for better conservation; and (vi) promotion of market linkages and exports.

Horticulture (Onion) value chain

6. **Niger is a major producer and the leading onion exporter in West Africa thanks to its relatively dry climate and well-drained sandy soils**. Production has been enabled by small-scale irrigation and driven by high domestic and regional

[29] World Bank Group. 2022. G5 Sahel Region Country Climate and Development Report.

demand. Coupled with solar-powered pumps, irrigation is rapidly gaining momentum among producers. A consulting report puts onion as Niger's second exported crop after cowpea, with an estimated value of US$120 million in 2020.[30] Onion storage has been improved to enable producers to extend the marketing period and take advantage of higher off-season prices. Improved storage facilities and equipment have been developed that reduce post-harvest losses from around 30 percent to less than 5 percent. These storage facilities are also amenable to warehouse financing solutions. One of the leading farmer organizations (*Association Nationale des Coopératives des Professionnels de la Filière Oignon du Niger*) reports increasing interest in such innovations.

7. **Support needed to accelerate the growth of this sector includes**: (i) development and promotion of water-saving small-scale irrigation technologies; (ii) strengthening the availability and use of better inputs (seeds and fertilizers); (iii) supporting applied research to extend the harvest periods; (iv) improving farmers' capacities through extension services focusing on production technologies and O&M for small irrigation systems; (v) supporting private investment in storage and processing facilities; and (vi) strengthening value chain coordination.

Livestock value chain (live animals, meat, and dairy)

8. **Niger is a leading livestock supplier in West Africa.** Niger's livestock herd was estimated at 15.2 million heads of cattle, 13.2 million sheep and more than 18.1 million goats. These are raised under two low-value production systems: (i) a nomad or transhumant livestock system (averaging 20 heads of cattle per nomadic household) and (ii) a sedentary livestock system (averaging 2 heads of cattle per herder). Current commercialization of livestock, which is almost exclusively oriented towards the sale of live animals, was estimated at 1.24 million heads of cattle per year in 2020. Exports of live animals are likely in the range of US$300-500 million, which makes livestock one of Niger's leading exports. There is also growing urban demand for milk and dairy products which is largely met by overseas imports of powdered milk from the EU and New Zealand, valued at around US$30 million in 2020. Both domestic and regional demand are driving more intensive production models that deliver larger volumes and demand higher food safety standards. This creates opportunities in semi-intensive dairy ranches to serve local dairy processors and feedlots to supply the developing demand for high quality fattened animals in the region. A couple of industrial dairy operators are investing in extending their local milk product range, helped by public support. Modern slaughterhouses are under construction in Maradi and Niamey. However, feed and fodder remain a major constraint, especially during the March to July period.

9. **A strategy to develop intensive livestock production will seek to address these key constraints**: (i) improved rangelands management and exploitation, fodder crops development and availability of feed supplements; (ii) improved breeds; (iii) improved animal health monitoring; and (iv) improved technical capacities and entrepreneurial spirit among livestock farmers.

[30] SOFRECO 2022 study (unpublished; cited on the 2023 Creating Markets in Niger: A Country Private Sector Diagnostic).

Annex 3: Details on the irrigation activity

1. The project seeks to improve productivity and the resilience of crop production to climate change. In this context, irrigation is a key priority intervention for selected value chains: rice, onion, and cowpea; as well as for fodder. The expected outcome is that farmers will have access to sustainable irrigation schemes to improve their crop productivity and enhance their resilience to climate change. The project will support new irrigated perimeters as well as rehabilitation and improving the management of existing irrigation schemes. The project will support small and medium-sized irrigation development activities and the strengthening of WUAs and farmer organizations to ensure sustainable operation and maintenance of the irrigation systems. The project will implement innovative design in terms of improving water use efficiency, use of clean energy, and flexibility with irrigation scheduling systems. To this end, the project will assess, where relevant, new models for irrigation including Pressurized Distribution networks (PDN), Community Irrigated Farms (CIF) and Farmer Led Irrigation Development (FLID), drawing on experience from IFC. In partnership with IFC, the project will also seek to leverage IFC's clients who have capacity and commercial skillsets needed for irrigation in complex markets.

2. The design of LAMP draws on lessons from World Bank-supported hydro-agricultural development operations, namely the Kandadji project and the Sahel Irrigation Initiative Regional Support Project (PARIIS). Following PARIIS's successful pilots, LAMP will invest in small-scale irrigation systems for individuals or small groups of producers involving solar pumping equipment and efficient water distribution by various types of canals or pipes. Based on these lessons, the project will implement the irrigation activity in a phased approach, starting with rehabilitation of existing irrigation infrastructure and use of shallow alluvial ground water for irrigation (small scale irrigation) while developing the capacity for the medium-scale surface irrigation.

Rehabilitation and extension of irrigated perimeters

3. Medium (50 to 200 ha) and Large -Sized (above 200 ha) Perimeters. The project will support development of medium and large-sized (average 150 to 200 hectares) surface irrigation perimeters in the Niger River Valley, with primary focus on rice production. The new perimeters will be selected from the existing list of sites studied by the Kandadji project (and proposed by MOAL). The facilities will be designed in total water control to conduct two rice production campaigns per year and to achieve yields of 4 to 6 tons per hectare and campaign. Where water availability is determined to be a limiting factor for the second season rice, the irrigation system would be used for horticulture production. The development plan for these perimeters is based on surface water, in this case essentially the Niger River, a water supply and distribution system made up of open-air canals lined or not depending on the texture of the soil crossed, traps to help retain water in the plots as well as access infrastructure (structures, tracks, etc.) and a drainage network to evacuate drainage water. In terms of rehabilitation, LAMP will also support the rehabilitation and modernization of dilapidated schemes to enhance productivity and efficient water use. The new infrastructure will give emphasis to minimizing loss of water from irrigation canals, integrated water counters, and flexible water release systems.

4. The project will support strengthening of existing WUAs, or if necessary, establish new ones, to manage the O&M of the perimeters. The project will also support the Federation of Rice Cooperative Unions (FUCOPRI) to strengthen rice farmer organizations/cooperatives capacities for financial management and organization structuration. ONAHA will be supported in promoting systems for rice intensification (SRI), and appropriate use of inputs and seeds.

5. For rehabilitation of large/medium sized irrigation schemes, a key prerequisite will be the quality of the governance of farmers' organizations to be carried out systematically during the studies (collect and use of water fees).

6. Small-Sized Schemes (below 50 ha). The development of small-scale irrigation primarily focuses on onion and cowpea, and other horticulture value chains. The development of small new scale irrigation systems will include: (i) using surface or shallow alluvial ground water resources at a depth not exceeding 10 meters; (ii) scaling up of renewable energy sources for pumping system, which entails the supply of a solar electric pump with a set of solar panels and a generator

to operate the electric pump; and (iii) installation of efficient water conveyance (e.g., California-type) for irrigation network, to reduce water losses. The project will adopt a framework approach whereby investments will be selected on an ongoing and dynamic basis in accordance with set criteria, which are presented below:

a. **Location.** Investments will be limited to interventions with a positive and demonstrable impact on the environment and affected people, both locally and regionally. A screening process will be applied to sub-projects, considering criteria such as water accessibility, land ownership, security, availability of technical studies, and the existence of WUAs, among others.

b. **Integrated Water Resource Management (IWRM).** Sub-projects would be reviewed by the water platform institutions that safeguard the quality and sustainability of Niger's water resources, in line with the approach adopted by the Niger Integrated Water Security Platform Project (Niger-IWSP).
approach. Sub-projects must follow all social, environmental, and FM requirements of the project.

c. **Environmental and social suitability.** Environmental and social assessment (including the corresponding permits and official screening decisions) establishing the impact on the environment and likely affected people both locally and regionally, demonstrated beneficiary support, risks and mitigating factors. All investments must comply with the Environmental and Social Management Framework (ESMF). In addition, investments that use or risk polluting waters of an international waterway, its tributaries, and connected aquifers and of transboundary aquifers will be excluded.

d. **Farmer demand and participation.** Willingness of farmers in the sub-project area to engage in the project and partially cover the cost of the investment is required to create ownership and thus promote sustainability. Farmer engagement and contribution plan, detailing, inter alia, the number and location of farmers to be engaged in each sub-project, the consultation and decision mechanism for engagement, advanced land consolidation objectives, and contractual relations between the beneficiary farmers and the central authorities, would be conducted.

e. **Technical and economical sustainability.** All the technical components of investments would have a strong resource efficiency dimension during the economic lifetime of the investment. Farmers would also be assessed on their ability to make contributions (O&M costs), based on current and anticipated income and expenditure and track record of payment for water, to WUAs. Economic analysis would be conducted for all sub-projects and the incremental economic benefits considered. Selected sub-projects would have to demonstrate a positive EIRR, considering the agricultural added value in terms of incremental profitability of crops against the without project scenario and considering all investment and operational expenses without factoring in any subsidies.

f. **Adaptation to the relevant hydrographic system(s).** Sub-projects would clearly state adaptation to the relevant hydrographic system in the supply and demand analysis. Sub-project, if available would be part of the relevant sub-basin development action plans, municipal three-year plans, and local development plans.

g. **Prioritizing efficient technologies.** Small-scale irrigation projects are required to prioritize the use of renewable energy and to limit water extraction through the implementation of functional infrastructure designed for a maximum water table depth of 10 meters.

7. Candidates (individuals or municipalities representing candidate FOs) will present a funding application file consisting of (i) legal documents concerning the status of the applicant; (ii) the list of beneficiaries in the case of FOs; (iii) ownership status of the land; (iv) a summary technical study of the irrigated perimeter to be implemented and its equipment (the project will provide TA to this effect); and (v) a provisional business plan. Applications will be assessed by a technical review committee using the framework criteria. Accepted applications will then be subject to a more detailed technical study. Individual producers and already well-structured and dynamic FOs are eligible for project support.

Operation and maintenance of irrigated areas

8. Capacity building for irrigators will include (i) creation and management of WUAs for small, medium, and large-scale irrigation schemes and committees for the management/monitoring of irrigation systems; (ii) training to WUAs in operational and maintenance procedures; and (iii) training on the transition from rainfed agriculture to irrigated agriculture, encompassing agronomic practices. The final objective is for all perimeters to be entirely self-managed by WUAs, FOs, or cooperatives. Respective functions have been clarified through the existing legal and regulatory framework, between WUAs (Water management and maintenance) and FOs (production and postharvest activities).

9. RECA and its regional branches, as well as large farmers associations will be supported and mobilized to support applicants in establishing their request for financial support and to support agricultural and rural entrepreneurship that is more conducive and inclusive to family farming. Technical and management support will be delivered by service providers (RECA, Advisory Service Groups, IPs, etc.) to small-scale beneficiaries (private or community producers) for the development of business plans for the creation of businesses in high value-added agricultural production as well as services and primary processing activities for agricultural products.

Annex 4: Economic and Financial Analysis

1. **Overall, LAMP interventions are economically justified,** generating a net present value (NPV) at 6 percent social discount rate of US$253.5 million and an economic internal rate of return (EIRR) of 20.1 percent over a 20-year period, not accounting for environmental externalities. These economic results can be considered a conservative estimate as several other project benefits could not be quantified. In addition, these economic results are robust across several sensitivity scenarios, including delays in implementation, cost overruns, and reductions in benefits.

2. **LAMP's main quantifiable benefits will be derived from enhanced climate-resilient productivity levels, enhanced value-addition, and improved product marketing**. Project activities are expected to generate three main benefit streams: (i) productivity gains induced by building resilience through increased access to improved climate-smart technologies and innovation (e.g., improved certified planting material, landscape management practices, irrigation and other infrastructure, and livestock genetic improvement); (ii) enhanced value addition made possible by better access to business and financial services and other appropriate risk sharing instruments; and (iii) improved marketing made possible by access to marketing infrastructure (such as storage facilities). In addition, project activities will generate important environmental benefits such as natural resources protection and reduced GHG emissions through the adoption of climate-smart sustainable technologies**.**

3. **The project will also have other positive impacts, non-quantified at this stage.** These include employment growth, particularly women and youth employment, as the project components incorporate gender- and youth-focused interventions. Besides, the project will lead to increased food nutrition and security, improved health (e.g., resulting from greater and more stable access to diversified and nutrition-dense food), enhanced institutional capacity and policy/regulatory frameworks, and greater community participation, among others.

Methodology and assumptions

4. **The CBA analysis was conducted for with- and without-project scenarios.** The analysis for Subcomponents 1.1, 2.1, and 3.2 used 19 models related to the targeted value chains. The analysis assumed a gradual uptake of improvements over 2 to 5 years. The opportunity cost of capital used is 8.25 percent in line with World Bank guidelines and the practice of recent projects.[31] The financial models are developed over a 10 to 20-year period, depending on the nature of the investment.

5. For livestock interventions under Subcomponents 1.2 and 2.1, the analysis quantifies the related benefits through herd projection modelling. Estimated parameters include animal nutrition and manure management practices, parturition and prolificacy rates, average annual mortality rates, average annual offtake rates, live weight, herd structure, and milk and meat productivity. Three herd models under traditional sedentary production systems and improved sedentary systems under modern conditions (mainly semi-intensive and intensive) for cattle, goats and, sheep have been developed to have a comprehensive representation of the diversity of species and their related products in the project areas. For economic analysis, economic prices are calculated using conversion factors reflecting prevailing taxes and subsidies. The discount rate used for the economic analysis is 6 percent and is in line with the World Bank guidelines and the practice of recent projects. Given the nature of the investments, the analysis considers a project economic life of 20 years.

Economic analysis for Subcomponents 1.1, 2.1, and 3.1

6. **According to the integrated approach to value chain development of LAMP, interventions under subcomponents 1.1, 2.1, and 3.1 will concern both private and public investments** with a view to modernizing and expanding production, processing, and marketing of selected products. The investments will use the FISAN financing mechanisms, notably its

[31] This is based on the forecasts of the average deposit interest rate in Niger for the period 2024-2024 from the IMF International Financial Statistics via the Economist Intelligence Unit: https://viewpoint-eiu-com.fao.idm.oclc.org/data/.

Facilities 1 and 2. Facility 1 relates to financing for private investments in form of CEGs. This investment support has two windows: (i) Window 1 targeting smaller investments; and (ii) Window 2 for for financing larger investments. Tables A4.1 and A4.2 present the estimated number of sub-projects and cost structure. Window 1 will finance about 274 sub-projects: 172 sub-projects related to agriculture and 102 sub-projects related to livestock. Window 2 will finance about 29 sub-projects across the targeted value chains. On the other hand, Facility 2 finances investments of a collective nature. Details on the assumptions used for each type of sub-projects are provided below in the section of the respective value chain.

Table A4.1. Sub-projects under Window 1 financing

Value chain	Number of SPs	Cost/SP (US$)	Cost/Value Chain (US$ million)	IDA Contribution (US$ million, 40% of total)	Beneficiaries' Contribution (US$ million, 10% of total)	Credit (US$ million, 50% of total)
Rice*	**50**	**126,018**	**6**	**2.4**	**0.6**	**3**
Onion	**100**	**125,000**	**12.5**	**5.0**	**1.3**	**6.3**
new irrigation	11	125,000	1.4	0.6	0.1	0.7
rehabilitated irrigation	89	125,000	11.1	4.4	1.1	5.5
Cowpea	**22**	**170,512**	**3.8**	**1.5**	**0.4**	**1.9**
new irrigation	11	125,000	1.4	0.6	0.1	0.7
storage facility	11	216,024	2.3	0.9	0.2	1.2
Livestock-meat	**82**	**181,903**	**15**	**6**	**2**	**8**
Cattle fattening	17	177,040	3.0	1.2	0.3	1.5
Sheep fattening	21	271,814	5.8	2.3	0.6	2.9
Broiler production	44	140,730	6.3	2.5	0.6	3.1
Livestock-milk**	**20**	**329,609**	**6**	**3**	**0.6**	**3**
Total	**274**	**160,641**	**44**	**18**	**4**	**22**

*Rice steaming activities** Milk processing activities

Table A4.2. Sub-projects under Window 2 financing

Value chain	Number of SPs	Cost/SP (US$)	Cost/ Value Chain (US$ million)	IDA Contribution (US$ million, 40% of total)	Beneficiaries' Contribution (US$ million, 10% of total)	Credit (US$ million, 50% of total)
Rice*	**5**	**500,000**	**2.6**	**1.1**	**0.3**	**1.3**
Onion*	**5**	**500,000**	**2.6**	**1.1**	**0.3**	**1.3**
Cowpea*	**5**	**500,000**	**2.6**	**1.1**	**0.3**	**1.3**
Livestock**	**13**	**608,444**	**7.9**	**3.2**	**0.8**	**3.9**
Total	**29**	**548,917**	**15.8**	**6**	**1.6**	**7.88**

*New irrigation schemes **Meat processing activities such as Kilichi production

7. **Rice value chain.** Here, the analysis assumes a total of 10,511 hectares of irrigated land to be financed (2,600 hectares to be rehabilitated, plus 5,600 hectares to be newly developed, both of which are medium-large scale; and 2,000 hectares of small-scale perimeters to be newly developed for producers' organizations and 311 hectares also of small-scale perimeters to be newly developed as private sub-projects). Yields are projected at 8 tons/ha for rice cultivated on newly developed as on rehabilitated irrigation perimeters and growing two crops a year, against a "without project" (WOP) estimate of 2.5 tons/ha for newly irrigated perimeters and 5 tons/ha for rehabilitated ones and only one harvest a year. The rice analysis also simulated a model of an enterprise producing about 600 tons/ year of steamed rice in the with-project scenario compared to 300 tons/year of steamed rice produced in absence of the project. LAMP will also support the establishment of 20 small rice-processing units (*mini-rizerie*) with a processing capacity of 2 tons/year of paddy rice (the counterfactual was assumed at 75 percent of the remuneration in the "with project" (WP) situation as this was a new activity without precedent in the project area).

8. **Onion value chain.** The analysis assumes a total of 4,321 hectares, all for small scale irrigation. Yields were assumed at 40 tons/ha on both rehabilitated and newly developed land, against the without-project estimates of 22 tons/ha and 28 tons/ha for newly irrigated and rehabilitated perimeters, respectively. The project will also support the construction and management of 450 storage facilities in targeted areas for farmers' organizations, each with an estimated capacity of 50 tons of onions, with the aim of reducing the loss rate to below 5 percent (against the WOP loss of about 25 percent). In addition, LAMP will support about 32 women's groups to improve their local artisanal processing activities with an estimated 90 tons of onions processed in a year with the project, against 50 tons/year without the project.

9. **Cowpea value chain.** LAMP will, under small-scale irrigation, support the development of 800 hectares (with yields estimated at 2.5 tons/ha with the project, versus 0.75 tons/ha on new irrigated land without the project). It will also support water and soil conservation activities covering about 10,000 hectares (under rainfed conditions) thus raising yields to about 0.75 tons/ha versus 0.46 tons/ha without the project. LAMP will also support the construction and equipping of 60 storage facilities (of 150 tons each) for producer organizations in targeted areas with a view to reducing post-harvest loss to less than 5 percent as well as take advantage of the price seasonality characterizing this product. Private investors are also expected to establish improved storage facilities capacity of about 200 tons each.

10. **Livestock value chain**. Three models were developed: cattle fattening activity, a sheep fattening activity, and broiler production (Table A4.3). LAMP will also support the establishment of 10 and the rehabilitation of 8 milk collection centers each with a capacity of 1,500 liters (the WOP estimate consists of work remuneration which is equal to 70 percent of the remuneration in the WP situation since it does not exist). Furthermore, LAMP will support Kilichi production by financing the modernization and enhancement of 32 producer organizations producing about 450 tons/year of red meat, against 30 tons of red meat per year. LAMP will also support the establishment of modern dairy processing units each with a processing capacity of 2,000 liters of milk per day against 200 liters/day under a WOP situation.

Table A4.3. Annual production capacity of livestock activities

Livestock Activity	Unit	Annual Production	
		Without-Project	With-Project
Cattle fattening (3 flocks/year)	Animal	33	249
Sheep fattening (2 cycles/year)*	Animal	98	335
Broiler production (4 flocks/year)**	Animal	6,000	36,00

* In the WOP situation, cycles are shorter, and they are 3/year, while in the WP situation, cycles are 2/year but longer.
**In the WOP situation, there are 3 flocks/year.

Table A4.4. Summary of financial returns for crop production and livestock rearing activities

	Rice-new irrigation **	Rice-rehabilitated irrigation **	Onion-new irrigation	Onion-rehabilitated irrigation	Irrigated Cowpea	Rain-fed Cowpea ***	Cattle Fattening ****	Sheep Fattening ****	Broiler Production
Net additional revenue* (US$/ha/year)	3,795	3,312	3,645	3,077	1,834	183	38,303	33,343	43,739
Net present value (@8.25%, 20 years, US$)	15,490	15,498	7,568	7,630	4,117	333	170,646	121,400	79,220

At full realization of benefits ** 2 cycles/year *** In association with millet, in zones restored with water and soil conservation activities****Additional revenue is a yearly average over a 5-year period.

Table A4.5. Summary of financial returns for storage and processing activities

	Onion Storage	Cowpea Storage	Milk Collection Center	Rice Steaming	Rice Processing	Gabou Production	Kilichi-Production **	Dairy Processing
Net additional revenue (US$/unit/year)	9,599	31,600	44,994	62,144	40,433	21,080	100,405	153,777
Net present value (@8.25%, 20 years, US$)	37,787	121,176	239,055	204,180	127,202	67,843	405,590	949,515

*At full realization of benefits ** Add. revenue is a yearly average over a 5-year period

11. **Based on these parameters, all financial models demonstrate the profitability of the investments.** As presented in Tables A4.4 all production activities supported by the project generate positive additional benefits, ranging from US$183 for rain fed cowpea production to US$43,739 for broiler production. Similarly, Table A4.5 shows that the targeted storage and processing activities financed under the different Windows could secure significant benefits, in the range of US$9,599 – 153,777 per year. Looking at the net present value at a discount rate of 8.25 percent, the results are more than satisfactory. As per Table A4.4, the net present value for agricultural activities ranges from US$333/ha of rain fed production to US$170,646/ha cattle fattening. Concerning storage and processing, the net present value varies from US$37,787 for onion storage to US$405,590 for rice processing.

Economic analysis related to Subcomponents 1.2

12. **The potential for productivity growth in the livestock sector has been hindered by major challenges such as poor animal feed and health.** As described under the methodology and assumption section, the present analysis develops three herd projection models. The total population of animal supported and the initial population for each production system considered in the herd projection models (using the Livestock Sector Investment and Policy Toolkit, LSIPT) was calculated based on the number of animals that will be vaccinated through the private veterinary services supported by the project (listed in Table A4.6). [32]

Table A4.6. Baseline Livestock population of the herd projection models

Livestock	Models	LSIPT Code	Total animals Over 5 years	Baseline LSIPT
Cattle	Full impact	B1MR	1,979,167	494,792
Goats	Full impact	G1MR	1,607,083	401,771
Sheep	Full impact	O1MR	1,163,750	290,938
Total			**12,000,000**	**2,850,000***

*This number considers a 5% loss.

13. **As building environmental resilience is a core dimension of LAMP in response to climate change risks to the livestock sector, the three ruminant models are based on assumptions related to the impact of climate variability in the Sahel, which were identified during the PRAPS-2 design.** Both WOP and the WP scenarios assume that droughts and rain failures occur every 4 years during the first decade and every three years during the second decade. Moreover, an additional level of complexity has been added to the analysis by distinguishing between two levels of drought intensity: a "mild" drought, implying a 20 percent increase in mortality rates, and a "major" drought (one during each decade) leading to an increase in mortality rates of about 50 percent for all age groups. The analysis also considers two livestock owners' coping strategies for climatic stress: (i) a reduction in the offtake rates of females (mainly in the sub-adult class of age) to preserve the productive capital herds; and (ii) an increase in the offtake rates of males (sub-adult and adult classes of age). The two strategies combined lead to a higher share of females in the composition of the herd.

[32] The project will not procure vaccinations as this has been already done by other projects (e.g., PRAPS), but it will support the operationalization of the vaccination reform by partially funding private and para-veterinary services.

14. The analysis assumes that, given the low reproductive efficiency and the higher exposure to diseases and lower quality feed, the WOP scenario leads over time to a modest herd growth, offtake rates and lower animal prices due to weaker and unhealthy animals. Conversely, the project interventions (as modelled in the WP scenario) result in higher demographic and productivity parameters such as parturition and prolificacy rates, increased live weight at culling and milk productivity, lower mortality rate, even in the face of drought events and hence, higher prices. This has implications for the herders' copying strategy as, in response to the improved situation, offtake rates during droughts are assumed similar in growth to those recorded in the without-project scenario to maintain a percentage of adult females sustaining the productive capacity of the herd and hence, a more constant asset base for the beneficiaries. Based on these assumptions, the herd models show that project investments generate additional value (presented in Table A4.7).

Table A4.7. Main economic results of the herd projection models

Livestock	Model	LSIPT Code	Net Present Value (@6%, 20-years, US$ Million)
Cattle	Full impact	B1MR	20.6
Goats	Full impact	G1MR	7.6
Sheep	Full impact	01MR	8.6

Overall economic results

15. **The overall estimated benefits of LAMP have been aggregated using the economic results of the identified benefit streams against the project costs, including activities phasing as planned by the project.** The total economic costs have been estimated by removing the taxes and including all costs (for an IDA allocation of US$350 million). For the years after the closure of LAMP, an additional annual cost equal to the average annual coordination and monitoring cost of the project has been added for any project monitoring activity. Conversion factors have been calculated for different products categories and have been used to convert financial prices into economic prices.

16. **Overall, the economic results of the proposed project are positive,** generating a net present value (NPV, at 6 percent social discount rate) of the net additional benefits of US$253.5 million and an economic internal rate of return (EIRR) of 20.1 percent (over a 20-year period and for a budget of US$350 million), not accounting for environmental externalities. These economic results are satisfying, given that several other project benefits could not be quantified due to the difficulty of assigning them a monetary value. These economic results have been tested against several risk scenarios, including reduced delays in implementation, cost overruns, etc., as presented in Table A4.8. The sensitivity analysis indicates that results are robust for small to moderate delays, cost overruns, and reduction in benefits. Yet, larger changes in these parameters can affect the project's economic justification.

Table A4.8 Sensitivity analysis

Scenarios	EIRR (%)	NPV (6%, US$)
Base scenario	20.1	253,549,970.4
30 percent increase in costs	17.7	227,278,489.4
30 percent reduction in benefits	15.9	142,456,338.0
3 year delay in benefits realization	15.1	154,386,770.7
20 percent reduction in adoption rate	18.0	175,441,595.5

Annex 5: Financial Intermediary Assessment

1. The principal objectives of this Financial Intermediary (FI) Financing assessment are to determine whether, and under what conditions, the Société Sahélienne de Financement (SAHFI) can successfully play a financial intermediary role for this project. This assessment first presents a brief overview of the financial sector, followed by SAHFI's analysis, and finally the conclusion and recommendations. Based on the outcomes of the assessment, SAHFI is considered as a fitting FI to implement the LAMP. The key appraisal summary is presented in Table 5.2, and include that SAHFI is a regulated entity, is compliant with applicable laws such as minimum capital requirement established by the WAEMU prudential framework, and it has undertaken efforts to rectify the institution's deficiencies. This is a succinct summary of the assessment.

I. Financial sector overview[30]

2. Niger is lagging far behind the rest of the West African Economic and Monetary Union (WAEMU) in terms of financial inclusion. According to data from the Central Bank of West African States (BCEAO) of December 2021, the use of financial services (in the form of banking, microfinance, or e-money) stood at only 14 percent of the population while the corresponding average for WAEMU stood at 67 percent. Nigerien Banks are well capitalized but financial intermediation is limited, and economic agents face difficulties in accessing financial services. The financial sector continues to experience: (i) increases in nonperforming loans (NPLs); (ii) credit concentration; and (iii) low levels of credit to the agriculture sector.

3. Bank credit to the private sector amounted to 13 percent of GDP in Niger as of end-2021, almost half of the regional average of 24 percent. The quality of their loan portfolio also continues to decline. Gross NPL ratios in the Niger banking sector were twice those of the region (21 percent versus 10 percent) at end 2021. This is a systemic issue as it is also prevalent among the MFIs. At end-2021, the NPL ratio among MFIs stood at 40 percent, as opposed to 8 percent at the WAEMU level. And Niger's MFI sector continues to shrink, from 0.5 percent of GDP in 2015 to about 0.2 percent at end-2021, whereas by contrast, the sector almost doubled in the WAEMU zone, from 1.1 percent of GDP to 2 percent in 2021. These weaknesses in the financial sector undermine its ability to underwrite investment and growth in the country, especially in the agricultural sector.

4. Indeed, lending to agriculture in Niger is very small, both in absolute terms, and as a share of total bank lending. According to FAOSTAT, the banks' loan portfolio for agriculture amounted to only US$15.61 million, equivalent to 1 percent of the total outstanding loan portfolio (and less than 0.3 percent of the country's agricultural GDP), reflecting both the challenges faced by banks to expand this type of lending and the potential for growth (see Table A5.1).

Table A5.1. Agricultural Lending in the Sub-Region

Country	2015	2021
Total bank lending to agriculture (US$ Millions)		
Burkina Faso	58.37	106.95
Côte d'Ivoire	272.28	233.94
Mali	90.00	200.42
Niger	4.61	15.61
Share of bank lending to agriculture as percentage of total lending		
Burkina Faso	1.9%	2.3%
Côte d'Ivoire	5.6%	4.0%
Mali	4.3%	2.9%
Niger	0.4%	1.0%

Source: Author's calculations using FAOSTAT credit data (https://www.fao.org/faostat/en/#data/IC)

II. The Société Sahélienne de Financement (SAHFI)

5. SAHFI is a private banking financial institution licensed in 2005 by BCEAO and regulated by the Banking Commission of the West African Monetary Union (WAMU). SAHFI's mandate is to issue guarantees to partially cover the risk of loans granted by commercial banks to private sector enterprises, in particular small and medium-sized enterprises.

6. SAHFI was born from cooperation between the State of Niger and the EU. SAHFI has signed framework agreements with partner banks (five shareholder banks and the Fonds de Solidarité Africain), whereas SOPARFI is the holding company and Association TANYO manages funds. Those agreements define the general framework of contractual relations, including the conditions for the implementation of guarantee operations issued by SAHFI in favor of those banks. SAHFI is actively discussing with major MFIs on granting guarantee projects for their clients.

Capital

7. SAHFI's shareholder structure includes five banks, as well as the holding company SOPARFI and the Association TANYO which manages the funds of a private sector development project that was sponsored by the EU (Table A5.2).

Table A5.2. SAHFI Shareholding Structure

	Shareholders	Number of shares	Original value of shares (FCFA)	Percentage
1	SOPARFI	18,576	1,857,600,000	51.25
2	Association TANYO	9,078	907,800,000	25.05
3	BIA-Niger	1,547	154,700,000	4.27
4	BOA-Niger	47	4,700,000	0.13
5	SONIBANK	1,497	149,700,000	4.13
6	BAGRI-Niger	2,000	200,000,000	5.52
7	Banque Atlantique Niger	1,500	150,000,000	4.14
8	Fonds de Solidarité Africain	2,000	200,000,000	5.52
	TOTAL	**36,245**	**3,624,500,000**	**100**

Source: SAHFI's management

8. The Banking Commission confirmed in a correspondence on July 14, 2021 that SAHFI was compliant with the minimum capital requirements. The audit of SAHFI's financial statements for FY 2021 confirmed that SAHFI is compliant with applicable prudential standards, including the minimum capital requirement established by the WAEMU prudential framework.

Leverage of own funds

9. As of December 2022, SAHFI had own-funds *(capitaux propres*) in the amount of 3.28 billion FCFA and had issued guaranties for 6.86 billion FCFA (thus leveraging its own funds in a guarantee/own funds ratio of 2.1 to 1). SAHFI plans to increase the leverage up to six times its own funds by cleaning up its outstanding portfolio of guarantees and by incorporating counter-guarantees issued by international guarantee institutions.

Product offering

10. To date, SAHFI manages three guarantee funds (see Table A5.3). These are: (i) the SME guarantee available to all sectors except agricultural production; (ii) SME-A guarantees, exclusively reserved for SMEs in the agricultural value chains; and (iii) the FISAN intended for all actors in the agricultural value chain. The last two funds have been recently designed and established with support of the Danish cooperation. They are funded with resources managed in trust by SAHFI. It has recently set up a fourth fund to guarantee loans granted to startups. SAHFI shields its equity from any future losses associated with these special projects by setting up dedicated trust funds that bear the specific risks of these projects.

Table A5.3. SAHF Guarantee Products

	SME Fund (non-agri)	Agri SME fund	Agri-FISAN
Eligible borrowers	Non-agri SMEs	Agri SMEs	Farmers and organizations
Type of guarantee	Individual	Individual	Individual and portfolio
Minimum loan amount (million FCFA)	6.5	6.5	0.1
Maximum loan amount (million FCFA)	1,000	1,000	31.25
Maturity of loans (months)	6-60	6-60	6-60
Max. coverage (% of loan amounts)	50%	70%	70%
Origination fee (paid by borrower)	2%	2%	2%/1.25%
Annual guarantee fee (paid by RFI)	3%	1.5%	1.5%

Procedures

Issuance of guarantees

11. During its initial years, SAHFI carried out the due diligence of individual loan applications submitted to it by SME promoters. Once approved by SAHFI's "Commitments Committee" (*Comité des Engagements*), the loan application would be forwarded to a partner bank which would carry out its own due diligence before approving the loan. However, SAHFI has recently changed its processes. First, the partner banks are principally responsible for loan initiation and evaluation. Second, SAHFI focuses mainly on covering *loan portfolios* provided by partner banks, thus progressively moving away from covering individual loans.

Payment of claims

12. Claims are only paid after the collection process is exhausted. SAHFI only pays based on the residual losses.

Financial performance

13. SAHFI has three main sources of income: (i) income from investing its liquid funds; (ii) income from fees generated by the guarantees (which are paid by the financial institutions); and (iii) income from fees for other services, such as those charged to final borrowers for the preparation of loan applications. The first two sources have been the most important sources in recent years, while the income from fees for other services has declined sharply. SAHFI's profit and loss statements reflect the following trends and developments: (i) a decline in revenue in part due to fewer new guarantees and a shift to lower-priced guarantee projects; and (ii) a slight reduction in operating expenses since 2020.

Table A5.4. SAHFI Profit and Loss statements

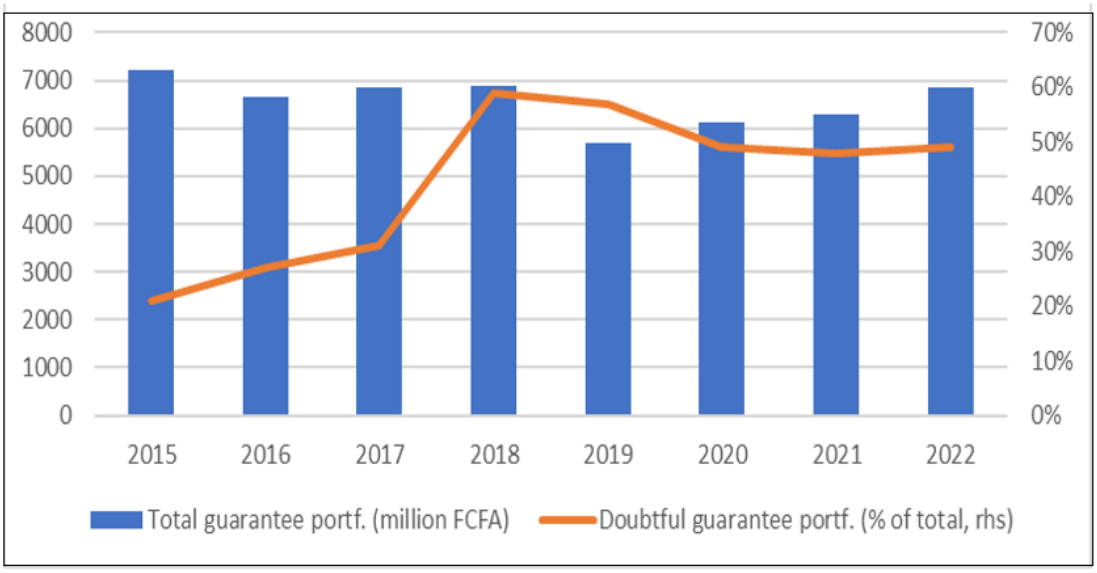
Income / Expenses	Amounts in million FCFA (Fiscal Years)							
	2015	2016	2017	2018	2019	2020	2021	2022
Interbank Interest Product	165	180	175	182	192	194	224	252
Fees from guarantees	367	331	284	173	157	180	150	125
Net banking income	**532**	**511**	**400**	**374**	**349**	**374**	**374**	**377**
General operating expenses, depreciation, amortization	-458	-448	-481	-485	-460	-440	-411	-404
Investment grant from EU (only in 2022)[33]								+58
Gross operating result	**74**	**63**	**-81**	**-111**	**-111**	**-66**	**-37**	**31**
- Risk cost*	+198	-280	-137	-1	+204	+101	+187	+132
Operating result	**-124**	**-217**	**-218**	**-112**	**93**	**35**	**150**	**163**
- Taxes on profits	-9	-14	-13	-6	-5	-10	-46	-52
= Net result	**-133**	**-231**	**-231**	**-118**	**88**	**25**	**104**	**111**

*Positive figures reflect the income resulting from reversing the provisions for overdue loans

Source: Own preparation based on SAHFI Business Plan 2021-2025 and unaudited Financial Statements for FY 2022

14. Figure A5.1 below provides an overview of the evolution of SAHFI's loan guarantee portfolios and their quality between 2015 and 2022 which are two of the main determinants for SAHFI's financial performance. Since its inception in 2005, SAHFI has issued 589 guarantees for a total amount of 28.2 billion FCFA. The guarantees covered about 42 percent of the total financing granted, leveraging an additional 38.8 billion FCFA in financing (58 percent) from the participating banks. Whereas the issuance of guarantees to primary agricultural production was marginal until 2021 (representing only 4 percent of the total guarantees issued until then), this has since grown significantly, representing 76 percent of the total volume of guarantees issued in 2022.

Figure A5.1. Evolution of the Volume and Quality of SAHFI's Loan Guarantees



15. At the end of 2022, the total volume of guarantees issued by SAHFI stood at 6,860 million FCFA (equivalent to approximately US$11.3 million). Because of COVID-19's impact on economic activities, 49 percent of the guarantees were of "doubtful recovery" as at end 2022. However, loan recovery efforts have been intensified, and it is projected that the percentage of NPLs will have been reduced to 23 – 25 percent by the end of 2024.

Staffing

16. SAHFI has a total of 11 staff. This includes 4 field officers *(charge d'affaires*) who perform the due diligence for new guarantee requests as well as the monitoring of investments and loan recovery activities.

Table A5.5. Summary Table of SAHFI's Appraisal

Criterion	Comments
1. License	SAHFI is licensed and subject to the regulation of the West African financial sector authorities.
2. Governance	SAHFI's Board of Directors consists of 11 members, including: representatives of the five shareholder banks and of the African Solidarity Fund (FSA), SAHFI's Managing Director, and three independent members, including the chairs of SAHFI's risk and the audit committees. The third independent board member is also the chair of the board.
3. Supervision and control	SAHFI is subject to the regulations issued by BCEAO and to supervision by the West African Banking Commission. Independent auditors issued unqualified opinions on SAHFI's financial statements for December 31, 2020 and 2021, but suggested strengthening internal control and risk management. SAHFI reports having carried out the recommended actions.
4. Sustainability	SAHFI is currently adequately capitalized and would even have room to grow its guarantee portfolio by about 3 billion FCF. However, it needs to continue growing its portfolio to consolidate its operational sustainability. Portfolio growth will be greatly facilitated by its recent move toward guaranteeing loan portfolios instead of individual loans.
5. Asset quality and provisions	The financial statements of 2021 and 2022 (2022 prior to being audited) report an overdue guaranteed portfolio of 48.5 percent and 49.3 percent respectively. However, SAHFI expects it to reduce to about 23-25 percent by the end of 2024.
6. Policies and risk management functions	SAHFI has improved its loan origination processes with partner banks taking the lead. It is also moving away from covering individual loans towards providing guarantees for loan portfolios instead. It has introduced a risk management function and appointed a risk management officer. This will help strengthen its risk-based pricing policies.

III. Conclusions and Recommendations

Conclusion

17. Based on the assessment, SAHFI is deemed a fitting prospective partner for implementing the LAMP, considering that it's a regulated entity, compliant with applicable laws, and that it has recently undertaken efforts to rectify the institution's deficiencies and address the challenges of new markets, and that it has also taken steps to facilitate lending to agriculture.

Recommendations

18. Use of project funds for providing guarantees needs to be preceded by capacity building activities aimed at promoting growth of the guaranteed portfolio, strengthening portfolio quality, improving SAHFI's cost-effectiveness, enhancing SAHFI's operational results, and reducing transaction costs for guaranteed partner institutions. The TA activities should include:

- Conducting a more detailed diagnostic of SAHFI's overall risk management framework (policies/organization/instruments).
- Developing and implementing policies to assess MFIs as clients and to manage guarantees issued in favor of MFIs.
- Strengthening its policies of issuing and effectively guarantees for loans portfolios (as opposed to individual loans).

- Establishing a dedicated trust fund for the resources provided by the project to back up partial credit guarantees that isolates the funds for the execution of the project from other activities undertaken by SAHFI.
- Updating its business plan and defining measures to enhance the quality of its services, SAHFI's performance in the market and, ultimately, its financial performance.
- Supporting participating financial institutions to develop their agricultural lending products and procedures as well as to train relevant staff.

Eligibility criteria for Partner Financial Institutions and Sub-projects

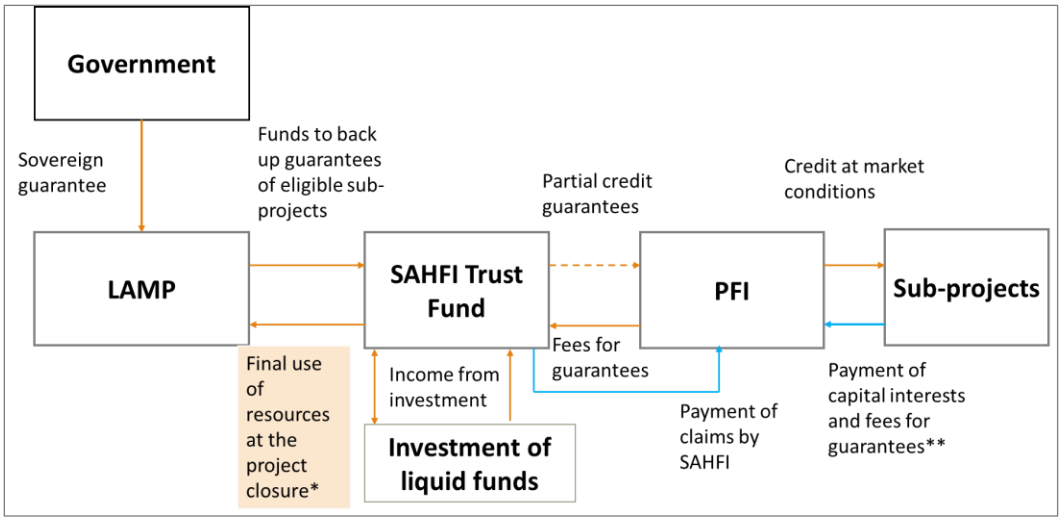
19. The eligibility criteria for the Project's Participating Financial Institutions (PFIs) are going to be developed and described in the Project's Implementation Manual. PFIs should at least: (i) be under the supervision of BCEAO or of the *Agence de Régulation du Secteur de la Microfinance* (ARSM); (ii) not be under any sanction regime or financial restructuring plan; and (iii) have policies that comply with local and international wrongdoing standards or meet certain minimum risk ratings. In addition, the appraisal of the PFIs will likely include the following criteria, which are standard for financial intermediary financing operations: (i) sound financial performance considering standard prudential indicators (Return on Equity, Return on Assets, Capital Adequacy Ratio, Non-Performing Loans); (ii) existence of adequate business practices, including especially a credit policy and loan collection policies, among others, necessary to ensure sound business practices; and (iii) operational capacity, including technical capacity to carry out an adequate appraisal and supervision of the loans for activities and expenditures eligible to the LAMP, adequate loan monitoring procedures and experience in loan collection, and adequate Anti-Money-Laundering/Know-Your-Customer policies and procedures.

20. The eligibility criteria for the sub-projects and final borrowers are also to be developed and finetuned in the PIM. An initial list includes: (i) proven positive experience of the owner and managers in the activities to be financed; (ii) technical and financial viability of the project to be financed; (iii) positive returns of the farm or firm to be financed in the year prior to the loan application; (iv) absence of negative reports in the credit bureau for the owner and main officers of the farm or firm to be financed; (v) availability of technical assistance for activities that involve innovations or activities not previously undertaken by the final borrower; (vi) environmental considerations (including climate adaptation and GHG emissions reductions); and (vii) social and labor considerations. Further details as well as eligibility and evaluation criteria and processes for the selection of sub-projects to be supported will be detailed in the PIM.

Flow of funds

21. The entire allocation for SAHFI under subcomponent 3.1 will be directed to establishing a trust fund to back up the guarantees to be issued by SAHFI to eligible financial institutions. Although the project's funding will not be used to finance any of SAHFI's operational or administrative expenses, the proceeds earned by the funds in the form of commissions as well as from the placement of liquidity will be available to cover such expenses. An initial scheme for the flow of funds for the issuance of guarantees through SAHFI is presented in Table 5.2.

Figure A5.2. Flow of Funds



Notes: *SAHFI will refund to the government (for further refund to the Bank) any amount of the Financing not used for the provision of PPCGs by the Closing Date or used for any other purpose or in violation of the provisions of the Financing Agreement. If the project is successful and the guarantee scheme operates well, SAHFI will keep the funds and the scheme will continue operating, and possible scaled up under subsequent phases of the MPA. ** Payment of claims by SAHFI is required if these payments are not made.

Annex 6: Paris Alignment and Climate-Related Activities of the Project

A. Paris Alignment

1. **Assessment and reduction of mitigation risks:** This operation will support several interventions across key agricultural sub-sectors that are neutral or encourage the country's progress towards low-carbon development, primarily aimed at enhancing domestic food security, productivity of prioritized value chains, and improving producer incomes and livelihoods.

2. Under Component 1, *crop production* will be promoted through the distribution of certified drought-tolerant, high yielding seed varieties. The project will also encourage and promote CSA production practices, through technical assistance, capacity building (1.1) and research and development (1.3)[33]. CSA production is considered universally aligned as it is not expected to lead to expansion of agricultural land into grassland or areas of high carbon stock.

3. The project will support an increase in *rice production using irrigation* to address domestic food insecurity and reduce economic reliance on rice imports for domestic consumption through a System of Rice Intensification (SRI).[34] The project will construct new medium and large-scale irrigation systems and small scale irrigation systems, which will use renewable energy or be gravity based and are therefore considered universally aligned.[35] Rehabilitation of medium and large irrigation systems will focus on improving the energy efficiency of existing systems by improving water channels (e.g. to widen the channels or remove blockages) to increase water flow and reduce energy needed to pump water[36].

4. The project also supports measures *to enhance the livestock sector's productivity and resilience to climate change* including research and development of improved, climate-resilient livestock breeds, rangeland management, CSA fodder production, and good animal husbandry activities. The project's investments are aligned on mitigation as they will not lead to an expansion in livestock production and instead contribute to the CSA mitigation pillar by increasing animal productivity while decreasing the carbon intensity of output produced per animal. CSA fodder production will not lead to the expansion of agricultural land into grassland or areas of high carbon stock. The water access points also meet the conditions to be considered universally aligned. For livestock genetic improvement, the project will finance the construction of one new breed improvement center and the rehabilitation of another breed center. The main driver of energy consumption in these centers is space conditioning. To reduce this, the project will finance among other design considerations, energy-efficient lighting, insulation to ensure thermal comfort, natural or solar-powered ventilation systems and shading to reduce solar heat gain. The construction and rehabilitation of water access points to enable water supply for livestock production are considered universally aligned.

5. Under Component 2, the operation will support competitiveness of prioritized *value chains*, upgrade their operations, and promote technologies that increase resilience of farmers, producer organizations and value chain actors by strengthening market linkages and infrastructure while reducing post-harvest losses, with the goal of addressing domestic food insecurity in Niger. Activities aimed at strengthening food safety and sanitary and phytosanitary (SPS) capacity (2.2) and capacity building efforts to mobilizing private sector for the development of financial services as well as facilitation of market linkages along selected value chain actors (2.3) are considered universally aligned (Services). The operation invests in marketing infrastructure and agri-food processing technologies for selected value chains that may

[33] Refer to Table A6.1 for more information.
[34] SRI is an agroecological approach to rice cultivation that uses fewer resources and reduces GHG emissions from production. Refer to Table A6.1 for more information.
[35] Notably, 70% of the new systems will draw water from the Niger river and use hydropower electricity supplied from Nigeria, until the Kandadji hydropower dam is completed, while the other new systems will use surface water stocked in earth dams and use gravity-based water distribution.
[36] Current medium and large-scale irrigation systems in Niger use diesel pumps. Due to cost constraints, these systems will not be replaced through this project, however rehabilitation efforts primarily focus on efforts to improve the energy efficiency of existing systems to minimize the use of fossil fuels.

pose a risk for mitigation due to GHG emissions from the likely use of fossil fuels and refrigerants associated with cold chains and transport services as well as energy use in agri-food processing. Considering the low capacity and technical challenges in Niger, the project design incorporated feasible measures and practices to minimize these emissions and avoid carbon lock-in. The rehabilitation and construction of warehouses and storage facilities will be carried out through locally sourced material (e.g., baked bricks) and to the extent possible prioritize the use of renewable energy sources, such as solar where feasible. The project will also prioritize low emission equipment throughout the selected value chains, including use of energy-efficient equipment for milk processing and rice milling and use of solar pumps for Kilishi processing.

6. Under Component 3, the project's activities financed through financial intermediaries primarily focus on establishing CEGs and PPCGs to de-risk sub-project investments, which are closely interlinked with the project's investments under Components 1 and 2 that support investment in prioritized value chains. The project's grant agreement with FIs and the design of CEGs will explicitly require sub-projects to meet CSA conditions as one of the main criteria for selection of all the sub-projects financed through the project and are therefore considered aligned with the mitigation goals.

7. **Assessment and reduction of adaptation risks:** While the project's inherent risk from climate risks was high, several risk reduction measures have been incorporated. The operation adequately reduces material climate risks to the project's investments and outcomes, to an acceptable level of residual risk.

8. Under Component 1, *crop and fodder production* is at high inherent risk from erratic precipitation and temperature conditions as well as extreme events, such as drought and flood. Crops selected were prioritized given their role in addressing food insecurity and reducing imports, however it is acknowledged that certain crops, such as rice, are vulnerable to climate risks. The project will therefore promote the use of drought-resistant seed varieties and include training and capacity building for producers to encourage resilient adaptation practices, including use of early warning systems for decision making, water harvesting, flood management techniques, soil erosion control, natural shading to reduce heat risk, options for crop diversification, emergency response and contingency planning. Finally, there is a separate ongoing initiative, in collaboration with the Bank, to develop a Food Security Crisis Preparedness Plan which will complement the Government's existing Food Security Plan/Strategy. This strategy will include provisions to manage risk to crop production and food security from climate disasters.

9. *Irrigation systems* are likely to be at high inherent risk from flooding, storms, droughts, and extreme heat events. Flooding events could damage irrigation infrastructure thereby causing disruptions in water supply for crop production. At the same time, extended periods of drought could affect the functioning and effectiveness of the expanded irrigation systems. The project will introduce the following risk reduction measures – (i) design irrigation infrastructure that can act as a flood management system during periods of extreme precipitation (e.g. deeper water channels to reduce flooding during surge precipitation events), (ii) improve existing processes for routine operations and maintenance through technical capacity support, thereby ensuring that any damage is addressed efficiently and disruption to water supply is reduced, and (iii) build capacity of water management associations in effective climate-informed decision making, including to plan for both short-term acute issues, or long-term chronic challenges.

10. The project will also finance efforts to introduce *improved livestock* breeds, that are more resilient to heat stress relative to current breeds, alongside efforts to improve animal veterinary services. These services will monitor climate-related stressors to animal health and manage climate-induced health conditions. The breed improvement centers that will be constructed and rehabilitated are expected to be at moderate risk from extreme heat events and moderate-low risk from flooding. In addition to incorporating climate-resilient design, standard emergency protocols will be in place to manage any extreme events. The water points are small structures and are at low risk from climate risks.

11. Under Component 2, the project design takes into consideration the drought, floods, and related climate risks that could impact marketing infrastructure and processing. Specifically, vulnerability to floods, droughts, and pests and diseases will be managed and mitigated through targeted adaptation measures, by combining structural, nature-based, and soft adaptation solutions, including following climate-resilient design standards to reduce the degradation or destruction of marketing infrastructures. Technical assistance and capacity building offered through the project will also improve producer capacity to respond to extreme climate events that may affect post-harvest storage and distribution.

12. Under Component 3, financial intermediaries will include climate risk screening as part of the sub-project selection and design criteria and encourage beneficiaries to consider feasible risk reduction measures. This will be included in the grant agreement and operations and implementation manual.

13. All activities to be financed by the CERC will be aligned on adaptation and mitigation and these considerations will be included in the CERC Manual.

B. Climate Change Adaptation and Mitigation

Table A6.1. Climate change adaptation and mitigation for the project activity under each subcomponent

Sub-components and Activities	Climate adaptation Activities/Investments	Climate Mitigation Activities/Investments
COMPONENT 1: BUILDING RESILIENT AGRICULTURAL PRODUCTIVE CAPACITY (IDA US$250 MILLION)		
Subcomponent 1.1: Support to Improved Agricultural Productivity and Resilience (IDA US$215 million)		
Access to drought-resistant seeds or germplasm, including through vouchers to farmers, advisory services on selection and utilization of improved seeds, and improvements in seed quality and certification.	**Adaptation and Mitigation:** Given a projected increase in climate-induced hotter and drier conditions as well as extreme heat events such as droughts, the project will specifically support certified drought-tolerant seeds that are able to withstand high temperatures. Advisory services offered will guide farmers on selecting appropriate seeds and on ensuring their optimum productivity, including through measures aimed at reducing emissions, e.g., optimized, and reduced fertilizer application for soil health management and other relevant water and soil management techniques.	
Climate-resilient irrigation infrastructure: Climate-informed design and construction of irrigation infrastructure, capacity building of water user associations to assure sustainable operation and maintenance of the irrigation works.	**Adaptation and Mitigation:** Rehabilitation and construction of new irrigation infrastructure will address climate-induced water scarcity issues that severely impacts the predominantly rainfed agricultural production system. New irrigation infrastructure will undergo feasibility studies (considering climate risks) which will inform their design. Rehabilitation of existing irrigation infrastructure will also consider climate risks and reduce any leakages to support improved water availability, water use efficiency, and build drought adaptive capacity and climate resilience. Capacity building will provide farmers with resources and expertise to ensure effective management and routine maintenance of irrigated areas and infrastructure. Notably, given high flooding risk, trainings will be provided on flood risk management, disaster risk response, and post-disaster maintenance of irrigation infrastructure. Irrigation infrastructure supported by the project will use renewable energy (see Annex 3).	
Strengthening local producer organizations for climate-smart technology transfer (including farm-level postharvest management, climate-informed advisory services).	**Adaptation and Mitigation:** Trainings will be provided on climate smart technologies, innovations, and management practices (TIMPs). This will include training on (i) access and use of climate-resilient, high yielding seeds (ii) CSA mechanization, including scaling up soil and water management practices to build resilience against droughts and floods and improve carbon capture and sequestration, conservation agriculture methods, optimized fertilizer use, use of renewable energy (e.g., solar irrigation systems) and climate smart livestock practices. Trainings will also cover methods to enhance post- harvest management, including to reduce losses due to climate events.	
Subcomponent 1.2: Support to Improved Livestock Productivity and Resilience (IDA US$30 million)		
Genetic improvement for climate-resilient and high-quality breeds: breed improvement and distribution, training farmers on climate-resilient breeding, training of technical staff on artificial insemination (AI).	**Adaptation and Mitigation:** Projected increases in temperature due to climate change are expected to increase the incidence of heat risk and livestock mortality. The project therefore invests in improved animal breeds that are adapted to climate change, in terms of drought resistance, heat stress, disease resistance, feed conversion efficiency. Improved breeds are expected to result in reduced net emissions, in particular reduced methane emissions as improved feed conversion ratio reduces enteric fermentation.	

	Breed improvement centers will be constructed or rehabilitated through the operation will incorporate climate considerations in their design, such as natural or solar powered ventilation systems, shading features and use reflective material to reduce solar heat gain. Breed improvement centers will incorporate energy-efficient equipment, such as energy-efficient lighting and other renewable energy powered systems.
Animal feed and fodder production: development and equipment of fodder production sites, production and distribution of fodder seeds, participatory farmer training on climate-smart fodder production and livestock feeding practices, development of technical manuals for high-nutrient feed concentrates.	**Adaptation and Mitigation:** Fodder seeds selected for production and distribution through the project are primarily drought-tolerant varieties and selected based on increased digestibility and enhanced quality, with an overall objective of reducing methane emissions. Production of fodder seeds will also use CSA practices to minimize emissions, including conservation agriculture, crop diversification, nutrient and soil management, and water conservation. Trainings offered to farmers will also cover improved feeding practices (e.g., precision feeding) to reduce entering methane emissions.
Access to water through rehabilitation and construction of water points and training of water management committees.	**Adaptation:** Extreme drought events have resulted in severe water scarcity in Niger, especially during the dry season. This has led to increase livestock mortality and reduced productivity. Notably, the lack of water significantly decreases milk production, resulting in huge losses to the communities. The Project's investment in water access points is critical to ensure access to drinking water for animals (and people) during dry seasons. This will protect rural livelihoods who depend on livestock production. The water points will incorporate climate consideration, to manage impacts from heavy precipitation and floods.
Improvement in animal husbandry activities including through farmer training, financing, and capacity building	**Adaptation and Mitigation:** Good animal husbandry practices are critical in Niger to support herders adapt to the changing climate. The project will support trainings and finance on climate-smart livestock practices such as animal welfare, animal housing, feeding, and hygiene. This will include practices to manage heat risk on animals such as well-ventilated animal shelters, feeding practices aimed at increasing livestock productivity and efforts to reduce prevalence of climate-exacerbated parasites and diseases. It will also cover animal health services, climate-smart animal husbandry, and breeding practices which improve yields, and reduce enteric methane or other GHG emissions, will be scaled up under this subcomponent.
Subcomponent 1.3: Support to Applied Agricultural Research (IDA US$5 million)	
Scale up agricultural research and development with a focus on climate smart seed production, and climate smart agricultural practices.	**Adaptation and Mitigation:** The project will finance a demand-driven applied research program designed to showcase transformative climate-smart agricultural technologies and innovations. The focus would be on climate-resilient plant breeding programs and adaptive trials and climate-smart crop production and technologies practices aimed at enhancing carbon sequestration, water use efficiency, enhancing on-farm renewable energy applications, integrated crop pest management, organic fertilizers, optimized fertilizer application. In addition, the project would enhance capacity building and provide technical assistance to the National Institute of Agronomic Research Institute (INRAN) for production and distribution of drought-tolerant seed varieties (including quality control and monitoring of seed).
COMPONENT 2: IMPROVING AGRICULTURE AND LIVESTOCK MARKETS (IDA US$30 MILLION)	
Subcomponent 2.1: Supporting priority market infrastructure (IDA US$26 million)	
This will finance the development of priority market infrastructures for the onion, rice, cowpea, and livestock value chains (livestock market and milk collection centers). *Onion value chain:* climate-resilient and energy-efficient infrastructure support for producer organizations and private sector. *Rice value chain:* energy-efficient warehouses and improved technologies and equipment for processing, building energy-efficient rice mills, and technical assistance to rice cooperatives, farmers' organizations, and SMEs.	**Adaptation and Mitigation:** Extreme temperatures and flooding due to climate change can cause agricultural value chain disruption and market infrastructures to degrade rapidly, requiring early replacements and higher associated costs. This poor infrastructure leads to the depreciation of quality and market value of crop and livestock products, eroding farmers' income in the face of climate change. This subcomponent supports financing of critical public infrastructure (such as warehouses, storage facilities, agro-processing, milk collection and cooling centers, etc.) design standards, while contributing to the reduction of postharvest losses by increasing the shelf-life of produce and shield produce from losses due to exposure to extreme weather conditions and pests. Market infrastructure development under this subcomponent is critical to improving the climate adaptability for participating farmers. All infrastructure will incorporate structural, nature-based, and soft adaptation measures to withstand and manage climate risks. Among others, this will include use of better insulation, shading and reflective material, elevated infrastructure to reduce flooding and use of weather-resistant

Cowpea value chain: cowpea processing equipment for farmer groups, including for women-led cooperatives, and technical assistance to cowpea FOs, cooperatives, and federations of FOs. *Livestock-meat value chain:* climate-resilient and energy-efficient infrastructure support to producer organizations and private sector, development of guidelines of quality and food safety standards, training on health standards and practices. *Livestock-milk value chain:* establishing and upgrading infrastructure and technologies for milk collection and cooling centers, in coordination with industrial processors, development of guidelines of quality and food safety standards.	material and natural vegetation for cooling, soil control, stormwater drainage systems to reduce the degradation or destruction of marketing infrastructures. Renewable energy (primarily solar) for ventilation, lighting, and processing (solar dryers and pumps) as well as for cold chain infrastructures will be prioritized. Building elements (e.g., windows and glazing that optimize daylight or increase cooling load such as insulated walls and roofs) as well as energy-efficient appliances and equipment with lower GHG emission risk will be considered. All these efforts combined will lead to an overall reduction in food losses and potential GHG emissions reductions.
Sub-component 2.2: Strengthening food safety and sanitary and phytosanitary capacity (US$2 million)	
This subcomponent will support strengthening public capacities in sanitary and phytosanitary measures and food safety in selected agri-food value chains.	**Adaptation and Mitigation:** In the context of Niger, most of the food quality and safety issues are driven by climatic risks. For example, temperature increases and changes in rainfall patterns will have an impact on the persistence and patterns of occurrence of food pathogens and animal disease, necessitating improved capacity development for food safety and quality management. Climate change is likely to introduce emerging food safety and SPS risks, exacerbating existing vulnerabilities and inadequacies in the current national agencies/institutions/systems introducing additional burdens and limitations to their anticipatory capacity for such emerging threats. The project invests in capacity building of responsible agencies on climate smart value chain development and food quality and safety to reduce food losses from weather variability, leading to a substantial reduction in GHG emissions. It will include topics on undertaking climate risk assessments and surveillance, establish and upgrade laboratory capacity and accreditation, establishment of standards and guidelines for produce quality and processing, training all value chain actors to strengthen compliance with strict health standards as well as training and awareness raising on climate risk and impact as well as interconnectedness of climate change, animal health, and food safety. It will also integrate the concept of emerging disease surveillance, early warning systems, prevention, and control of zoonoses and food safety hazards. Support will contribute to improve detection and surveillance to deal with increased occurrence, distribution of infectious disease linked to higher temperatures and changes in patterns and intensities of precipitation events.
Sub-component 2.3: Mobilizing transformative private investors (IDA US$2 million)	
Activities to be financed include: (i) mobilizing and facilitating the crowding-in of transformative private investors into select value chains through de-risking facilities and (ii) create market linkages along the chains of project selected value chains.	**Adaptation:** The project's support will contribute to mobilizing sustainable finance and resources towards adaptation and resilience at scale while supporting the development of insurance products and risk-sharing mechanisms and the development of regional financial risk strategies against climate-related damages and losses. The project's feasibility studies and review as well as support to partnerships for the prioritized value chains will contribute to improved market links between value chain actors and producers which can contribute to climate resilience.
COMPONENT 3: Facilitating ACCESS TO FINANCE - (IDA 47 MILLION USD)	
Sub-component 3.1: Sub-project financing (IDA US$45 million)	
Activities to be financed under this subcomponent include: *Financing through FISAN (US$25 million):* Credit Enhancement Grants (CEGs) to investments under Window 1 (Small and medium) and Window 2 (larger) for CSA production and technologies to production	**Adaptation and Mitigation:** This subcomponent will aim to increase the productivity and commercialization of crops and livestock products by POs and private investors. This will allow farmers to access high quality and climate smart inputs, services, and technologies. Investments in climate-smart infrastructure for value addition and production services will facilitate the connection of smallholder farmers with other value chain actors, provide marketing services such as post-harvest management, storage, and primary processing, thus increasing their incomes and reducing food loss and waste, and GHG emissions.

capacity, energy efficiency and climate resilience. *Financing through SAHFI (US$20 million):* Deployment of risk sharing mechanism to support eligible sub-projects (e.g., through endowment of guarantee funds for loans to agricultural value chains).	This intervention will also enable farmers to access climate smart TIMPs, training, and agronomic advisory services and technologies covering adoption and scaling up of CSA practices for improved management of land, soil, and water resources and energy-efficient processes, infrastructure, and technologies in production, processing, storage (e.g., solar driers and solar pumps), and transportation. The design of the CEGs will be described in the Operations Manual (OM), which will be a supplement to the Project Implementation Manual, clarifying the financing process, the size of grants, and the selection criteria. Financing provisions to all sub-projects will meet CSA practices and technologies as per the selection criteria which will be specified in the project's OM. Besides the main project's Operational Manual, the CEG will have a separate Grant Manual and SAHFI/PPCG will have Guarantee Manual. The OM will refer to these grant manuals, which will include adoption of CSA practices and technologies among the key sub-project selection criteria to all sub-projects. The project's built-in risk-sharing and financing mechanism against climate-related damages and losses will enhance climate resilience.
Sub-component 3.2: Technical Assistance to FISAN and SAHFI, and PFIs (IDA US$2 million)	
Activities to be financed include: *Strengthening FISAN's expertise in critical areas* and *Capacity building for SAHFI*	**Adaptation and Mitigation:** Technical assistance activities to SAHFI and FISAN will focus on the use of new and climate smart financial products to targeted clients that will be rolled out through sub-component 3.1, including strengthen the capacities of FISAN and SAHFI for agri-related risk management practices to de-risk agri-businesses financing and empower value chains, paving the way for food security that's critical in the context of Niger, which will include capacity building to derisk climate-induced production failures. This subcomponent will support training and awareness raising on climate risk/impact as well as on the critical importance of derisking impacts of climate-induced risks/vulnerabilities of sub-projects under sub-component 3.1.
Component 4: Project Coordination and Institutional Strengthening (US$23 million of IDA)	
Subcomponent 4.2: Support to Institutional Strengthening (US$8 million)	
Subcomponent 4.2: Support to Institutional Strengthening, including to enhance staff technical capacity, M&E systems and support strengthening of fiduciary system	**Adaptation:** In the context of Niger, the agricultural sector is highly vulnerable to climate change capacity building and sensitization on climate change risks and response options as well as mainstreaming of climate change issues within the institutions involved with the implementation of the project is critical. The project's support under this sub-component provides a platform for the mainstreaming and integrating of climate change considerations, *inter alia*, into policies, legislations, regulations, policies, sector strategies and plans in Niger's key institutions involved with the project and where there is limited baseline on climate mainstreaming. Government staff will be offered trainings covering key climate issues impacting relevant sectors, such as on climate risk management for decision making purposes. M&E systems will also integrate, to the extent possible, indicators to track climate vulnerabilities affecting key sectors and on climate adaptation and mitigation action across ministries.

Annex 7: Gender Analysis and Action Plan

1. **In Niger, the gender gap for productivity is estimated at as high as 66 percent**.[37] Several factors contribute to Niger's gender productivity gap, including: (i) less access to quality/improved seeds; (ii) less use of organic and inorganic fertilizer than men; (iii) less access to mechanical equipment (2 percent for female-only households vs. 4 percent male-only households and 17 percent for mixed households); (iv) less access to irrigation; (v) less optimal use of inputs (quality and timing) because of less access to training due to, among other things, high illiteracy among women and having limited time due to domestic activities; (vi) less access to credit because of collateral requirements, lower telecommunications connectivity, and other sociological or even regulatory reasons; (vii) less access to hired farm labor; (viii) lack of access to quality land (soil quality, location, and size contribute up to 30 percent of productivity gap between male and female farmers); and (ix) less time for supervision because of child-care responsibilities.

2. **The project will focus on reducing gender gaps in**: (i) access to quantity and quality of inputs; (ii) access to agricultural services; (iii) access to irrigation infrastructure; and (iv) access to credit and support for financial inclusion. The reduction of the gender gaps will be measured through two indicators (see Results Framework): (i) number of women and girls with enhanced resilience to climate risk; and (ii) number of women-led businesses financed by the project. These will track specific gap-closing activities, and the women-led sub-projects will receive support to achieve high participation.

Table A7.1: Gender Action Plan (Activities to close and track gender gap)

Gap	Activities	Indicator	Components
Access to quantity and quality of inputs Access to extension services	The project will organize women farmers into groups and provide capacity strengthening to these women groups. This will facilitate technology transfer (including farm-level postharvest management, and gender-smart advisory services) targeted to women farmers. This support to women's groups will enhance community networks and coping mechanisms for shocks. The project will facilitate access to climate-resilient seeds or germplasm to women farmers through adapted training and expanding e-voucher systems to improve women's access to inputs. The project will finance specific outreach to women for awareness creation, experimentation with new crops and training of production technologies. Under sub-component 1.2, the project will target women farmers for the distribution of high-performance male sheep and goats for breed improvement of small ruminants, thereby providing them with income-producing assets which will bolster ability to withstand shocks	Number of women and girls with enhanced resilience to climate risk (675,000)	1
Women's limited access to high value crops and market infrastructure	Component 2 will target women-led cooperatives and SMEs to facilitate their access to market infrastructure, technologies, and equipment for value chain development. Women's cooperatives will be sought out for accompaniment and scale-up, as well as training to grow.		2
Access to finance to women farmers, groups, and businesses	Because of high perceived risks and lack of collateral, financial institutions are reluctant to provide loans to farmers and private investors in the agriculture sector, limiting farm investments in more productive inputs and services. This is significantly more so for women farmers and women groups, who have limited business and financial literacy skills. To this end, Component 3 provides agriculture finance targeted to women farmers and women managed/led firms. Not only does it provide grants, but it also links women farmers, women groups, and women managed/owned SMEs to financial institutions (such as banks and MFIs) as part of institutional support. To build the capacity of women farmers and groups, the project provides TA to facilitate formalization and access to information to women farmers, thereby enhancing their eligibility for future grants. The project will provide women targeted training in business development and financial literacy.	Number of women led firms with increased access to finance (200)	3

[37] World Bank & ONE Campaign (2014). Levelling the field: Improving opportunities for women farmers in Africa.

Annex 8: Map of Project areas