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Report No: PAD5183

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED CREDIT

IN THE AMOUNT OF EUR 141.4 MILLION
(US$150.0 MILLION EQUIVALENT)

TO

BURKINA FASO

FOR A

# BURKINA FASO LIVESTOCK RESILIENCE AND COMPETITIVENESS PROJECT

April 17, 2023

Agriculture and Food Global Practice
Western and Central Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective February 28, 2023)

| | |
|---|---|
| Currency Unit = | Western African CFA franc (FCFA)<br>EURO |
| FCFA 618.30300557 = | US$1 |
| EUR 0.94259591= | US$1 |

FISCAL YEAR
January 1 - December 31

| | |
|---|---|
| Regional Vice President: | Ousmane Diagana |
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| Task Team Leader: | Ernest Ruzindaza |

ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ABNORM | Burkinabe Agency for Standardization of Metrology and Quality *(Agence Burkinabé de Normalisation, de la Métrologie et de la Qualité)* |
| AM | Accountability Mechanism |
| ANEVE | National Agency for Environmental Assessments *(Agence Nationale des Evaluations Environnementales)* |
| AWP&B | Annual Work Plan and Budget |
| BCEAO | Central Bank for Central and West Africa States*, (Banque Centrale des Etats de l'Afrique de l'Ouest)* |
| BDS | Business Development Services |
| BP | Bank Policy |
| CAMVET | Central Veterinary Medicines Purchasing Center *(Centrale d'Achat des Médicaments Vétérinaires)* |
| CBPP | Contagious Bovine Pleuropneumonia |
| CCDR | Climate Change Development Report |
| CE | Citizen Engagement |
| CERC | Contingent Emergency Response Component |
| CMAP | Center for Multiplication of Improved Animal Breeds *(Centre de Multiplication des Animaux Performants)* |
| COVID-19 | Coronavirus Disease 2019 |
| CPF | Country Partnership Framework |
| CRI | Corporate Results Indicator |
| DA | Designated Account |
| DGESS | General Directorate of Studies and Statistics *(Direction Générale des Etudes et Statistiques)* |
| DGPA | General Directorate of Animal Production *(Direction Générale des Productions Animales)* |
| DGSV | General Directorate of Veterinary Services *(Direction Générale des Services Vétérinaires)* |
| DMP | Directorate of Public Procurement *(Direction des Marchés Publics)* |
| ECOWAS | Economic Community of West African States *(Communauté Economique des Etats de l'Afrique de l'Ouest)* |
| EIRR | Economic Internal Rate of Return |
| ESMF | Environmental and Social Management Framework |
| ESS | Environmental and Social Standards |
| FAO | Food and Agriculture Organization |
| FCV | Fragility, Conflict, and Violence |
| FIRR | Financial Internal Rate of Return |
| FM | Financial Management |
| FMD | Foot and Mouth Disease |
| GAHP | Good Animal Husbandry Practice |
| GBV | Gender-based Violence |
| GCRF | Global Crisis Response Framework |
| GDP | Gross Domestic Product |
| GEMS | Geo-Enabling Initiative for Monitoring and Supervision |
| GHG | Greenhouse Gas |

| | |
|---|---|
| GRM | Grievance Redress Mechanism |
| GRS | Grievance Redress Service |
| ICT | Information and Communication Technology |
| IDA | International Development Association |
| IDP | Internally Displaced Person |
| IFC | International Finance Corporation |
| IFR | Interim Financial Report |
| ILRI | International Livestock Research Institute |
| INERA | Institute of Environment and Agricultural Research *(Institut de l'Environnement et de Recherches Agricoles du Burkina Faso)* |
| IPF | Investment Project Financing |
| LIFF | Livestock Improvement Financial Facility |
| LMP | Livestock Master Plan |
| M&E | Monitoring and Evaluation |
| MARAH | Ministry of Agriculture, Livestock and Fisheries *(Ministère de l'Agriculture des Ressources Animales et Halieutiques)* |
| MEBF | Burkina Faso Entrepreneurship House *(Maison de l'Entreprise du Burkina Faso)* |
| MFD | Maximizing Finance for Development |
| MG | Matching Grant |
| NGO | Non-governmental Organization |
| MoU | Memorandum of Understanding |
| NPV | Net Present Value |
| ONV | National Order of Veterinarians *(Ordre National des Veterinaires)* |
| OP | Operational Policy |
| PA | Productive Alliance |
| PADEL-BF | Burkina Faso Livestock Sector Development Support Project *(Projet d'Appui au Développement de l'Elevage au Burkina Faso)* |
| PDO | Project Development Objective |
| PEFA | Public Expenditure and Financial Accountability |
| PFI | Partner Financial Institutions |
| PFM | Public Finance Management |
| PIM | Project Implementation Manual |
| PIU | Project Implementation Unit |
| PNDEL | National Policy for Sustainable Livestock Development *(Politique Nationale de Développement Durable de l'Élevage)* |
| PNDES | National Plan for Economic and Social Development *(Plan National de Développement Économique et Social)* |
| PPR | Plague of Small Ruminants (*Peste des Petits Ruminants)* |
| PPSD | Project Procurement Strategy for Development |
| PRAPS II | Regional Sahel Pastoralism Support Project II *(Projet Regional d'Appui au Pastoralisme au Sahel)* |
| PReCA | Agricultural Resilience and Competitiveness Project *(Projet de Résilience et de Compétitivité Agricole)* |
| PRECEL | Burkina Faso Livestock Resilience and Competitiveness Project *(Projet de Résilience et de Compétitivité de l'Élevage au Burkina Faso)* |
| PSC | Project Steering Committee |

| | |
|---|---|
| RfQ | Request for Quotations |
| SEA/SH | Sexual Exploitation and Abuse / Sexual Harassment |
| SEP | Stakeholder Engagement Plan |
| SME | Small and Medium Enterprise |
| SPD | Standard Procurement Document |
| SPS | Sanitary and Phytosanitary Standards |
| SRA | Security Risk Assessment |
| STEP | Systematic Tracking of Exchanges in Procurement |
| TC | Technical Committee |
| ToR | Terms of Reference |
| WBG | World Bank Group |

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DATASHEET

## BASIC INFORMATION

| Country(ies) | Project Name | |
|---|---|---|
| Burkina Faso | Burkina Faso Livestock Resilience and Competitiveness Project | |
| **Project ID** | **Financing Instrument** | **Environmental and Social Risk Classification** |
| P178598 | Investment Project Financing | 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 |
| [ ] Alternate Procurement Arrangements (APA) | [ ] Hands-on Enhanced Implementation Support (HEIS) |

| Expected Approval Date | Expected Closing Date |
|---|---|
| 08-May-2023 | 31-Dec-2029 |

Bank/IFC Collaboration

No

### Proposed Development Objective(s)

To improve the productivity, commercialization, and resilience of key sedentary livestock production systems for targeted beneficiaries in Project areas

### Components

| Component Name | Cost (US$, millions) |
|---|---|

| | |
|---|---|
| ENABLING ENVIRONMENT AND SUPPORT SERVICES FOR LIVESTOCK PROMOTION | 61.58 |
| CLIMATE-SMART LIVESTOCK INFRASTRUCTURE AND VALUE CHAINS DEVELOPMENT | 113.52 |
| PROJECT MANAGEMENT AND COORDINATION | 14.90 |
| CONTEGENT EMERGENCY RESPONSE COMPONENT (CERC) | 0.00 |

### Organizations

| | |
|---|---|
| Borrower: | Burkina Faso<br>Ministry of Economy, Finance and Prospective |
| Implementing Agency: | Ministry of Agriculture, Livestock and Fisheries |

## PROJECT FINANCING DATA (US$, Millions)

### SUMMARY

| | |
|---|---|
| **Total Project Cost** | 190.00 |
| **Total Financing** | 190.00 |
| **of which IBRD/IDA** | 150.00 |
| **Financing Gap** | 0.00 |

### DETAILS

**World Bank Group Financing**

| | |
|---|---|
| International Development Association (IDA) | 150.00 |
| IDA Credit | 150.00 |

**Non-World Bank Group Financing**

| | |
|---|---|
| Counterpart Funding | 18.00 |
| Borrower/Recipient | 2.90 |
| Local Beneficiaries | 15.10 |
| Commercial Financing | 22.00 |
| Unguaranteed Commercial Financing | 22.00 |

### IDA Resources (in US$, Millions)

| | Credit Amount | Grant Amount | SML Amount | Guarantee Amount | Total Amount |
|---|---|---|---|---|---|
| **Burkina Faso** | 150.00 | 0.00 | 0.00 | 0.00 | 150.00 |
| National Performance-Based Allocations (PBA) | 150.00 | 0.00 | 0.00 | 0.00 | 150.00 |
| **Total** | **150.00** | **0.00** | **0.00** | **0.00** | **150.00** |

### Expected Disbursements (in US$, Millions)

| WB Fiscal Year | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Annual | 0.00 | 10.21 | 11.72 | 19.30 | 24.34 | 32.49 | 35.81 | 16.13 |
| Cumulative | 0.00 | 10.21 | 21.93 | 41.23 | 65.57 | 98.06 | 133.87 | 150.00 |

## INSTITUTIONAL DATA

### Practice Area (Lead)

Agriculture and Food

### Contributing Practice Areas

Finance, Competitiveness and Innovation

### Climate Change and Disaster Screening

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

## SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

| Risk Category | Rating |
|---|---|
| 1. Political and Governance | High |
| 2. Macroeconomic | Substantial |
| 3. Sector Strategies and Policies | Substantial |
| 4. Technical Design of Project or Program | Moderate |
| 5. Institutional Capacity for Implementation and Sustainability | Substantial |
| 6. Fiduciary | Substantial |
| 7. Environment and Social | Substantial |

| | |
|---|---|
| 8. Stakeholders | Moderate |
| 9. Other | High |
| 10. Overall | Substantial |

## COMPLIANCE

### Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

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

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

Sections and Description

Schedule 2, Section I.A.2 (a). The Recipient shall, through MARAH, no later than two (2) weeks after the Effective Date, or any later date as agreed by the Association, establish a Project Implementation Unit ("PIU") within MARAH, headed by a Project coordinator and including fiduciary management specialists, responsible for the day-to-day implementation, including financial management, procurement, technical assistance, and environmental and social aspects of the Project, with functions, responsibilities and sufficient resources acceptable to the Association, 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.

Sections and Description

Schedule 2, Section I.A.2 (b)(i). Without prejudice to paragraph 1 above, the Recipient shall ensure that the PIU, not later than one (1) month after the Effective Date, or any later date as agreed by the Association, acquires, installs and thereafter maintains in the PIU an accounting software, in form and substance satisfactory to the Association

Sections and Description

Schedule 2, Section I.A.2 (b)(i)(aa) Without prejudice to paragraph 1 above, the Recipient shall ensure that the PIU, Recruit and appoints, (aa) not later than three (3) months after the Effective Date, or any later date as agreed by the Association, an internal auditor, […] all under terms of reference and with qualifications and experience satisfactory to the Association, to oversee the accounting functions of the PIU

Sections and Description

Schedule 2, Section I.A.2 (b)(i)(bb) Without prejudice to paragraph 1 above, the Recipient shall ensure that the PIU, Not later than six (6) months after the Effective Date, or any later date as agreed by the Association, an external auditor, […] all under terms of reference and with qualifications and experience satisfactory to the Association, to oversee the accounting functions of the PIU.

Sections and Description

Schedule 2, Section I.A.2 (b)(i)(cc) Without prejudice to paragraph 1 above, the Recipient shall ensure that the PIU, […] Not later than one (1) month after the Effective Date, or any later date as agreed by the Association, an environmental safeguards specialist and a social development/GBV specialist all under terms of reference and with qualifications and experience satisfactory to the Association, to oversee the accounting functions of the PIU.

Sections and Description

Schedule 2, Section I.G.1 (a) In order to ensure the proper implementation of contingent emergency response activities under Component 4 of the Project ("Contingent Emergency Response Part"), the Recipient shall ensure that […] a manual ("CERC Manual") is prepared and adopted, no later than six (6) months after the Effective Date, in form and substance acceptable to the Association […].

Sections and Description

Schedule 2, Section I.D.1 – Without limitation to the obligations set forth in Section I.B above, the Recipient shall, not later than two (2) weeks after the Effective Date the consolidated annual work plan and budget containing all proposed activities for inclusion in the Project during the following calendar year, together with the financing plan for such activities and a timetable for their implementation, including: (a) detailed timetables for the sequencing and implementation of proposed Project activities; (b) types of expenditures required for such activities and a proposed financing plan and sources of funding for such expenditures; and (c) any Operating Costs or Training that may be required under the Project.

**Conditions**

| Type | Financing source | Description |
|---|---|---|
| Effectiveness | IBRD/IDA | The Additional Conditions of Effectiveness consist of the following:<br><br>(a) The Recipient has adopted a Project Implementation Manual, including the financial management and procurement procedures, an accountability system, and the LIFF Grants Manual, in form and substance satisfactory to the Association; |
| Type | Financing source | Description |
| Effectiveness | IBRD/IDA | (b) The Recipient has recruited or appointed a national coordinator, an accountant, a procurement specialist, a financial management officer, and a monitoring and evaluation officer to the Project Implementation Unit, with terms of reference, qualifications, and experience (including the allocation of appropriate resources) in accordance with the provisions of the PIM and satisfactory to the Association; |
| Type | Financing source | Description |
| Effectiveness | IBRD/IDA | (c) The Recipient has established a Steering Committee within MARAH, in form and substance satisfactory to the Association; and |
| Type | Financing source | Description |
| Effectiveness | IBRD/IDA | (d) the Recipient has established the Grievance Mechanism in form and substance satisfactory to the Association. |
| Type | Financing source | Description |
| Disbursement | IBRD/IDA | Notwithstanding the provisions of Part A of this Section, no withdrawal shall be made:<br>(a) for payments made prior to the Signature Date;<br><br>(b) for payments under Category (2), unless and until the Recipient |

| | | |
|---|---|---|
| | | has entered into Cooperation Arrangements with a Partner Entity, in from and substance Satisfactory to the Association. |

# I. STRATEGIC CONTEXT

## A. Country Context

1. **Burkina Faso is one of the world's poorest countries, with an extreme poverty headcount of 32.7 percent[1] in 2022 (7.5 million people), a Gross Domestic Product (GDP) of about US$21.3 billion, and a GDP per capita of just US$941 in 2022[2].** According to the World Development Indicators, its population growth was 2.7 percent in 2021, one of the highest in the world. Its turbulent political history, challenging biophysical environment, and isolation from major trade corridors generate daunting development challenges. About 19 percent of the population had access to electricity in 2020, and less than one-third of adults are literate[3]. The country ranks 144$^{th}$ out of 157 countries in the 2020 World Bank's Human Capital Index and 184$^{th}$ out of 191 countries in the 2021-22 Human Development Index report of the United Nations Development Program.

2. **Burkina Faso faces acute insecurity threats that compound its considerable development challenges.** The security situation has deteriorated dramatically over the past eight years. Since 2016, the country has suffered multiple terrorist attacks, resulting in numerous deaths and massive population displacement (1.94 million people - women and children accounting for 22.9 percent and 60.4 percent, respectively- in January 2023) and an unprecedented humanitarian crisis in the country[4]. Displacement has affected new areas as violent extremism spreads, and internally displaced persons (IDPs) are now hosted in 302 communes or 86 percent of the country's municipalities. The continued deterioration of the security situation has made the humanitarian situation more complex, with persistent food insecurity and the absence of basic services in several regions. The attacks have also negatively impacted the economy by disrupting the labor supply, impeding mining, threatening vital gold exports, and undermining agricultural production. The insecurity has further deteriorated service delivery and is eroding social cohesion. The regions of Sahel, East, and Centre-North are hit hardest.

3. **Two military coups d'état occurred in less than eight months in 2022, on January 24 and September 30.** These were strongly linked to the security situation and widespread dissatisfaction with the successive governments over their failure to curb the violence in the country. The country is currently led by a Transition Government and a Transition Legislative Assembly, appointed after the second military coup with the ambition to restore security. The new authorities reconfirmed a transition period of 21 months consistent with the transitional plan agreed upon with the Economic Community of West African States (ECOWAS) on October 4, 2022, which should lead to the organization of elections in July 2024, in an improved security environment. The Heads of State and Government welcomed signing the Memorandum of Understanding between Burkina Faso and ECOWAS on establishing a Monitoring and Evaluation Mechanism of the transition timetable for a successful transition. The heightened uncertainty induced by the coups has raised the country's risk premium and delayed potential private investment, including foreign direct investment, thereby negatively affecting growth and fiscal accounts. The pressure

[1] The World Bank in Burkina Faso. https://www.worldbank.org/en/country/burkinafaso/overview
[2] The World Bank in Burkina Faso. https://www.worldbank.org/en/country/burkinafaso/overview
[3] World Development Indicators (WDI) in Burkina Faso: World Bank. https://data.worldbank.org/country/burkina-faso
[4] Burkina Faso: Internally displaced population Overview (January 31, 2023), UN Office for the Coordination of Humanitarian Affairs.

on fiscal accounts is further exacerbated by Russia's invasion of Ukraine, which is driving up prices of the main subsidized goods (food, fertilizer, and fuel) and further narrowing the fiscal space.

4. **Despite these challenges and the Coronavirus disease 2019 (COVID-19) pandemic, Burkina Faso's economy is resilient.** After a solid post-COVID economic recovery in 2021 (6.9 percent growth), GDP growth slowed to an estimated 2.5 percent in 2022 (-0.1 percent per capita). Growth was driven in 2022 by the primary and tertiary sectors, which grew 5.1 and 5.6 percent, respectively, underpinned by a return to average rainfall and higher government support for public services. After strong 2021 growth, the secondary sector contracted 4.9 percent in 2022 due to the insecurity-induced closure of several mines. As a result, growth was restrained by lower exports (-0.6 percent) and private investment (-6 percent) while buoyed by higher public investment (+39.8 percent) as the authorities increased security spending. Growth is forecast to increase to 4.3 percent in 2023 (1.7 percent per capita), driven by the agriculture and service sectors and a recovery in gold mining. Poverty rates are predicted to hold steady in 2023, as inflation offsets growth in the incomes of poor households, before beginning to trend downwards by about 1 percentage point a year. This marginal decline will only keep up with increasing population growth, and the number of poor is expected to remain around 7.5 million.

5. **Burkina Faso's overall medium-term fiscal outlook is adequate to ensure the sustainability of the Program.** Potential growth remains relatively solid (over 5 percent), underpinned by private consumption, gold exports, public consumption, and public investment. With past WB DPFs and International Monetary Fund (IMF) programs, the Government has established a track record of fiscal adjustment in times of need. As assessed in the latest Debt Sustainability Analysis (2023), public debt is sustainable, and the risks of overall and external debt distress are rated as moderate. Further, supported by IDA's Sustainable Development Finance Policy, the country has made substantial progress over the past years (including under the successive post-coup governments in 2022) regarding fiscal risk monitoring, management, and mitigation, and debt management and transparency. Following a recent IMF mission centered on the joint WB-IMF DSA and a Food Shock Window (FSW) financing of the Rapid Credit Facility, the 2023-2027 medium-term budgetary framework unveiled provides a path to regain the West African Economic and Monetary Union's 3 percent of GDP deficit target by 2027. Finally, negotiations for a new IMF Extended Credit Facility program are set to resume in the coming months, and its conclusion could help mitigate downside risks to the macro-fiscal outlook.

### B. Sectoral and Institutional Context

6. **Agriculture is a vital component of Burkina Faso's economy.** The sector accounts for 18.4 percent of GDP and about 60 percent of employment.[5]. It is dominated by subsistence production systems characterized by small farms, low crop and livestock productivity, limited diversification, and limited participation of formal private businesses in agricultural and agropastoral value chains. Rain-fed cereals

[5] Burkina Faso: Distribution of gross domestic product (GDP) across economic sectors from 2010 to 2020, Aaron ONeill, 2022.

(maize, millet, and sorghum) represent two-thirds of cultivated area and constitute the main food staples. Cotton is the main cash crop.

7. **Although it contributes proportionately less to agricultural GDP – slightly over one-third - the livestock sector is key to overall socio-economic development of the country.** The sector contributes to the livelihoods of 86 percent of the population – including through: (i) nutrition and food security; (ii) income and wealth accumulation; and (iii) improving farm productivity by providing draught power and nutrients from manure. Livestock marketing is central to millions of livelihoods. In 2020, the number of cattle sold was 1.9 million, while sales of goats and sheep were 4.3 million and 2.3 million, respectively. The export value of live animals, hides, and skins more than compensates for imports of dairy and poultry imports, resulting in an overall positive trade balance for livestock products.

8. **The livestock sector is diverse in terms of both species composition and production systems.** The national herd in 2019 consisted of 9.2 million cattle, 10.7 million sheep, 10.6 million goats, 1.3 million pigs, 1.4 million donkeys, 141,000 horses, 27,000 camels and 34.6 million poultry.[6] There are three main livestock production systems in the country: (i) pastoral systems characterized by livestock mobility - mainly large and small ruminants; (ii) sedentary traditional production systems (under village conditions); and (iii) sedentary improved systems (under modern conditions, mainly peri-urban semi-intensive and intensive poultry, pig, dairy production, and cattle fattening). Ninety-five percent of producers are smallholders, while the rest of the players are either small livestock enterprises or producer organizations operating in specific value chains in specific territories.

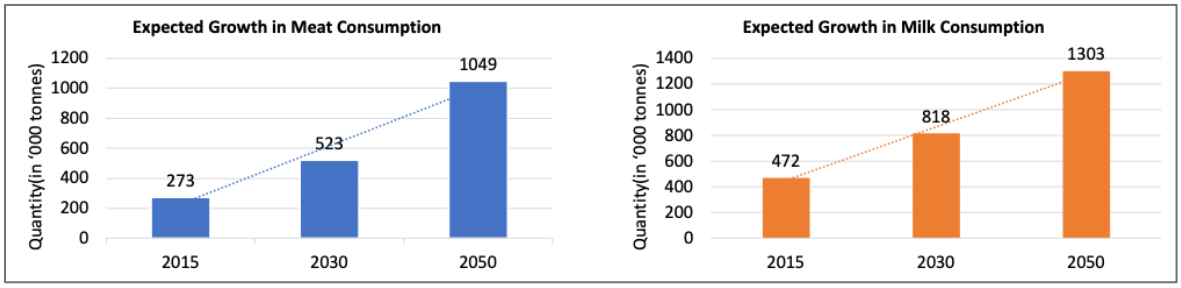
9. **The sector is characterized by significant gender gaps.** Although Burkina Faso's national gender policy and myriad policy documents for agriculture and livestock commit to gender equality, in practical terms, there are wide gender gaps in the sector. Differences in the types of livestock owned by women and men, and in the resources that women and men can access, create barriers to women's participation in the sector. Men's livestock holdings are much larger than women's, with much greater differences in large livestock.[7] Women are more engaged in production of small livestock (poultry, sheep, goats, etc.) while men dominate the cattle sub-sector. Owing to socio-cultural factors, fewer women own land and other collateralizable assets that can unlock financing to invest in livestock enterprises or to buy higher-value large ruminants to gain a better position in the value chain. Differential access to services (extension advice, animal health) also limits the productivity of women's livestock enterprises.[8] The sector is challenged by Plague of Small Ruminants, also known as *Peste des Petits Ruminants* (PPR), which constitutes a health emergency due to its rapid spread and since women predominantly own small ruminants, this disease disproportionately affects them.

10. **The potential of the livestock sector to contribute more to future growth and national economic development goals is immense**. Current consumption of livestock products stands at 67,300 tons of red meat, 424 million liters of raw milk and 26 million eggs[9]. Population growth, increasing urbanization and affluence is expected to increase these consumption levels and correspondingly, the demand for livestock

[6] National Livestock Survey 2019: Analysis report. Burkina Faso Ministry of Agriculture, Animal and Fisheries Resources (*Ministère de l'Agriculture des Ressources Animales et Halieutiques,* MARAH).
[7] World Bank Burkina Faso Rural Income Diagnostic. October 14, 2019.
[8] Burkina Faso ratified the Convention on the Elimination of all Forms of Discrimination Against Women in 1984. But the majority of women are unaware of their rights because of lack of information, illiteracy, and the weight of tradition.
[9] Annual Statistics Report, 2020. MARAH.

products. By 2050, Burkina Faso's population is expected to increase to 45 million people, 50 percent of whom will be living in cities and towns. As a result, the domestic demand for meat is expected to increase by 284 percent – from 272,000 tonnes recorded in 2015 to 1.04 million tonnes in 2050 (Figure 1) while that for milk is expected to increase by 176 percent from 472,000 tonnes in 2015 to 1.30 million tonnes. The same trend of increased demand for livestock products is projected within the region, where Burkina Faso's livestock surplus is currently exported. A combination of projected increases in domestic and regional demand for livestock products as well as Burkina Faso's net import position for dairy and poultry products provide strong incentives to expand local production and offer opportunities for generating rapid growth in jobs, incomes, and overall socio-economic development.

**Figure 1. Expected Growth in Meat and Milk Consumption in Burkina Faso[10]**




11. **Realization of this potential will require paying greater attention to improving the competitiveness and resilience of Burkina Faso's livestock sector to multiple shocks.** First, the country is only one of the many Sahelian countries participating in the thriving intra-regional livestock trade as net exporters (others include Benin, Mali, Niger) and is thus vulnerable to competition in its export markets (mainly Côte d'Ivoire, Ghana, Nigeria, Togo) as well as in the domestic market if its regional peers can profitably convey their products to the country. Additionally, the specter of competition from extra-regional imports as was the case in the 1970s looms large as these are increasingly being imported into the country at landed prices considerably lower than those offered by local producers[11].

12. **Second, the sector is vulnerable to many shocks including from climate change, conflict, and disease outbreaks, among others.** Climate change is increasing stresses on the livestock system. In the most likely scenario, livestock productivity in Burkina Faso is projected to decline due to increased heat stress, increased outbreaks, and higher transmission of infectious diseases (increasing morbidity and mortality), and reduced availability of water and feed resources due to temperature and precipitation changes. Annual variability in productivity is also expected to be larger. Climate change is also expected to lead to the appearance of new food safety and sanitary and phytosanitary standards (SPS) risks, and increased energy costs across livestock value chains, including for production, storage, and transportation. On the flipside, the sector is the leading source of Greenhouse Gases (GHG) in Burkina – accounting for almost 50 percent of the emissions- and a key contributor to climate change. Additionally, more parts of the country are getting engulfed in conflict and insecurity which by some estimates, have displaced nearly

[10] *Source:* Livestock Production Systems Spotlight Burkina Faso, Food and Agriculture Organization (FAO); Livestock Markets in Burkina Faso: Characteristics and Impact on the Local Economy, International Food Policy Research Institute (IFPRI); Burkina Faso Livestock Sector Development Support Project, World Bank; Livestock Growth, Public Health and the Environment: A Quantitative Assessment Burkina Faso, FAO.

[11] Rich K.M and Wane A (2021): The Competitiveness of Beef Exports from Burkina Faso to Ghana. Front. Vet. Sci. 8:619044. doi: 10.3389/fvets.2021.619044.

one in ten people. Many of the displaced are livestock producers who end up losing their stock[12]. Conflict also undermines service provision (e.g., animal health services) as well as the security of livestock trade routes.

13. **Among others, competitiveness of the sector is constrained by low productivity, limited commercial orientation in the upstream segment of the value chain as well as limited value addition.** While some improvements have been registered in recent years – mainly through the implementation of National Policy for Sustainable Livestock Development (*Politique Nationale de Développement Durable de l'Élevage,* PNDEL, 2010-2025) – productivity in most production systems remains low. As an example, in 2020 the average milk production per cow per year stood at 110 liters; carcass weight in kilograms per head at 113 for cattle, 9 for sheep, and 8 for goat; and number of days of fattening at 90. The low productivity is mainly due to limited progress in improvements in the genetic stock; a high disease burden - due to deficiencies/gaps in provision of animal health services (e.g., proliferation of counterfeit drugs); poor nutrition resulting from seasonal variation in pasture resources and a weak animal feed industry; and limited adoption of several other Good Animal Husbandry Practices (GAHPs). Additionally, while commercial orientation is key to competitiveness – mainly through enhancing efficiency across the value chain – only a limited share of livestock value chain actors in Burkina Faso (especially in the poultry sector) are commercially oriented. Key constraints to commercialization include: (i) weaknesses/low levels of collective action – which is often central to profitability, given the small size of typical value chain actors; (ii) limited capacity in planning and making business decisions; (iii) lack of advisory services – including on standards; (iv) weaknesses in input supply, and collection, bulking and marketing[13] of products; (v) constrained access to finance; and (vi) social-cultural norms which disincentivize sale and offtake of livestock. In terms of value addition, with the exception of the limited meat processing in abattoirs and butcheries, cottage processing of hides and skins, and milk processing into low shelf-life products (e.g., curds, cream, and butter), the sector is generally characterized by low value addition. Indeed, at the sector level, the major value-added activity is the facilitation of the transfer of live animals from one location or owner to the other. Limited value addition partly underlies the country's reliance on imported milk powder, as well as other dairy and poultry products for which the sector cannot meet consumer demands and tastes. Limited value-addition is mainly due to inadequate supportive infrastructure; difficulty in accessing needed financing for investments in modern production, processing, and marketing technology (including cold chains, market infrastructure, abattoirs, and food safety standards); and undeveloped markets and poor market integration.

14. **Other challenges to competitiveness and resilience include lack of requisite technical and managerial capabilities in relevant institutions, and weaknesses in the policy and regulatory environment.** Public funding for the sector has been chronically low - standing at 13.4 percent of the public agriculture expenditures in 2017 – and this in combination with several other factors, constrains human resource and operational capacity with cascading impacts on the quality of planning, execution of programs, etc. Additionally, there are several gaps in the policy and regulatory environment including the lack of clear strategic directions in genetic resource management, and weaknesses in food safety standards and regulations, etc.

[12] Oxfam, 2022. Burkina Faso: Almost 2 million people displaced amid worst food crisis in a decade.
[13] Including delays at border crossings and other non-tariff barriers like informal taxes and bribes.

15. **Government policy recognizes the importance of the livestock sector and the need to resolve challenges constraining its competitiveness.** The Second National Plan for Economic and Social Development (*Plan National de Développement Économique et Social,* PNDES II, 2021-2025) envisions a more productive, sustainable, and market-oriented livestock sector as an engine for economic growth. The PNDEL, 2010-2025, which provides an overall framework for sector investments places an emphasis on improved competitiveness and resilience of the sector - inter alia, as a pathway to enhancing its contribution to national economic growth objectives, including improvements in the balance of trade. Indeed, the World Bank, has provided support to the government strategy in the sector over the years. Among others, this includes support to the recently closed Burkina Faso Livestock Sector Development Support Project (*Projet d'Appui au Développement de l'Élevage au Burkina Faso,* PADEL-BF, P159476) where the focus was on enhancing the productivity and commercialization of selected value chains in sedentary production systems. Other World Bank support to the sector - focusing on improving the productivity, sustainability, and resilience of pastoral livelihoods - was provided through the closed Regional Sahel Pastoralism Support Project I (*Projet Regional d'Appui au Pastoralisme au Sahel,* PRAPS I – P147674) and is being continued through the second phase (PRAPS II – P173197). While much progress has been registered through these investments (including productivity increases in the beef, sheep, and poultry value chains; improvements in off-take rates, increases in value addition/processing for milk and pork; and increases in commercial lending to the sector[14]) challenges remain, especially with respect to improving sector competitiveness and resilience in sedentary systems. The proposed project seeks to build on and extend PADEL-BF's achievements in boosting productivity, improving commercial orientation of producers, value addition/processing and strengthening resilience with a focus on the beef, dairy, goat, poultry value chains in the country's sedentary systems.

### C. Relevance to Higher Level Objectives

16. **The proposed operation is aligned with PNDES II (2021-2025) – Burkina Faso's national program for socio-economic development.** PNDES II, complemented by the Transition Action Plan for Stabilization and Development**,** emphasizes livestock as a key driver of economic growth. It identifies the increasing demand for livestock products nationally and regionally and calls for further sector growth through increased market-oriented production, sustainable intensification, and value-added processing – which are areas of proposed support under the project.

17. **The proposed project supports the Burkina Faso Country Partnership Framework (CPF- Report N 123712)[15] for FY18-FY23,** which was adjusted during the Performance Learning Review (PLR, Report number 166080), to respond to the dramatic changes in country circumstances. Specifically, through support to productivity improvements and improved access to finance for value chain actors, the project contributes to Objective 1.1 "Improve agriculture value chains in targeted areas" and Objective 1.4 "Promote SMEs and access to inclusive finance" under the PLR's Focus Area 1 "*Accelerate sustainable private-sector led growth for job creation*". Additionally, the proposed support to improving the resilience of the sector's sedentary production systems supports the objectives of both the World Bank Group's (WBG) Climate Change Action Plan (2021–2025) and the Next Generation Africa Climate Change Business Plan as well as Burkina Faso's Nationally Determined Contributions (NDC) which specifically prioritizes

[14] Under PADEL-BF, productivity levels for cattle, sheep and egg production increased by 6.8 percent, 12 percent, and 6.5 percent, respectively; offtake rates by 45 percent; and over FCFA 4 billion in loans was advanced to the livestock sector by financial institutions.
[15] Burkina Faso Country Partnership Framework: https://openknowledge.worldbank.org/server/api/core/bitstreams/a3d4e5f8-0728-55e0-b357-fb42621769e9/content

livestock intensification as an adaptation pathway and agriculture sector as a source of mitigation - with special emphasis on the livestock sector which is responsible for half of the country's total GHG emissions. The project also aligns with the G5 Climate Change Development Report (CCDR), which calls for accelerating growth and prioritizing climate adaptation to alleviate poverty and address food insecurity.

18. **In line with the decisions made under the OP/BP 7.30 assessment16, new lending reflects the Bank's commitment to remain engaged, prioritizing people-focused interventions that support the most pressing needs of population to increase access to income and basic services**. The project is expected to directly benefit 1,500,000[17] people. The expected beneficiaries will be supported to increase productivity and competitiveness through improved access to livestock productive inputs, advisory and veterinary services, finance, and markets.

19. **The proposed project also operationalizes key elements of the WBG Strategy for Fragility, Conflict, and Violence (FCV), 2020-2025.** Specifically, it addresses two of the six high-priority issues for World Bank emphasis as outlined in the Strategy: (i) creating jobs and economic opportunities; and (ii) building the resilience and preparedness of communities, including the ability to manage climate change and environmental degradation. It also affirms the WBG's commitment to putting people at the center of development, focusing on the sedentary livestock production, marketing, and processing systems that underpin millions of livelihoods and incomes across Burkina Faso. The project operationalizes the four pillars of the World Bank Global Crisis Response Framework (GCRF): (i) Responding to Food Insecurity through supporting production, facilitating trade, supporting the vulnerable, and investing in sustainable food systems; (ii) Protecting People and Preserving Jobs to help mitigate the medium- to long-term impact of crises; (iii) Strengthening Resilience by identifying and supporting paths to build long-term resilience; and (iv) Strengthening Policies, Institutions and Investments for Rebuilding Better to utilize long-term policies to improve development outcome. The project is also in line with Burkina Faso's Prevention and Resilience Allocation (PRA), which was approved in December 2020 and covers the period 2020-2023, particularly in terms of its objectives to strengthen the resilience of IDPs and vulnerable populations.

## II. PROJECT DESCRIPTION

### A. Project Development Objective

20. **PDO Statement.** The proposed project Development Objective (PDO) is "to improve the productivity, commercialization, and resilience of key sedentary livestock production systems for targeted beneficiaries in project areas." [18]

[16] Following the first coup on January 24, 2022, and the second coup on September 30, 2022, the World Bank determined that OP/BP 7.30 on "dealings with de-facto governments" had been triggered. In accordance with OP/BP 7.30, the World Bank undertook an assessment of the criteria set under paragraphs 3, 4 and 5 of OP 7.30. The assessment found that the criteria in paragraph 3 and paragraph 4 of OP 7.30 to resume disbursements on active operations have been met as well as the criteria in paragraph 5 of OP 7.30 to resume new lending focusing on people centered operations.

[17] 1,300,000 benefiting from animal vaccination, 120,000 for access to training and GAHPs, 79,000 for value chain and productive investments, and 1,000 for institutional capacity building

[18] Resilience is defined as the capacity of vulnerable households, families, communities, and livestock systems to face uncertainty and the risk of shocks, to withstand and respond effectively to shocks, and to recover and adapt in a sustainable manner. Shocks may be driven by climate change, markets, environmental degradation, conflict, or a health crisis to which the livestock system is exposed.

21. **PDO Level Indicators.** The project's Key Performance Indicators (KPIs) against which the PDO will be measured are:

- Increase in productivity of livestock species in targeted production systems (average milk yield produced per cow per year; carcass weight in kilogram for cattle, sheep, goats; (Percentage)).
- Increase in volume of market sales of livestock targeted commodities (litres of milk, metric tonnes of meat, eggs; (Percentage)).
- Farmers adopting climate-smart animal husbandry practices (Number).
- Vulnerable farmers affected by insecurity supported for stock asset replenishment (of whom Internally Displaced Person - IDP (Number).
- Direct project beneficiaries (women-disaggregated, Number).

## B. Project Approach and Components

### Project Approach

22. **The Burkina Faso Livestock Resilience and Competitiveness Project (*PRECEL by its French acronym*)[19] is proposed as a six-year Investment Project Financing (IPF)**. It builds on the achievements of PADEL-BF (P159476) and PRAPS I (P147674) and complements the on-going PRAPS II (P173197). It supports improvements in productivity, commercialization, and value addition as mechanisms to improve the competitiveness of selected livestock value chains (including meat, milk, eggs) which: (i) demonstrate evidence-based market demand both in domestic and regional markets; (ii) fit within the country's overall strategies for job creation, income diversification and poverty reduction; and (iii) offer opportunities for increased exports, prospects for attracting private-sector investments, and potential for integrating local value chain actors into regional markets. The project would also support other value chains e.g., pork, fisheries, and honey that could generate quick income for women and youth.

23. **Binding constraints to competitiveness and resilience in both traditional and improved sedentary production systems are addressed in an integrated manner**, focusing on**:** (i) strengthening the policy, institutional foundations, and service delivery for the subsector; (ii) improving productivity and value-added; and (iii) mainstreaming measures that promote mitigation and adaptation to climate change across the value chain segments. To achieve this, the project adopts a value chain approach focusing on both the upstream and downstream segments of the value chains – from on-farm production to marketing (including processing, cold storage, and transport).

24. **Synergies between PRECEL and PRAPS II are maximized.** PRECEL complements PRAPS II in efforts to improve the legal and business environment and linkages that facilitate transition from extensive to sedentary livestock production system as well as cross-border trade for livestock products. Beyond the different geographies and beneficiaries targeted by the two projects, both projects will collaborate in supporting the provision of animal health services, feed production and supplementation, and access to market information. Pooling of technical expertise and sharing of managerial capacities at central and field levels guarantee that project activities do not overlap.

[19] Projet de Résilience et de Compétitivité de de l'élevage (PRECEL).

25. **Maximizing finance for development (MFD) is prioritized through value chain development, private sector facilitation and enhancing access to finance.** PRECEL recognizes the critical role of the private sector in strengthening the competitiveness of the livestock sector. With the view to attract private investment in the livestock sector, the project supports policy, regulatory and financial measures, and innovations as well as advisory services to ensure adequate private investment in various segments of the value chains. Access to finance is catalyzed through matching grants (MG) and support for business development services (BDS). Policy measures to rationalize public and private sector roles in the provision of veterinary services will be developed and implemented, leading to increased participation of the private sector in provision of veterinary services wherever feasible. The project will actively seek opportunities to partner with the International Finance Corporation (IFC) to ensure complementarity in supporting the targeted livestock value chains.

26. **Special attention is paid to closing gender gaps.** As outlined earlier, women in Burkina Faso face major challenges in participating in the livestock sector as effective players yet a vast body of research indicates that they are avid adopters when gender-based obstacles are removed[20]. PRECEL therefore seeks to overcome multiple challenges facing women in Burkina Faso's livestock sector, especially those linked to access to inputs, and credit and financial services. All implementing partners will be required to proactively seek for opportunities to ensure that project benefits flow to women.

27. **The flow of benefits to vulnerable conflict-affected livestock-keepers is prioritized.** Working in partnership with relevant national and international agencies, PRECEL will identify and provide contextually relevant support to IDPs in project areas with capacity to participate in project activities. IDPs will qualify for support under all project components. In alignment with the WBG FCV Strategy, the aim is to boost resilience, expand access to productive assets, and create employment and income generating opportunities.

28. **Climate adaptation and mitigation in the livestock sector are boosted.** Burkina Faso's livestock sector is subject to climate change threats because of the following negative factors: (i) gradual depletion of water sources and water points; (ii) infestation of animals and pastures by vectors causing diseases such as trypanosomiasis and African swine fever; and (iii) natural disasters such as floods and droughts, which are more likely in the Northern region. Existing institutional capacities for climate adaptation and mitigation are inadequate. Evidence suggests that the intensive production systems to be promoted by the project would produce less GHG emissions per unit output than do traditional systems. More intensive systems can contribute to mitigating or even reversing adverse environmental impacts of traditional husbandry methods. Furthermore, the project will train producers as effective agents of environmentally sound practices. Building environmental resilience in close liaison with livestock producers is a core dimension of PRAPS-II and was emulated by PADEL-BF. PRECEL seeks to do the same, with mainstreaming of climate change considerations as a central feature of investments in capacity strengthening and policy reform.

**Project Components**

29. The project is designed with two interrelated technical components: (i) enabling environment and support services for livestock promotion; and (ii) climate-smart livestock infrastructure and value chains

[20] Galiè, A.; Najjar, D.; Petesch, P.; Badstue, L.; Farnworth, C.R. Livestock Innovations, Social Norms, and Women's Empowerment in the Global South. Sustainability 2022, 14, 3741. *https://doi.org/10.3390/* su14073741

development. A third component focuses on project management and coordination. The Contingent Emergency Response Component (CERC) is the fourth component and would be triggered to respond to emergencies and severe crises.

**Component 1: Enabling Environment and Support Services for Livestock Promotion (US$61.58 million equivalent, of which US$61.20 million IDA, US$0.08 million government, US$0.30 million local beneficiaries)**

30. The objective of Component 1 is to strengthen the policy and regulatory environment and institutional foundations for improving the competitiveness of livestock production with a special emphasis on sedentary systems. Project support focuses on: (i) strengthening the livestock policy and regulatory framework, planning, and monitoring; and (ii) improving the capability of key institutions to deliver public goods and services essential for improving livestock productivity (animal health and husbandry management), increasing the climate resilience of livelihoods anchored in the subsector, and reducing the sector's negative externalities (e.g., GHG emissions). The component has three synergistic subcomponents. This component responds to Pillar 1 of the GCRF through supporting production and investing in sustainable food systems.

*Subcomponent 1.1: Technical Assistance to Support to Policy Formulation, Planning, and Capacity Strengthening (US$6.30 million IDA)*

31. The objective of this subcomponent is to strengthen the policy environment, knowledge base, and human resource capacity of the livestock subsector as a springboard for enhancing sector performance, resilience, and competitiveness. The aim is to catalyze and mainstream policy and institutional reforms that promote livestock sector transformation towards improved productivity, climate-smartness, and market-orientation. The subcomponent will finance the following activities: (i) preparation of a Livestock Master Plan (LMP) in partnership with institutions such as the International Livestock Research Institute (ILRI) and other relevant technical partners to guide climate-smart development of the sector; (ii) developing a plan for updating national livestock sector policies on feeding (including climate-smart pasture management), breeding, dairy, and animal health; (iii) providing technical assistance to improve food safety and SPS regulations (quality standards and safety reforms) to facilitate livestock and meat exports; (iv) development of a genetic resource management and enhancement strategy, with large ruminants and resilience of breeds as a priority; and (v) a capacity-building program for the MARAH to undertake climate-smart livestock policy and regulation formulation, implementation and enforcement, and monitoring and evaluation (M&E).

32. MARAH will coordinate activities under the subcomponent. Other implementing partners will be the National Order of Veterinarians (*Ordre National des Veterinaires,* ONV), the professional organization of livestock farmers, the Institute of Environment and Agricultural Research (INERA) which will primarily support the development of the LMP, and review and update the prioritized national livestock sector policies.

*Subcomponent 1.2: Support to Animal Husbandry and Advisory Support Services (US$18.28 million of which US$17.90 million IDA, US$0.08 million government, US$0.30 million local beneficiaries)*

33. The objective of this subcomponent is to strengthen the provision and adoption of livestock production practices that are proven to improve productivity, biosafety, animal welfare environmental

sustainability (including resilience to climate change for example by reducing the sector's GHG emissions) – all under the rubric of GAHPs. The focus will be on improving the availability and adoption of superior climate-resilient livestock breeds and improved feeding as well as other practices that reduce the emission intensity of the targeted value chains, climate-smartness.

34. The subcomponent finances three sets of activities. The first activity is the development of comprehensive extension training materials (including digital guides) on GAHPs as well as support for extension services (technology transfer through Farmer Field Schools and support for cooperatives and farmers organizations, study tours, etc. with preference to female producers). Strong focus will be provided to training of provincial-level extension agents, including women, to use the new materials, guides, techniques, and approaches to improve service delivery. The second set of activities includes strengthening the national genetic improvement program by distributing better performing bulls (e.g., with respect to adaptation to high temperatures and disease pressures) to selected farmers for breeding purposes, training farmers on breeding, and building (or rehabilitating) and equipping artificial insemination (AI) and breed improvement centers (such as Center for Multiplication of Improved Animal Breeds - *Centre de Multiplication des Animaux Performants,* CMAP). The project would also support public and private provision of AI services to ensure farmers access to improved genetic resources. As part of the breed improvement and resilience building activities, IDPs and other conflict affected populations in project area will be provided with livestock to replace lost stock. Accompanying capacity building package will be provided to IDPs to ensure fully participation in project activities. The third set of activities focuses on promotion of improved climate-smart feed production practices (composition of balanced feed, feed storage technologies) including support for adoption improved climate-smart feeding practices adapted to animal needs (balanced feed rations) and with potential to reduce methane emissions. This will also include support for distribution of drought tolerant forage and pasture seeds to eligible farmers.

35. Local breed improvement for heat and disease-tolerance will enhance resilience to anticipated climate shocks, while reducing pressure on feed resources and preventing loss of biodiversity and local livestock breeds. Distribution of drought resilient seeds and feeds will boost resilience to climate shocks. The provision of breeds that are better adapted to climate change and the use of agricultural by-products, composition of balanced feed, feed storage technologies, and balanced feed rations will reduce methane production.

36. MARAH will coordinate activities under the subcomponent. Other implementing partners will be INERA and professional organization of livestock farmers which will contribute to the implementation of activities targeting genetic resources improvement, the development, popularization, and dissemination of tools on good breeding practices, and the improvement of livestock feed.

*Subcomponent 1.3: Support to Animal Health Services Strengthening (US$37.00 million IDA)*

37. Building on progress under PADEL-BF, the objective of this subcomponent is to further strengthen the delivery of livestock health services and improve the coordination between animal, human, and environmental health services in line with the One-Health approach to attaining optimal health for people, animals, and the environment. Improvements in the delivery of animal health services would increase productivity by reducing livestock morbidity and mortality, in turn improving the resilience of livestock and livestock-based livelihoods to climate shocks, including diseases induced by climate change.

38. This subcomponent will finance the following activities: (i) strengthening of the surveillance and control systems for priority endemic and emerging livestock diseases, including rehabilitation,, and equipping of quarantine posts and other infrastructure required for surveillance in strategic locations, sensitization of farmers on disease detection and reporting, and support for epidemiology training for public and private veterinarians; (ii) vaccination, including procurement and distribution of vaccines targeting Contagious Bovine Pleuropneumonia (CBPP) and Foot and Mouth Disease (FMD) in cattle, Newcastle disease and Fowl Pox in poultry, and PPR in small ruminants due to their particularly severe impact on livestock mortality and morbidity, solar powered vaccine cold chains, and construction/rehabilitation of vaccination posts; (iii) capacity strengthening of public and private livestock health care services including rehabilitation and provision of equipment to veterinary laboratories for, inter alia, enabling the production of basic vaccines; (iv) piloting the digitalization of livestock identification system; (v) technical assistance and equipment for the Central Veterinary Medicines Purchasing Center (*Centrale d'Achat des Médicaments Vétérinaires,* CAMVET)[21] to fight against counterfeit veterinary drugs and reduce disruptions in the availability of drugs; (vii) supporting the One Health action plan[22]; and (viii) providing technical assistance and equipment to the private veterinary practitioners to encourage private sector participation in the delivery of livestock services.

39. It is expected that improved veterinary services and facilities to deal with diseases, some of which are induced by climate change will enhance the resilience and productivity of livestock holdings. Strong and efficient veterinary services, combined with good coordination of public health services will allow for early detection of disease hazards, thereby lowering the risks of climate change on animal health. Investment in local, national surveillance of climate-sensitive animal diseases, especially endemic infectious diseases, will enhance preparedness and responses to incidences and upsurges in these diseases. Solar powered vaccine cold chains will reduce GHG emissions in targeted rural areas.[23]

40. MARAH will take the lead in coordinating activities under this subcomponent. Other implementing partners include ONV, CAMVET, the Ministry of Health, and the Ministry of Environment. These partners will mainly be involved in activities linked to strengthening animal health surveillance systems and implementing the One Health action plan.

41. MARAH will also contract a special agency – non-governmental organization (NGO) to help conflict affected population including IDPs in the project area boost resilience, expand access to productive assets, and generate income opportunities. The NGO should demonstrate technical and operational competence, and practical experience and capacity in supporting livestock in conflict and post-conflict areas. The recruited NGO will (i) carry out a need assessment; (ii) provide training to beneficiaries; and (iii) distribute productive assets including animals (cows and small ruminants, kits) through revolving mechanism.

[21] PRECEL will complement the support provided by PADEL-BF to CAMVET by equipping it and helping it to become operational.
[22] One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent.
[23] Project will require bidders/primary suppliers of solar-powered cold-chains (and other material, as applicable) to provide two declarations: a Forced Labor Performance Declaration (which covers past performance), and a Forced Labor Declaration (which covers future commitments to prevent, monitor and report on any forced labor, cascading the requirements to their own sub-contractors and suppliers).

**Component 2: Climate-Smart Livestock Infrastructure and Value Chains Development (US$113.52 million equivalent, of which US$74.90 million IDA, US$1.82 million government, US$14.80 million local beneficiaries, US$22.00 million Financing Institutions)**

42. Component 2 builds on improvements in productivity arising from investments under Component 1 (improved policy and regulatory environment, adoption of GAHPs and improved breeds, and improved animal health) to foster stronger commercial/market orientation among small and medium producers, expand private investment in the sector, and promote the highest level of appropriate value addition in targeted value-chains. These objectives are achieved with due consideration to climate change adaptation and mitigation. Project support is provided under two interlinked subcomponents. This component responds to Pillars 2 of the GCRF: "Protecting and preserving jobs" by supporting value chains, market linkages and access to finance.

*Subcomponent 2.1: Support for Climate-Smart Productive Infrastructure and Marketing (US$23.40 million, of which US$21.20 million IDA, US$1.80 million government, US$0.40 million beneficiaries)*

43. The objective of this subcomponent is to alleviate physical and organizational barriers to livestock marketing and value addition for value chain actors. The focus will be on the rehabilitation and/or establishment of priority infrastructure and provision of services that lower the costs of entry and allow participation of producers in livestock and livestock products markets. With respect to infrastructure, the project will finance: (i) common assets for value addition (such as cooling centers, transport services, slaughterhouses) that also serve to increase resilience and mitigate climate change; (ii) climate-smart upgrading/establishment of livestock markets with perimeter fencing, administrative buildings, water sources, animal shades to reduce heat stress, weighbridges, paddocks, loading ramps, and veterinary outposts – all which would improve animal welfare, marketing efficiency, and climate resilience; and (iii) rehabilitation and upgrading of a network of strategically located abattoirs operated under improved food safety, environmental, and public health regulations. All infrastructure will be developed based on climate-resilient design standards e.g., reliance on solar power as an energy source and on water harvesting as the main source of water. The project will also support and strengthen the management and post-operation maintenance of the financed infrastructure. These investments will reduce exposure to extreme rainfall, heat stress and humidity, decrease vulnerability to drought and flooding, lower health risk and improve livestock productivity, and enhance nutrient use efficiency. They will also reduce stress on natural and manufactured feed resources. Resource-efficient technologies (for example, photovoltaic energy) and buildings will reduce GHG emissions.

44. On the organizational side, the project will finance activities that: (i) create linkages between producers and traders; (ii) improve price discovery mechanisms; (iii) professionalize livestock trade and reduce trade disputes; and (iv) improve food safety and nutrition through shared information exchange and expedited trade. Strengthened capacities for identifying and responding to emerging climate-related food safety and SPS risks will reduce waste and spoilage and associated losses in productivity and incomes and reduce waste and spoilage and associated GHG emissions. The project will also rehabilitate and re-equip Burkinabe Agency for Standardization of Metrology and Quality (*Agence Burkinabé de Normalisation, de la Métrologie et de la Qualité,* ABNORM) food certification laboratory, strengthen the capacity of the livestock certification system, and develop an integrated livestock market information system (MIS) that takes advantage of advances in digitization to reach dispersed livestock actors with timely information.

45. MARAH will coordinate activities under the subcomponent. Other implementing partners will be local authorities and territorial collectivities which will support the development and rehabilitation of infrastructure.

*Subcomponent 2.2: Support to Access to Finance (US$90.11 million, of which US$53.7 million IDA, US$0.02 million government, US$14.40 million beneficiaries, US$22.00 million Financing Institutions,)*

46. This subcomponent aims to facilitate access to finance and related advisory services for actors across the various segments of the value chain and help crowd-in private investment in line with the MFD imperative. Investments focus on: (i) BDS for livestock sector value chain actors; (ii) capacity building for financial institutions (FIs); and (iii) a Livestock Improvement Financial Facility (LIFF) with multiple elements. Like Subcomponents 1.2 and 1.3, targeting for support under this subcomponent will prioritize conflict-affected populations.

47. **Business Development Services (BDS):** Small and Medium Enterprises (SMEs) in the livestock sector have elevated level of informality and limited capacity to provide bankable projects constraining their access to credit. The project aims to strengthen SME capacity by facilitating their entry into the formal sector and/or their access to credit. For targeted livestock value chain actors, the BDS activities will feature value chain-specific support for: (i) needs assessments; (ii) training in business plan preparation and pre-negotiation; (iii) establishment and implementation of the arrangements for the project selection and approval process; and (iv) establishment of a reference database by value chain and production systems to facilitate private investors. Provision of BDS and related technical capacity building activities will include mainstreaming of climate risk and impact considerations into the business plans.

48. **Capacity building for Partner Financial Institutions (PFIs):** Based on a call for expression of interest to expand their lending to the livestock, the project will provide technical assistance to PFIs. The selected PFIs will benefit from: (i) technical support including assessment and improvement of their capacity in livestock loan origination, appraisal and monitoring, and overall credit risk management in agriculture financing;[24] developing the customer base of the PFIs, and training staff; (ii) development of credit analysis guidance notes for major livestock subsegments; (iii) implementation of prioritized capacity development activities; and (iv) evaluation of capacity development investments. Climate risk and impact considerations will be mainstreamed into all capacity building activities.

49. **Livestock Improvement Financial Facility (LIFF):** The project will establish a LIFF, a cost sharing facility which will allow eligible livestock producers to access finance for their sub-projects as matching grants (MG). The MG mechanism will target (i) individual smallholder producers, livestock producer organizations (LPOs), cooperatives and SMEs, including those participating in productive alliances (PA). Financing would include climate-smart productive investments in primary production, processing, and advisory services in livestock value chains. Sub-projects will be funded by a combination of: (i) own resources from initiators; (ii) a MG from the project resources; and (iii) short- to medium-term working capital and investment loans extended by PFIs. Supported sub-projects will be required to demonstrate adoption of GAHPs that reduce GHG such as manure management. In partnership with the General

[24] This will include enhancing the PFI's capacity in financing the entire livestock chain. Following the example of India's livestock and milk sector, this will help PFIs assess the risks and financing needs all along the chain and to explore how they can leverage relationships and technologies (digital payments like mobile money, chip technology) to facilitate payments and credit along the chain. It will also strengthen the relationship between PFIs and farmers.

Directorate of Environment, Green Economy, and Climate Change (DGEVCC), all MG proposals will be assessed through an ex-ante calculation of the carbon impact, and the most effective projects may be supported to access carbon finance[25]. Women and youth (18 to 35 years) SMEs will be prioritized for support. Funds will be disbursed directly from the project account to the beneficiaries' account opened with the PFI. The beneficiary will have fiduciary responsibility regarding the use of the funds. The eligibility and selection criteria of the beneficiaries, as well as procedures to be followed all along the investment cycle, will be detailed in the specific project implementation manual (PIM) of the LIFF. Goods to be funded under sub grants will be procured in accordance with the provisions of Financing Agreement, the PIM, the Procurement Guidelines, and the Anti-Corruption Guidelines, and would not include any expenditures on the negative list as set in the Environmental and Social Management Framework (ESMF).

50. The access to the LIFF will be prioritized for viable SPs that would have demonstrated their eligibility through a transparent and open process. It will finance MGs structured as follows:

(a) About 4,300 small MGs of up to US$5,000, representing 70 percent for women and youth, and 60 percent for men - of a given project's financing requirement, with the remaining 30-40 percent from beneficiaries,

(b) 300 medium MGs of up to US$50,000, representing 60 percent of a given project's financing requirement, with the remaining 40 percent from beneficiaries and PFIs.[26]

(c) 30 large MGs of up to US$400,000, representing 40 percent of a given project's financing requirement, with the remaining 60 percent from beneficiaries and PFIs.[27]

**Table 1. Indicative Financing Plan of Sub-projects**

| Sub-project total cost (US$) | Financing Plan (percent) | | | Maximum MG (US$) |
|---|---|---|---|---|
| | MG | Initiator's Own Resources | Credit by PFIs | |
| 6,250 | 60-70 | 30-40 | | 5,000 |
| 83,333 | 60 | 10 | 30 | 50,000 |
| 1,000,000 | 40 | 10 | 50 | 400,000 |

51. MARAH will sign a service convention with Burkina Faso Entrepreneurship House (La *Maison de l'Entreprise* of Burkina Faso, MEBF) as service provider (SP) for BDS provision to support medium and large MGs promoters. Among others, the MEBF will deliver on the following: (i) carry out the inventory of cost-sharing mechanisms; (ii) sensitization of potentially interested livestock operators on the LIFF mechanism; (iii) launch calls for sub-project proposals; (iv) provide technical support to operators of targeted value chains; (v) support the mobilization of co-financing from PFIs; (vi) coaching of agri-promoters, and (vii)

[25] DGEVCC in currently working on carbon projects regarding (i) soil carbon increase using agroforestry technics and bio-compost (from biodigesters).

[26] Following the lessons learned from other projects such as PADEL-BF, the involvement of financial institutions in the financial package including MGs is seen as an additional lever that helps to empower the beneficiaries.

[27] The risk of elite capture of this larger MG category is recognized. This risk will be mitigated through careful vetting of potential beneficiaries, applying measures available for World Bank projects. These include investing in institutions and policies that promote transparency and accountability and enhance prospects for detecting and countering inappropriate financial allocations and flows. Also vital is enhanced understanding of key stakeholders, local power relations, vested interests, and elite networks. Application of the latest advanced technologies to capture, analyze, and share data to prevent, detect, and deter illicit activities is also key. These measures will be integrated into the project's procurement and fiduciary management arrangements and in the project's grievance redress services.

M&E of sub-project implementation. The PIM will define the working modalities between MARAH and MEBF, the process for call for proposals, M&E and coaching for MG beneficiaries.

**Component 3: Project Management and Coordination (US$14.90 million equivalent, of which US$13.90 million IDA, US$1.00 million government)**

52. This component focuses on all aspects related to project management and coordination. It funds *inter alia,* all Project Implementation Unit (PIU) activities required for management of IDA funds and procurement of IDA-funded goods and services as well as project M&E including regular impact evaluation studies and audits; management and oversight of safeguards issues and training, as well as some equipment support to the regional directorates of the MARAH. In addition, budget is allocated for data generation in the livestock sector in Burkina Faso, knowledge management, advocacy for livestock sector financing, and for preparation and implementation of a communication strategy.

**Component 4: Contingent Emergency Response Component (US$0.00 million IDA)**

53. Component 4 is a mechanism for financing eligible expenditures in the event of natural or man-made crises or disaster, severe economic shocks, or other emergencies in Burkina Faso. This contingency facility can be triggered through a formal request from the Government of Burkina Faso to the World Bank through the Ministry of Economy, Finance and Prospective. In such cases, funds from an unallocated category or other project components will be reallocated to finance emergency response expenditures to meet the emergency needs. Implementation of this subcomponent will follow a detailed Contingent Emergency Response Implementation Plan satisfactory to the World Bank that will be prepared as the case may be for each Eligible Crisis. Details on the provisions for activating and implementing activities under this component will be finalized as an Annex to the PIM.

**Project Cost and Financing**

54. The indicative cost of PRECEL is about US$190 million equivalent composed of: IDA credit allocation for an amount of US$150 million equivalent; a contribution from the beneficiaries (BEN) for an amount of US$15.1 million; PFI financing for an amount of US$22.0 million; and counterpart funding for an amount of US$2.9 million.

**Table 2. Estimated Costs and Financing (US$ million)**

| Components | IDA | BEN | FI | Govt | Total |
|---|---|---|---|---|---|
| Enabling Environment and Support Services for Livestock Promotion | 61.20 | 0.30 | 0.00 | 0.08 | 61.58 |
| Climate Smart infrastructure and Livestock Value Chains Development | 74.90 | 14.8 | 22.00 | 1.82 | 113.52 |
| Project Management and Coordination | 13.90 | 0.00 | 0.00 | 1.00 | 14.90 |
| Contingency Emergency Response Component | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Grand Total** | **150.00** | **15.10** | **22.00** | **2.90** | **190.00** |

## C. Project beneficiaries

55. **Direct beneficiaries.** The project is expected to directly benefit 1,500,000 beneficiaries[28]. Technical and managerial staff of government agencies that implement project activities and state ministries, among others will benefit from training and capacity building provided under the project. At least 40 percent of all beneficiaries will be women.

56. **Targeting criteria.** Beneficiary targeting will involve the systematic identification of contexts where the probability of adoption is high and where investments can create impact. It will not only be based on characteristics of sub-populations of potential adopters (e.g., based on age, gender, family size, income, conflict-affected/displaced), but also on geographic location and associated agroclimatic conditions (e.g., rainfall) and other physical features (e.g., road density and quality, and proximity to markets and urban areas). In areas where conducive conditions do not hold as per targeting criteria, additional considerations may be added as appropriate, especially where disadvantaged groups (e.g., IDPs and conflict-affected persons, women, and youth) in such areas are prioritized for support.

57. **Geographic targeting.** Geographic targeting will be based on the objective criteria outlined above, with flexibility and adjustments to mitigate security issues. While PRAPS II focuses on supporting pastoral livestock in the Sahel region, PRECEL targets two livestock production systems: (i) sedentary traditional production systems (under village conditions); and (ii) sedentary improved systems (under modern conditions, mainly peri-urban semi-intensive and intensive poultry, pig, dairy production, and cattle fattening). Based on comparative advantage, support for the diary value chain and animal fattening will target benefit beneficiaries in Centre, Centre Nord, Centre Sud Centre-Est, Centre Ouest, Sud-Ouest, Haut Bassin, Cascades, Boucles du Mouhoun and North Regions while support to the poultry value chain will have a national coverage.

## D. Results Chain

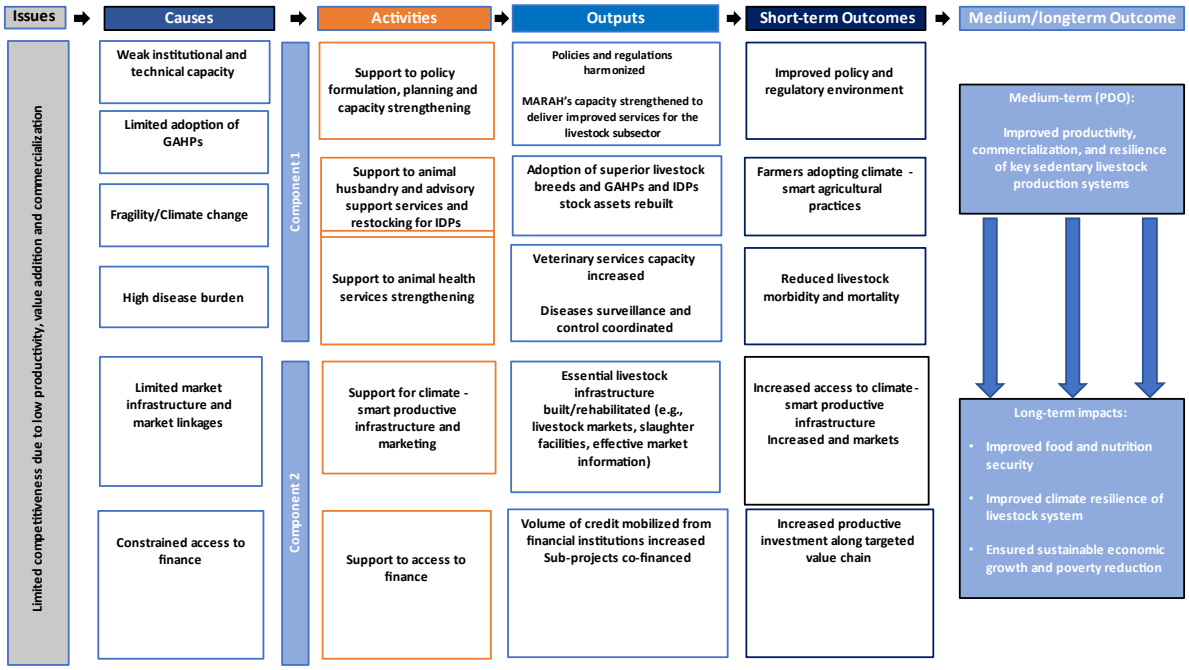
58. Figure 2 depicts the project's intervention logic and results chain. Some assumptions underlying the results chain could be influenced by external factors that the project has anticipated and will take steps to manage. For example, the results chain assumes that livestock producers are interested in adopting improved livestock production technologies and practices (including improved breeds), despite strong evidence that most small-scale producers are risk averse and reluctant to change their technologies and practices. The project incorporates training and demonstration activities for producers and capacity building for the extension system to increase the likelihood of adoption. The results chain also assumes that smallholders will want to commercialize their increased livestock production. But empirical evidence[29] suggests that where financial markets are rudimentary or absent, as in Burkina Faso, farmers may be reluctant to do so. Project support to increased productivity is partly designed to overcome this anticipated challenge. The result chain also assumes that financing institutions will provide co-financing to potential MG beneficiaries. A combination of the BDS- expected to improve the financial viability of proposed sub-projects and the targeted capacity building for PFI, is expected to address this challenge. Finally, it is important to note that the project's ability to achieve its development objectives may also be

[28] The number of expected beneficiaries is 1,500,000 detailed as follows: 1,300,000 benefiting from animal vaccination, 120,000 for access to training and GAHPs, 79,000 for value chain and productive investments, and 1,000 for institutional capacity building

29 Minot, N and S. Elahi. 2020. Livestock markets in Burkina Faso: Characteristics and impact on the local economy. Washington DC: International Food Policy Research Institute.

affected by unanticipated or unpredictable factors, such as insecurity, extreme climate conditions, or natural disasters.

**Figure 2. Project Intervention Logic and Results Chain**




## E. Rationale for World Bank Involvement and Role of Partners

59. **The World Bank is well positioned to support Burkina Faso's efforts to improve the competitiveness of its livestock sector**. The World Bank has extensive experience globally with the design and implementation of programs and projects aiming to support the livestock value chain with a growing portfolio of investments addressing key challenges facing the sector in Western and Central Africa. The World Bank also significant experience in building the recovery and resilience of communities affected by conflict. The value-added of World Bank's involvement mostly stems from its ability to draw, customize, and bring this global knowledge to bear on project implementation.

60. **The project will seek partnership with IFC.** Among other sectors, IFC has a strong interest in investing in livestock in Burkina Faso and the project has already sought its collaboration and partnership. Through this partnership, the project will include a spectrum of actions for MFD by: (i) improving the policy and regulatory environment related to sedentary livestock production systems; (ii) considering options for using public financing to catalyze private investments; and (iii) supporting public-private dialogues.

## F. Lessons Learned and Reflected in Project Design

61. The project design incorporates strategic, operational and technical lessons learnt from the implementation of PADEL-BF, PRAPS-I and other WBG-financed livestock development projects in Burkina Faso and other Western and Central African countries such as Mali, Nigeria, Senegal, etc. The project

design also draws from reviews by the World Bank's Independent Evaluation Group (IEG) as well as by ILRI. Collectively, the lessons and recommendations guiding PRECEL include:

- **The need for unified investments in services to enhance prospects for the adoption and sustained use of improved livestock production technologies and practices.** This hinges on the availability of technologies and practices, structured provision of support services that address producer risk aversion, partnerships, and platforms to coordinate improvements in breeding, animal health services, advisory services, feed quality and availability, and upstream activities in specific commodity value chains to ensure adequate markets for increased output**.**
- **The need to incentivize private investment in value-adding processing plants and feed production and mills through credit availability. Simplified and more transparent licensing is also vital.** Easing supply-side constraints does not necessarily increase access to credit and financial services. Also required are investments and innovations that strengthen the demand for credit by enhancing the managerial capacity of small-scale producers and related SMEs, reducing information asymmetry, and expanding access to extension services, inputs, and markets.
- **The need to proactively include and empower women and youth**. Norm-based impediments to women's participation in livestock value chains that impose unique costs on technology adoption and use must be intentionally surfaced and addressed.
- **The need to recognize and address conflict-driven vulnerability and fragility.** Predictable access to natural resources and markets is fundamental to livestock value chain development. Yet such access is a primary casualty of conflict. Where feasible and safe, opportunities to support conflict-affected communities must be seized. As set out in the WBG's FCV Strategy, provisions for community engagement and leadership should be included, particularly in identifying the major drivers of vulnerability and fragility, and options for overcoming them through livestock value chain investments.
- **The need to adopt more flexible operational approaches is a necessity in a fast-evolving security environment.** The security in the project area is volatile and risks are substantial. PRECEL adopts operational arrangements that permit regular information and help to timely adapt to the evolving circumstances. At the same time, operational arrangements are designed to be cautious and avoid creating conditions that may lead to further social tensions by concentrating investments in fewer, more accessible areas, and/or by reducing dialogue with populations at the grassroots.

## III. IMPLEMENTATION ARRANGEMENTS

### A. Institutional and Implementation Arrangements

62. **Project implementation will be the responsibility of MARAH.** There will be a PIU established within MARAH's Animal Production Budget Program to lead day-to-day implementation of project activities. The PIU will be led by a competitively recruited National Coordinator and will include competitively selected fiduciary, M&E, safeguards, security, and communication specialists. The PIU will also be backed by an Animal Husbandry Specialist, with oversight responsibility for Subcomponent 1.2; an Animal Health Specialist, with oversight responsibility for Subcomponent 1.3; and an Infrastructure Specialist and an Agribusiness/Value Chain Specialist, with joint oversight for Component 2. Except for Component 2

activities - which will be led by the PIU, technical responsibility for implementing the various project components will remain with the relevant technical directorates of MARAH, which will appoint Focal Points for effective coordination with the PIU. At the regional level, the project will be implemented through MARAH's Regional Directorates for Agriculture and Animal Resources which are already staffed with relevant technical expertise. The project will hire one Regional Project Facilitator for each of the participating regions to serve as a direct link between the PIU and the regional implementation team. Besides, this role, the Regional Project Facilitator will also be responsible for local planning, data collection, monitoring, and reporting on project activities.

63. A Project Steering Committee (PSC) chaired by the Head of Animal Production Budget Program, and with representation from the Ministry of Economics, Finance and Prospective, the Ministry in charge of the Environment, the Ministry in charge of Trade and Industries, producer organizations and the private sector will be responsible for providing the implementation team with technical guidance and approving annual work plans and budgets (AWP&B). The PSC will convene at least twice a year. The project will also have a Technical Committee (TC) to monitor project implementation. It will comprise representatives of MARAH's directorates participating in the project (e.g., General Directorate of Veterinary Services-*Direction Générale des Services Vétérinaires*, DGSV, General Directorate of Studies and Statistics -*Direction Générale des Etudes et Statistique,* DGESS, etc.), service providers and implementing entities. The TC will be chaired by the National Coordinator and will meet once every quarter. Implementation arrangements are discussed in detail in Annex 1 and will be further elaborated in the PIM, the finalization and adoption of which, is a condition of effectiveness.

### B. Results Monitoring and Evaluation Arrangements

64. **The PIU will oversee M&E and compliance with the agreed reporting requirements.** A robust M&E system will be developed as a mechanism to capture and assess project results, as a day-to-day management tool and as a tool for continuous reflection and learning by all project stakeholders. Results monitoring will start with a baseline survey, which will later be linked with, and followed by, a mid-term evaluation survey and end-of-project evaluation survey. These surveys will be backed by more frequent and routine data collection on project performance and changes in indicators to facilitate reporting on progress. Given the importance of ensuring that project benefits flow to both female and male producers, key indicators will be disaggregated by sex. Similarly, as various sedentary livestock systems are targeted by the project, key indicators will be disaggregated by value chain (beef, dairy, sheep, goats, pigs, and poultry). M&E reports will be produced every six months. Semi-annual joint implementation support missions with representatives from the World Bank, and the Government of Burkina Faso will assess the status of key project outcomes. The M&E manual will provide details on the measurement of performance indicators as outlined in the results framework – including the responsibility, methodology and instruments to be used for data collection. As an FCV country, the Geo-Enabling Initiative for Monitoring and Supervision (GEMS) will be adopted to respond to a lack of physical field access and awareness of specific needs and dynamics on the ground.

### C. Sustainability

65. **Sustainability considerations, including exit strategies, have been integrated into all project components.** Under the project's infrastructure and value chain development support (Component 2), any financed productive asset, equipment, or infrastructure, will be accompanied by approved well-

conceived business plans clearly indicating the arrangements and division of responsibilities regarding operation, management, and maintenance. This approach will promote business-oriented entrepreneurship and lay the foundation for sustainability of the financed sub-projects.

66. **The project will invest in strengthening the capacities of both public and private institutions.** Public institutions MARAH's technical departments, will be strengthened through staff training and organizational support, including through enhanced availability and use of modern Information and Communication Technology (ICT) tools and methods. The project will also support the capacity of private entities (cooperatives, private veterinary association, inter-professions, etc.) to ensure that access and quality of service delivery are sustained, even beyond the project lifespan. In addition, the enhanced capacity of local NGOs and service providers, and business-based dialogue platforms should enable the beneficiaries to continue pursuing the negotiation and mediation processes between various actors under the PAs between Farmers Organizations (FOs), agro-processors, traders and PFIs after the project ends.

## IV. PROJECT APPRAISAL SUMMARY

### A. Technical, Economic and Financial Analysis

67. **The project technical design is sound.** It takes into consideration experiences gained from the World Bank's livestock portfolio in Burkina Faso, within the region other regions such as Asia and Latin America. The conceptual framework links efforts to improve productivity/resilience in selected value chains, with improvements in incentives for commercialization and value addition to improve the competitiveness of Burkina Faso's sedentary livestock production systems. To improve productivity, the project provides a suite of public goods in disease management, improved genetics, and general animal husbandry. To encourage commercialization and value addition, the project supports a combination of public as well as private sector development of key value chain infrastructure, market intelligence services, and improved access to finance.

68. **Overall, project investments are economically viable,** generating a net present value (NPV) of US$189.6 million at a 6 percent social discount rate and an economic internal rate of return (EIRR) of 18.4 percent over a 20-year period. These returns, which do not account for climate co-benefits, are satisfactory especially given the fact that several other project benefits could not be quantified due to the inherent difficulty in assigning them a monetary value. With the climate co-benefits at the low shadow prices of carbon, the EIRR increases to 19.1 percent and NPV to US$202.65 million. When the climate benefits are considered at high shadow prices for carbon, the EIRR increases to 19.7 percent and NPV to US$215.68 million. The project returns are tested for four sensitivity variables including increases in costs, benefits, decline in revenues, benefit accumulation delays, and increased failure rates. The project returns are sensitive to all these variables. A 10 percent increase in project costs reduces the EIRR from 18.4 percent to 16.8 percent, and the NPV from US$189.6 million to US$175.2 million. Similarly, the EIRR drops to 16.6 percent and NPV to US$156.2 million when project revenues decline by 10 percent. A two-year delay in project implementation reduces EIRR to 13.6 percent and NPV to US$130.3 million. The project returns can be considered robust to delays in implementation, cost overruns and reductions in benefits.

69. **GHG Accounting**. The Ex-Ante Carbon-balance Tool (EX-ACT) was used to estimate GHGs emitted or sequestered due to the proposed project compared to a scenario without the project. Over 20 years (6 years of project implementation and 14 years for capitalization of its effects), the ex-ante analysis shows

a net negative balance of 27,840 tCO2-eq/year for the project, or a reduction of 0.48 percent compared to the without project situation.

## B. Fiduciary

70. **The Financial Management (FM) arrangements for the proposed project have been designed considering:** (i) Burkina Faso's recent political situation; (ii) the country's overall Public Finance Management (PFM) performance; and (iii) the World Bank's minimum requirements under the World Bank Policy and Directive on IPF, which describes the World Bank's policies and procedures for FM.

71. **The residual FM risk is assessed as Substantial.** The key risks the project may face in achieving project objectives and ways to address them are detailed in Annex 1. The following measures will be taken: (i) adoption of a PIM before project effectiveness, in form and substance satisfactory to the World Bank, which will be based on an updated version of the existing PIM of the PADEL-BF; (ii) customize the existing accounting software to include the bookkeeping of the new project and generate interim financial reports (IFR) and financial statements (one (1) month after effectiveness); and (iii) a national coordinator, an accountant, a procurement specialist, and a FM officer will be recruited or appointed to the PIU by the project effectiveness. The team will be composed of the administrative and financial specialist, accountant, and internal auditor. The project will recruit an external auditor with qualifications acceptable to the Word Bank six months after effectiveness.

72. The MARAH will call upon an NGO acceptable to the World Bank, to be selected to implement part of the activities related to the project. These activities will be mainly related to Subcomponents 1.2 and 1.3 of the project. MARAH will sign a cooperation arrangement with the selected NGO to execute the activities. The agreement will include specific detailed financial reporting from the selected NGO which will include detailed breakdown of expenditures by component and by activity. The format and content of the financial reports will be agreed upon with the selected NGO and will be included in the cooperation arrangement.

73. To ensure transparency and accountability, the PIU will put in place measures to avoid fraud and corruption in accordance with the World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants (revised as of July 1, 2016) referred to in the Financing Agreement.

## C. Procurement

74. **Procurement rules and procedures.** Procurement will be carried out in accordance with: (i) the World Bank Procurement Regulations for IPF Borrowers Procurement dated July 2016, revised in November 2020; (ii) the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, revised in January 2011 and July 2016; and (iii) the provisions stipulated in the Financing Agreement. Systematic Tracking of Exchanges in Procurement (STEP) will be the platform for preparing, submitting, reviewing, and clearing procurement plans and prior review procurement activities. STEP will also be used for uploading the documents and evaluation reports for Post Review Contracts. The PIM will elaborate on the procurement procedures, Standard Procurement Documents (SPDs) and model contracts associated with the market approaches and selection methods, for various procurement categories.

75. **All procuring entities as well as bidders, and service providers, i.e., suppliers, contractors, and consultants shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraph 3.32 and Annex IV of the Procurement Regulations.** When procurement is done in the national market, as agreed in the Procurement Plan, the country's own procurement procedures may be used with the requirements set forth or referred to in paragraphs 5.3 to 5.6 related to National Procurement Procedures. All Works procurements that apply SPDs will adopt World Bank provisions related to environmental, social (including sexual exploitation and abuse/sexual harassment (SEA/SH) and gender-based violence (GBV), occupational health and safety (OHS) risks and impacts. This includes codes of conduct that include prohibitions against sexual harassment and sexual abuse.

76. **The PIM will define the required project's internal organization (including staffing arrangements) and implementation procedures for procurement activities**. It will include, *inter alia*, all the relevant procedures for calling for bids, selecting consultants, and awarding contracts. The project monitoring arrangements for procurement will be specified. Further details are provided in Annex 1.

## D. Legal Operational Policies

| | Triggered? |
|---|---|
| Projects on International Waterways OP 7.50 | Yes |
| Projects in Disputed Areas OP 7.60 | No |

77. OP 7.50 is applicable to this project because the project will finance activities that may use waters of the Niger and Volta rivers and/or their tributaries and the southern extension of the Taoudeni Aquifer, which are considered international waterways. The exception to the riparian notification requirement according to paragraph 7(a) of the Policy applies because activities are limited to rehabilitation and minor improvements of existing, small-scale schemes which will not cause change in existing use of water or in water quality. The exception to the notification requirement was approved by the Regional Vice President on March 28, 2023.

## E. Environmental and Social

78. **Environmental and social risks and impacts:** The scope of works associated with the project activities could generate adverse environmental and social risks and impacts such as the risk of exclusion of certain vulnerable groups (including women, youth, and rural communities) in consultation processes and their risks of lack of access to project benefits, loss of property, land use and involuntary resettlement issues, resource efficiency and pollution prevention and management (sourcing of raw materials for civil works, water and energy use, dust, noise, potential contamination of water sources due to construction waste management mainly and occupational and community health and safety as well as human security. Under Component 2, the project will provide grants that will finance investment projects for livestock value chains. A screening process will be put in place to ensure that the environmental and social risks and impacts associated with these activities will be assessed and mitigated/addressed appropriately. The following Environmental and Social Standards (ESS) are applicable to this project: ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, and ESS10.

79. **Environment risk is rated Substantial.** The environmental risk is rated "Substantial" due to the civil works activities that will be financed by the proposed project. The civil work activities will consist of building (or rehabilitating) and equipping the national breed improvement center as well as increasing irrigation for fodder production. The project will also provide grants that will finance livestock value chain investments. The potential risks and impacts associated with the project activities are related to: (i) Resource efficiency and pollution prevention and management (sourcing of raw materials for civil works, water and energy use, dust, noise, potential contamination of water sources due to construction waste management mainly and some small scale irrigation activities); (ii) Occupational and community health and safety as well as human security; and (iii) The project also aims to improve animal health through vaccination campaigns which will generate additional wastes such as used Personal Protective Equipment, sharps as well as used and expired vaccine vials. However, the potential risks and impacts associated with these activities are expected to be reversible as the scope of activities is limited.

80. **The social risk is rated as Substantial.** Under Components 1 and 2, the project will finance activities associated with the equipping of the national breed improvement center as well as acquisition of vaccines and vaccination campaigns for livestock, and construction or/and rehabilitation of infrastructures. The implementation of such activities may be associated with potential social risks such as exclusion mainly for communities living in rural areas including women, people with disabilities and IDPs, child and/or forced labor, SEA/SH, etc. These risks would be mitigated by improving communication, awareness campaigns and dissemination of information, strengthening the institutional capacities of certain key stakeholders, more inclusive consultation and citizen engagement (CE) mechanisms, functional grievance mechanisms both for communities and workers.

81. **The project SEA/SH risks, using the World Bank SEA/SH Risk Screening Tool (civil works/infrastructure) is rated Moderate.** Drivers of risk include the general social acceptability of GBV, conflict and insecurity in the country and in project influence areas, and the weakness of mapping of GBV services. These contextual drivers of risks interplay with project-specific risks, that could include the influx of workers in rural communities including vulnerable and fragile communities, the kind of factors that could cause a power imbalance in interpersonal relationships during project's implementation and thus create or exacerbate risks of SEA. The PIU will be equipped to proactively detect, report, and mitigate the risks of SEA/SH.

82. **Impacts and risks will be managed during project implementation in accordance with the ESMF and the Resettlement Plan Framework (RPF).** The ESMF was prepared and publicly disclosed in the World Bank intranet and country on March 22, 2023[30]. The ESMF contains procedures for screening sub-projects, possible mitigation measures, and implementation arrangements. The ESMF will guide the preparation of Environmental and Social Impact Assessments/Environmental and Social Management Plans (ESIAs/ESMPs) for the sub-projects once these are identified. The ESMF incorporates the general and sector-specific environmental, health, and safety guidelines. As the construction and/or rehabilitation of infrastructure sites are unknown at this stage, an RPF was prepared and disclosed in the World Bank intranet and country respectively on March 23, 2023[31]. It includes provisions that will guide the preparation of subsequent Resettlement Action Plans (RAPs), if required, to manage potential negative risks and impacts of land use and involuntary resettlement. In the screening and selection of sub-project

[30] https://documentsinternal.worldbank.org/search/34026733
[31] https://documentsinternal.worldbank.org/search/34027020

sites, physical resettlement will be avoided where feasible. In addition, the Recipient has prepared Labor Management Procedures which was disclosed in World Bank intranet and country respectively on March 23, 2023[32], reflecting national labor standards and principles of ESS2. The Recipient has also prepared a Stakeholder Engagement Plan (SEP) which was disclosed in the World Bank intranet and country respectively on March 23, 2023[33], including a Grievance Redress Mechanism (GRM). The SEP provides stakeholders the opportunity to be aware of project activities and their potential impacts and become conversant with the environmental and social risk mitigation requirements, principles, and the rationale for participatory approaches The SEP will be updated as necessary during project implementation to ensure that the stakeholder engagement approaches are responsive to project needs. Finally, The Environmental Social Commitment Plan (ESCP) has been prepared and publicly disclosed in the World Bank intranet and country respectively on April 14, 2023[34].

83. Given the fragile **environment in the project area, the Recipient has prepared a Security Risk Assessment (SRA) and a Security Management Plan has been prepared and approved by the World Bank** as part of the Environmental and Social Framework (ESF) instruments, in accordance with ESS4 (Community Health and Safety). A security specialist embedded within the PIU will enable the constant update of security risk information and the application of risk mitigation measures, to be reported monthly to the World Bank.

84. **Citizen engagement (CE).** Organizations and institutions participating in the project are committed to ensuring CE throughout the project implementation. CE interventions will facilitate inclusive decision making, the design and implementation of appropriate and responsive interventions, enhancing inclusion and reducing conflicts, better-quality outcomes, transparency, and demand for accountability. CE interventions will be strengthened through local-level capacity building and access to information, promoting informed responsible and responsive feedback. The project design therefore integrates several mechanisms to ensure CE: (i) consultation during the project formulation, development, and implementation; (ii) capacity building for engagement through trainings and collaboration on planning and execution of development projects; (iii) participatory planning; (iv) beneficiary satisfaction surveys which provide a quantitative assessment of services provided by the project to guide course correction measures. It also conveys to citizens on how their feedback has been taken into consideration. The project therefore includes CE indicators measuring the satisfaction of beneficiaries (sex-disaggregated) with services provided by the project. The protocol, mechanisms, and elements of the CE framework will be detailed in the PIM.

## V. GRIEVANCE REDRESS SERVICES

85. **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

[32] https://documentsinternal.worldbank.org/search/34027163
[33] https://agriculture.bf/jcms/lan_7334/fr/documents-en-ligne
[34] https://documentsinternal.worldbank.org/search/34042431

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), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit https://accountability.worldbank.org.

## VI. KEY RISKS

86. **The overall risk rating for the proposed project is Substantial.** The key factors underlying this rating are related to the issues highlighted in the following paragraphs.

87. **Political and governance risk is rated High.** The lack of tangible results in providing adequate security and protection to citizens could undermine the legitimacy of the transition authorities and the country would be pushed back to high levels of sociopolitical instability. The country's stability will largely depend on the Transition Government's capacities to control or improve the security situation and to maintain social cohesion. These risks are being mitigated by: (i) people centered interventions to allow smallholders' to access productive livestock inputs and services while addressing the drivers of fragility and promoting social cohesion; (ii) sustained process of engagement with the counterparts to cement political buy-in from key decision-makers in government and sector leading institutions; (iii) a transparent and inclusive dialogue with independent civil society organizations; and (iv) close coordination with other development partners.

88. **Macroeconomic risk is rated Substantial.** The government is facing fiscal constraints brought on by the on-going COVID-19 pandemic externalities, investment in security-related matters, and Russia's invasion of Ukraine. These factors lead to increased prices and delayed delivery of inputs and slow implementation of the project. The project will closely monitor the macroeconomic risks and take appropriate measures, for instance, by monitoring market prices and food security and calibrating project implementation accordingly.

89. **Technical design of project risk is rated Moderate.** This is mainly on account of the multiple interventions identified along the livestock value-chain and required coordination among the various stakeholders. The coordination of activities across disparate domains in which implementing entities lack technical expertise is a daunting challenge, as experience has shown. This risk will be mitigated by creating "intersectoral" steering and TCs, which will be responsible for ensuring that adequate technical support and implementation capacity are available across the array of activities supported under the project. A WBG implementation support team representing expertise across multiple Global Practices will also be put into place to provide the necessary technical ballast for implementation.

90. **Institutional capacity for implementation and sustainability risk is rated Substantial.** Burkina Faso is a country with weak technical and institutional capacity at all levels. Capacity weaknesses at the national and regional levels will be remedied through a well-designed and diversified capacity-building program as well as technical assistance to support implementation. The project will contract a special agency (NGO) as service provider to provide support to conflict-affected beneficiaries including IDPs in the project area.

91. **Fiduciary risk is Substantial.** This is due to limited involvement of the MARAH's procurement and internal control units, which may slow down the execution of activities. To mitigate this risk, a coordination and accountability mechanism will be put in place to strengthen collaboration between MARAH and the PIU. In addition, PRECEL will competitively recruit Financial Management (FM) specialists (accountants, procurement, internal auditors) with experience in managing World Bank projects.

92. **Sector strategies and policies risks are Substantial.** The presence of myriad of orientation documents weakens prioritization and coordination of implementation. The project will support the development of a comprehensive Livestock Masterplan and its Investment Plan. It will also provide technical assistance for policy formulation and implementation.

93. **Environment and social risks are Substantial.** The environmental risk is rated as "Substantial" due to the civil work activities that will be financed by the proposed project. The civil work activities will consist of (i) rehabilitating and (ii) equipping the national breed improvement center as well as increasing irrigation for fodder production. The project will also establish grants that will finance investment projects for livestock value chains financing. The implementation of such activities may be associated with the potential social risks such exclusion mainly for communities living in rural aeras including women, people with disabilities and IDP, child and/or forced labor SEA/SH, etc. A screening process will be put in place to ensure that potential risks and impacts are properly identified and managed. These risks would be managed by improving communication, awareness campaigns and dissemination of information, strengthening the institutional capacities of certain key stakeholders, more inclusive consultation and CE mechanisms, functional grievance mechanisms both for communities and workers, etc.

94. **Security risks are rated High.** Security risks could have a direct negative impact on the project implementation. To mitigate this risk, a Security Management Plan has been developed. This will help the project to mainstream security into its activities. The project will recruit a security specialist to closely monitor the security situation in the project area. Where necessary, specialized local NGOs will be recruited to ensure adequate local project implementation and supervision. In addition, a portfolio-wide risk monitoring approach will be implemented to better identify specific fragility, conflict and violence (FCV) risks to ensure effective and safe implementation of World Bank Group supported operations.

## VII. RESULTS FRAMEWORK AND MONITORING

**Results Framework**

**COUNTRY: Burkina Faso**

**Burkina Faso Livestock Resilience and Competitiveness Project**

### Project Development Objectives(s)

To improve the productivity, commercialization, and resilience of key sedentary livestock production systems for targeted beneficiaries in Project areas

### Project Development Objective Indicators

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | | End Target |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | |
| **To improve productivity of key sedentary livestock production systems (Percentage)** | | | | | | | | |
| Increase in productivity of livestock species in targeted production systems (Percentage) | | 0.00 | | | | | | 0.00 |
| Average milk yield produced per cow per year (Percentage) | | 0.00 | 0.00 | 0.00 | 5.00 | 8.00 | 15.00 | 20.00 |
| Carcass weight in kilograms of cattle (Percentage) (Percentage) | | 0.00 | 0.00 | 5.00 | 7.00 | 10.00 | 15.00 | 20.00 |
| Carcass weight in kilograms of sheep (Percentage) (Percentage) | | 0.00 | 0.00 | 5.00 | 8.00 | 10.00 | 15.00 | 20.00 |

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | | End Target |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | |
| Carcass weight in kilograms of goat (Percentage) (Percentage) | | 0.00 | 0.00 | 3.00 | 5.00 | 10.00 | 12.00 | 15.00 |
| **To improve commercialization for key sedentary livestock production systems** | | | | | | | | |
| Increase in volume of market sales of livestock targeted commodities (Percentage) | | 0.00 | | | | | | 0.00 |
| Milk (Percentage) | | 0.00 | 10.00 | 20.00 | 30.00 | 40.00 | 50.00 | 50.00 |
| Meat (Percentage) | | 0.00 | 10.00 | 20.00 | 30.00 | 40.00 | 50.00 | 50.00 |
| Eggs (Percentage) | | 0.00 | 20.00 | 30.00 | 40.00 | 50.00 | 60.00 | 80.00 |
| **To improve resilience of key sedentary livestock production systems** | | | | | | | | |
| Farmers adopting Good Animal Husbandry Practices (Number (Thousand)) | | 0.00 | 0.00 | 10.00 | 30.00 | 50.00 | 80.00 | 120.00 |
| Vulnerable farmers affected by insecurity supported for stock asset replenishment (Number (Thousand)) | | 0.00 | 10.00 | 20.00 | 40.00 | 50.00 | 65.00 | 80.00 |
| Of whom at least internally displaced persons (IDP) (Number in thousands) (Number) | | 0.00 | 5.00 | 15.00 | 20.00 | 30.00 | 35.00 | 40.00 |
| Direct project beneficiaries (Number) | | 0.00 | | 60,000.00 | 360,000.00 | 900,000.00 | 1,200,000.00 | 1,500,000.00 |
| Of whom women | | 0.00 | 15.00 | 30.00 | 100.00 | 400.00 | 500.00 | 600.00 |

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | | End Target |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | |
| (Number (Thousand)) | | | | | | | | |

## Intermediate Results Indicators by Components

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | | End Target |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | |
| **Livestock enabling the business environment and support services** | | | | | | | | |
| Livestock climate friendly master plan developed (Text) | | No | | | | | | Yes |
| Farmers reached with agricultural assets or services (CRI, Number) | | 0.00 | 300,000.00 | 600,000.00 | | 1,100,000.00 | | 1,300,000.00 |
| Farmers reached with agricultural assets or services - Female (CRI, Number) | | 0.00 | | 200,000.00 | | 400,000.00 | | 520,000.00 |
| Artificial insemination centers rehabilitated and strengthened (Number) | | 0.00 | 0.00 | 3.00 | 4.00 | 8.00 | | 10.00 |
| Integrated Animal Feed Strategy developed (Text) | | No | | | | | | Yes |
| Animal vaccinated in the project area (Percentage) | | 0.00 | | | | | | 60.00 |
| Cattle in intensive system (Number) | | 0.00 | 0.00 | 20.00 | 40.00 | 50.00 | | 70.00 |
| Small ruminants (Number) | | 0.00 | | 10.00 | 20.00 | 30.00 | | 40.00 |

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | | End Target |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | |
| Poultry (Percentage) | | 0.00 | | 10.00 | | 40.00 | | 60.00 |
| Cows inseminated (Number) | | 0.00 | 2,000.00 | 25,000.00 | 40,000.00 | 50,000.00 | 60,000.00 | 80,000.00 |
| **Climate Smart Livestock Infrastructure and Value Chains Development and Market linkage** | | | | | | | | |
| Milk collection centres built/rehabilitated (Number) | | 0.00 | | 20.00 | | 30.00 | | 40.00 |
| Modern slaughterhouses built/rehabilitated (Number) | | 0.00 | | 3.00 | | 4.00 | | 8.00 |
| Business plan projects co-financed (Number) | | 0.00 | | 1,200.00 | | 3,000.00 | | 4,300.00 |
| Livestock market information system operational (Text) | | No system | | | | | | LMIS approved and operational |
| Female livestock farmers receiving grants. (Percentage) | | 0.00 | | 10.00 | | 20.00 | | 30.00 |
| **Project management and coordination** | | | | | | | | |
| Staff for national and sub-national institutional capacity built for Good Animal Husbandry Practices (long and short term trainings) (Number) | | 0.00 | | 300.00 | | | | 500.00 |
| Project beneficiary satisfaction rate (Percentage) | | 0.00 | | 70.00 | | | | 80.00 |
| Grievances registered and addressed within the stipulated resolution | | 0.00 | | | | | | 95.00 |

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | | End Target |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | |
| timeframe (Percentage) | | | | | | | | |

| Monitoring & Evaluation Plan: PDO Indicators | | | | | |
|---|---|---|---|---|---|
| **Indicator Name** | **Definition/Description** | **Frequency** | **Datasource** | **Methodology for Data Collection** | **Responsibility for Data Collection** |
| Increase in productivity of livestock species in targeted production systems | This indicator measures the percentage increase in livestock productivity (carcass weight in kilograms of cattle, sheep, goats and percentage increase of liters of milk per cow per year) in the targeted production systems, compared to the initial baseline. | Annual | PIU | | PIU |
| Average milk yield produced per cow per year | Measures percentage increase milk yield per cow per year in targeted production systems | Annual | PIU, MARAH | | PIU |
| Carcass weight in kilograms of cattle (Percentage) | Measures percentage increase of carcass weight ( goats, cows, sheep) in the targeted production systems( goats, cows, | Annual | MARAH, PIU | | PIU |

| | | | | | |
|---|---|---|---|---|---|
| | sheep) in the targeted production systems | | | | |
| Carcass weight in kilograms of sheep (Percentage) | Measures percentage increase of carcass weight ( goats, cows, sheep) in the targeted production systems( goats, cows, sheep) in the targeted production systems | Annual | | | |
| Carcass weight in kilograms of goat (Percentage) | Measures percentage increase of carcass weight ( goats, cows, sheep) in the targeted production systems | | | | |
| Increase in volume of market sales of livestock targeted commodities | This indicator measures percentage increase of marketed commodities in the project area from the initial baseline | Annual | MARAH | | PIU |
| Milk | | | | | |
| Meat | | | | | |
| Eggs | | | | | |
| Farmers adopting Good Animal Husbandry Practices | This indicator measures the number of livestock farmers who have adopted a climate-smart agricultural technology. NB: "Agriculture" or "Agricultural" includes: crops, livestock, capture | Annual | PIU, MARAH | Survey | PIU |

| | | | | | |
|---|---|---|---|---|---|
| | fisheries, aquaculture, agroforestry, timber and non-timber forest products.<br>Adoption refers to a change of practice or change in use of a technology that was introduced or promoted by the project.<br>Technology includes a change in practices compared to currently used practices or technologies (seed preparation, planting time, feeding schedule, feeding ingredients, postharvest storage/ processing, etc.). If the project introduces or promotes a technology package in which the benefit depends on the application of the entire package (e.g., a combination of inputs such as a new variety and advice on agronomic practices such as soil preparation, changes in seeding time, fertilizer schedule, plant protection, etc.), this counts as one technology.<br>Farmers are people | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | engaged in farming of agricultural products or members of an agriculture related business (disaggregated by men and women) targeted by the project. | | | | |
| Vulnerable farmers affected by insecurity supported for stock asset replenishment | This indicator assess the number of livestock vulnerable and conflict affected farmers in the project area who are assisted by the project with asset building including acquisition of animal, feeds, extensions services and veterinary services. | Annual | PIU | M/E | PIU |
| Of whom at least internally displaced persons (IDP) (Number in thousands) | Number of IDPs benefiting from project activities in the project areas | | | | |
| Direct project beneficiaries | The indicator measures the number of direct beneficiaries of the project activities in the project area with gender disaggregation | Quarterly | | | PIU |
| Of whom women | Beneficiaries of direct project activities across the components | | | | PIU |

| Monitoring & Evaluation Plan: Intermediate Results Indicators | | | | | |
|---|---|---|---|---|---|
| **Indicator Name** | **Definition/Description** | **Frequency** | **Datasource** | **Methodology for Data Collection** | **Responsibility for Data Collection** |
| Livestock climate friendly master plan developed | Assess the development of the Livestock Masterplan for Burkina Faso including the development of the ToRs, the strategic document, its validation by the stakeholders and dissemination | Quarter | | Review | PIU |
| Farmers reached with agricultural assets or services | 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, | Bi-annual | Project M/E | | PIU |

| | | | | | |
|---|---|---|---|---|---|
| | 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. | | | | |
| Farmers reached with agricultural assets or services - Female | | | | | |
| Artificial insemination centers rehabilitated and strengthened | The indicator measures the number of insemination center rehabilitated and equipped with the project resources in the project area | Semester | | M/E | PIU |

| | | | | | |
|---|---|---|---|---|---|
| Integrated Animal Feed Strategy developed | | | | | |
| Animal vaccinated in the project area | The indicator measures of animals vaccinated in project area compared to baseline | Annual | MARAH | | PIU |
| Cattle in intensive system | Percentage of cows vaccinated compared to total number in the project area | Annual | Data collection from MARAH reports | | PIU/MARAH |
| Small ruminants | This indicator measures percentage increase of small ruminants vaccinated with the project support in the project area | Annual | MARAH reports | | PIU/MARAH |
| Poultry | This indicator measures percentage increase of poultry vaccinated in the project area every year | Annual | | Data collection/MARAH | PIU/MARAH |
| Cows inseminated | | | | | |
| Milk collection centres built/rehabilitated | | | | | |
| Modern slaughterhouses built/rehabilitated | | | | | |
| Business plan projects co-financed | The indicator measures the number of micro-projects financed with the project resources through matching grants | Annual | M/E | | PIU |

| | | | | | |
|---|---|---|---|---|---|
| Livestock market information system operational | The indicator assess the development of a livestock market information system including the ToRs, the system and its validation | Annual | PIU | | PIU |
| Female livestock farmers receiving grants. | The indicator measures the share of female livestock keepers receiving project's matching grant compared to overall matching grants beneficiaries | Annually | PIU | | PIU |
| Staff for national and sub-national institutional capacity built for Good Animal Husbandry Practices (long and short term trainings) | This indicator measures the number of staff whose capacities were strengthened for climate-informed livestock policies, animal production, genetic improvement, animal protection, surveillance strategies, food safety, and other related themes identified by through the comprehensive livestock capacity building plan. | Semester | | | PIU |
| Project beneficiary satisfaction rate | This indicator measures the satisfaction rate of project beneficiaries on activities implemented in targeted areas, compared to the initial baseline | Biennial | | Survey/Questionaire | PIU |
| Grievances registered and addressed within the stipulated resolution | Percentage of grievance addressed compared to | Quarterly | PIU | Data collection | PIU |

| | | | | | |
|---|---|---|---|---|---|
| timeframe | grievance registered within agreed timeline | | | | |

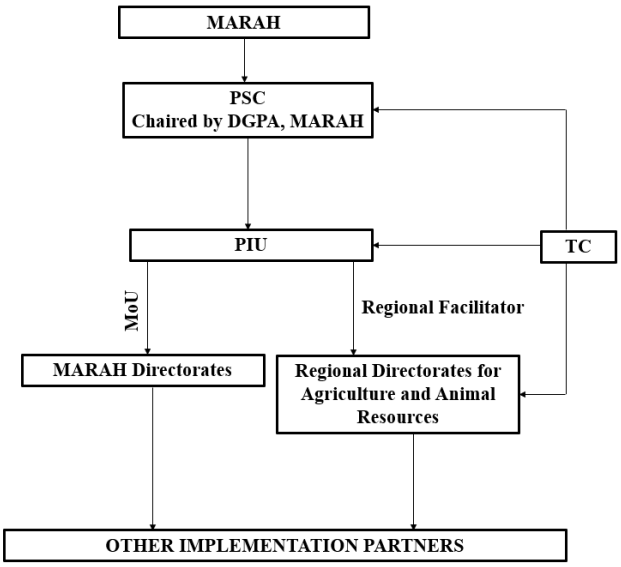
## ANNEX 1: Project Implementation Arrangement and Support Plan

### A. Project Institutional and Implementation Arrangements

1. The Recipient will be represented by the Ministry of Economy, Finance and Prospective. Overall responsibility for project implementation, including management of environmental and social risks, will be delegated to the MARAH. Implementation of the project will take place for six years over the country's national territory. The timeframe draws from the experience of similar projects which demonstrated the need to plan sufficient time for sustained PAs to form and for climate-smart livestock infrastructure to become operational. These comprise Component 2 of the project and need to follow closely the enabling environment and support services established under Component 1.

2. PRECEL's organization will be governed by Decree N° 2021-1383/PRES/PM/MEF of December 31, 2021. PRECEL's governance structure will be modeled after PRAPS-II's structure, including a PSC and TC. The PSC will serve as a guidance body and approve the AWP&B, as well as PRECEL's progress reports. The TC, comprising all relevant technical focal points from implementing partners, will be responsible for monitoring project implementation. The PSC will meet at least twice a year under the chairmanship of the Director General of Animal Production, Head of the program under which budget program PRECEL is mapped. The TC will hold one meeting per quarter under the chairmanship of the National Coordinator (see Figure 1.1. below for the project institutional arrangements).

**Figure 1.1. PRECEL Institutional Arrangement**




3. **PRECEL Steering Committee (PSC):** This committee will serve as the project's orientation and steering body. It is chaired by MARAH, and includes the representatives of the Ministry of Economy, Finance and Prospective, the Ministry in charge of the Environment, Ministry of Trade and Industry farmers organizations representatives, representatives of the private sector, etc. Meetings will take place at least twice a year. This committee will be established before effectiveness.

4. **PRECEL Technical Committee (TC):** This committee will serve as the monitoring body for project implementation. It will be chaired by the PRECEL National Coordinator and will comprise representatives of the project public implementing agencies as well as other contractual service providers. The frequency of meetings is at least once per quarter.

5. **Project Implementation Unit (PIU):** The project implementation mechanism will comprise a PIU based in Ouagadougou, and field correspondents based in MARAH's regional directorates. In addition, it will involve focal points from MARAH's central directorates, as well as the Ministries in charge of Environment and Social Affairs, to facilitate the implementation of the project's technical activities, as well as to ensure compliance with environmental and social safeguards.

6. **PRECEL's PIU will be competitively recruited and remunerated using IDA resources**. The National Coordinator's signature will be required to commit project financing. PRECEL will be composed of a team of specialists, covering all technical, administrative, and environmental and social safeguards functions deemed critical for proper project implementation and management.

7. **PRECEL's PIU will work in close coordination with MARAH's technical directorates at central and regional levels to execute and monitor project implementation.** The main functions of the PIU will be: (i) to steer and coordinate PRECEL activities in accordance with the provisions of the Financing Agreement regarding the management and use of IDA resources, as well as national procedures; and (ii) to provide support to MARAH and other partners involved in implementing the project activities.

8. **At MARAH's central level, relevant technical directorates will appoint focal points to support implementation of both PRECEL's activities**. The PRECEL/PIU will sign partnership or technical agreements with these technical directorates to carry out PRECEL activities within their mandates. At the regional level, PRECEL field staff will assume responsibilities for data collection, monitoring and reporting project activities throughout the national territory. The field staff will be in the Regional Directorates of MARAH.

9. The PIM will be adopted before project effectiveness, as a compendium of procedures for the PRECEL's operational implementation, encompassing the administrative, fiduciary, M&E, procurement, and social and environmental safeguards procedures. It will include detailed terms of reference (ToR) for all PRECEL/PIU staff. A specific manual for the management of the CERC will be prepared and validated no later than six months after project effectiveness.

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

11. Table 1.1. below summarizes the project's institutional roles and responsibilities by subcomponent.

**Table 1.1. Project Institutional Technical Partners Roles and Responsibilities by Subcomponent[35]**

| Components | Sub-components | Institutions | Roles | Responsibilities |
|---|---|---|---|---|
| ***Component 1: Enabling environment and support services for livestock promotion*** | Subcomponent 1.1: Support to Policy Formulation, Planning, and Capacity Strengthening | PIU | Lead | Coordinate implementation. |
| | | DGESS, ILRI, DGPA, DGDI, SP/CPSA, DGSV, DGPER, ABNORM, ONV, INERA | Implementing partner | Preparation of the Livestock Master Plan, update sub-sectoral strategies, laws governing the livestock sector. |
| | Subcomponent 1.2: Support to Animal Husbandry and Advisory Support Services | PIU | Lead | Coordinate implementation |
| | | DGSV, INERA, DGPA, DRARAH, DGFOMR, DVRD, DRARAH, Special agency (NGO) | Implementing partner | • Implementation of the genetic resources management plan<br>• Development and dissemination of extension tools on good farming GAHPs<br>• Asset distribution and support to IDPs |
| | Subcomponent 1.3: Support to Animal Health Services Strengthening | PIU | Lead | Coordinate implementation. |
| | | DGSV, DRARAH, ONV, COVEP, Ministry of Health Ministry of Envi., DGPA, CAMVET | Implementing partner | • Strengthening animal health surveillance systems, and prevention through vaccination and health prophylaxis.<br>• Support the provision of animal health services |
| ***Component 2: Climate-Smart Livestock Infrastructure and Value Chains Development*** | Subcomponent 2.1: Support for Climate-Smart Livestock Infrastructure and Market Development | PIU | Lead | • Coordinate implementation. |
| | | DGPA, DRARAH, DGRH, DGPER, AFA | Implementing partner | • Support in equipment and infrastructure for small producers organized to increase resilience to climate change.<br>• Information/Communication on component 2.<br>• Development of an integrated market system, Support for productive community investments |
| | Subcomponent 2.2: Support to access to finance | MEBF<br>DGPER | Implementing partner | • Support access to finance through matching grants<br>• Support to BDS |
| ***Component 3: Coordination institutional support*** | Coordination | PIU | Lead | • Coordinate implementation.<br>• Capacity building |
| | | Steering committee, technical committee | | • Advisory and strategic orientation<br>• M/E |

[35]Detailed roles and responsibility by technical partner will be developed in PIM, which will be adopted before project effectiveness. For the public partners involved, the project should sign Memorandum of Understanding (MoU) detailing roles and responsibility and accountability mechanisms.

## B. Financial Risk Assessment and Financial Management Action Plan

12. The FM arrangements for the proposed project have been designed considering: (i) Burkina Faso's recent political situation; (ii) the country's overall PFM performance; and (iii) the World Bank's minimum requirements under the World Bank Policy and Directive on IPF, which describes the World Bank's policies and procedures for FM. The FM assessment was carried out in accordance with the FM Manual for World Bank-Financed Investment Operations effective on March 1, 2010, and reissued on September 7, 2021.

13. The MARAH has implemented several World Bank projects and is familiar with World Bank procedures. Indeed, MARAH coordinates, among others: PRAPS I (P147674) which is closed and ongoing projects, such as PARIIS – BF (P154482); Agricultural Resilience and Competitiveness Project (*Projet de Résilience et de Compétitivité Agricole,* PRECA-P167945); PRAPS II (P173197) and PADEL-BF (P159476).

14. **Key risks.** The project risk rating before mitigation measures is Substantial based on project activities that are to be conducted in highly insecure areas, weak current capacity of the internal control function, and delays in advance justification. In order to accommodate the project in the existing FM system and ensure adequate segregation of duties, the following measures will be taken: (i) adoption of a PIM before project effectiveness, in form and substance satisfactory to the World Bank, which will be based on an updated version of the existing PIM of the PADEL-BF; (ii) customize the existing accounting software to include the bookkeeping of the new project and generate IFRs and financial statements one month after effectiveness; (iii) recruit competitively FM staff with ToRs acceptable to the World Bank by project effectiveness; (iv) recruit an internal auditor three months after effectiveness; (v) recruit an external auditor with qualifications acceptable to World Bank within six months after effectiveness; and (vi) justification of advance will be required prior to payment of new advances. The FM risk is assessed as Substantial after consideration of these mitigation measures.

**Table 1.2. Risk Assessment**

| Risk | Risk Rating | Risk Mitigating Measures Incorporated into Project Design | Risk after Mitigation Measures | Conditions for Effectiveness (Y/N) |
|---|---|---|---|---|
| **Country level -**<br>The Public Expenditure and Financial Accountability (PEFA) Assessments and the Public Investment Management Assessment (PIMA) undertaken in 2017 have highlighted critical areas of weaknesses in PFM that the government needs to address.<br>Security keeps decreasing in Burkina Faso. | H | Setup a dedicated unit to manage the project and use of IDA FM procedures supported by the decree on projects implementation and modalities in Burkina Faso.<br>Use tools such as GEMS for project monitoring. | S | N |
| **Entity level**<br>The PIU FM performance under the actual implemented project is Satisfactory and FM risk Substantial due to non-respect of certain | S | Update the FM Manual. | M | Y |

| Risk | Risk Rating | Risk Mitigating Measures Incorporated into Project Design | Risk after Mitigation Measures | Conditions for Effectiveness (Y/N) |
|---|---|---|---|---|
| aspects of the FM Manual procedures such as delay in advances justifications. | | | | |
| **Project Level**<br>Delay in advances justifications<br>Some project activities could prone to irregularities (workshops, missions, activities in insecure areas etc.). | S | Update the FM Procedures Manual to include specific arrangements related to the proposed project. | M | Y |
| **Inherent Risk** | **H** | | **S** | |
| **Budgeting**<br>The ongoing project fully disbursed the allocated funds. | S | The PIU will prepare an AWP&B in respect with the timeline stated in the FM manual | M | N |
| **Accounting**<br>Delays in the justification of advances to implementing entities. | H | The PIU will update the accounting software within one month after project effectiveness to include the proposed project.<br>The FM manual will include the justification of advances before the payment of new one. | S | N |
| **Internal Controls / Internal audit**<br>Weak capacity of the internal audit function and absence of clear description of internal control environment and internal audit tools. | H | Update the PIM and the project FM manual to include a clear description of internal control environment of the proposed project and develop appropriate internal audit tools.<br>Recruit an internal auditor fully dedicated to the proposed project. | S | Y |
| **Funds Flow**<br>100 percent funds disbursed under the PADEL-BF Project (P159476)<br>Risk of budget overruns. | S | The annual work plan reviewed and approved by the Review Committee before November 30 of the previous year. | M | N |
| **Financial Reporting**<br>Risk of delay in producing acceptable IFRs. | S | Update the accounting system to include the proposed project and automatically generate IFRs. | M | N |
| **External Audit**<br>Delays in implementation of audit recommendations. | S | Recruit an external auditor with ToRs acceptable to IDA no later than six months after project effectiveness. | M | N |
| **CONTROL RISK** | **H** | | **S** | |
| **Overall FM risk** | **H** | | **S** | |

*Note:* M = Moderate; S = Substantial; H = High. *FM Assessment Report.

**Action Plan to Reinforce the Fiduciary Arrangements**

15. The FM Action Plan described below has been developed to mitigate the overall FM risks.

**Table 1.3. FM Action Plan**

| Action | Responsible Body | Completion |
|---|---|---|
| Update the PIM and the project FM manual to include the proposed project. | PIU | Before effectiveness |
| Upgrade the accounting software to include the proposed project. | PIU | One month after the effectiveness |
| Update current FM team ToRs and contracts to include the new project activities upon confirmation of their performance by an independent auditing firm. | PIU | Before effectiveness |
| Recruit an internal auditor, with ToR and qualification satisfactory to the World Bank. | PIU | Within three months after effectiveness |
| Recruit an external auditor, with ToR and qualification satisfactory to the World Bank. | PIU | Within six months after effectiveness |

16. **Internal control system and internal audit.** The assessment revealed that the internal audit service was weak, that there was no internal auditor, and that the audit reports were not transmitted to the World Bank on a regular basis. Therefore, the internal audit function will need to be strengthened according to project specifications. The PIU will hire an internal auditor fully dedicated to the proposed project. The internal auditor will develop an internal audit annual workplan and internal audit tools to ensure that project environment risks are properly covered, and the funds are used for the purpose intended.

17. **Planning and budgeting.** The PIU will prepare a detailed AWP&B and a disbursement forecast which would be approved by the PSC no later than two weeks after effectiveness. The work plan and budgets will identify the activities to be undertaken and the role of respective parties in implementation. During project implementation, The PIU's FM unit in close collaboration with other involved technical units will prepare the AWP&B for implementing project activities considering the project's objectives. The AWP&B will be submitted to the PSC for approval, and thereafter to IDA for no objection not later than November 30 of the year preceding the year the work plan would be implemented. Once the budget is approved, it will be incorporated into the computerized accounting system to serve as a basis for a budget execution monthly follow-up, based on variance analysis.

18. **Accounting policies.** The prevailing accounting policies and procedures in line with the West African Francophone countries accounting standards (SYSCOHADA) in use in Burkina Faso for ongoing World Bank-financed operations will apply. The accounting systems and policies and financial procedures will be documented in the project's administrative, accounting, and financial manual.

19. **Interim financial reporting.** The PIU will submit an unaudited IFR to the World Bank within 45 days after the end of each semester. The IFRs will include (i) an introductory narrative discussion of project developments and progress during the period being reported on to provide context and other explanations of the financial information; (ii) a Sources and Uses of funds Statement, both cumulatively and for the period covered by the report, showing separately funds provided under the project; (iii) a use

of funds by components statement, cumulatively and for the period covered by the report; (iv) the designated account (DA) reconciliation, including bank statements and general ledger of the bank account; (v) the disbursement forecasts of the upcoming six months; and (vi) an explanation of variances between the actual and planned. The IFR will reflect the activities implemented by other partners involved in the project as well.

20. **Annual financial reporting.** In compliance with International Accounting Standards and IDA requirements, the project will produce audited 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 Statement of Commitments; (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 expended for the intended purposes as specified in the relevant financing agreements.

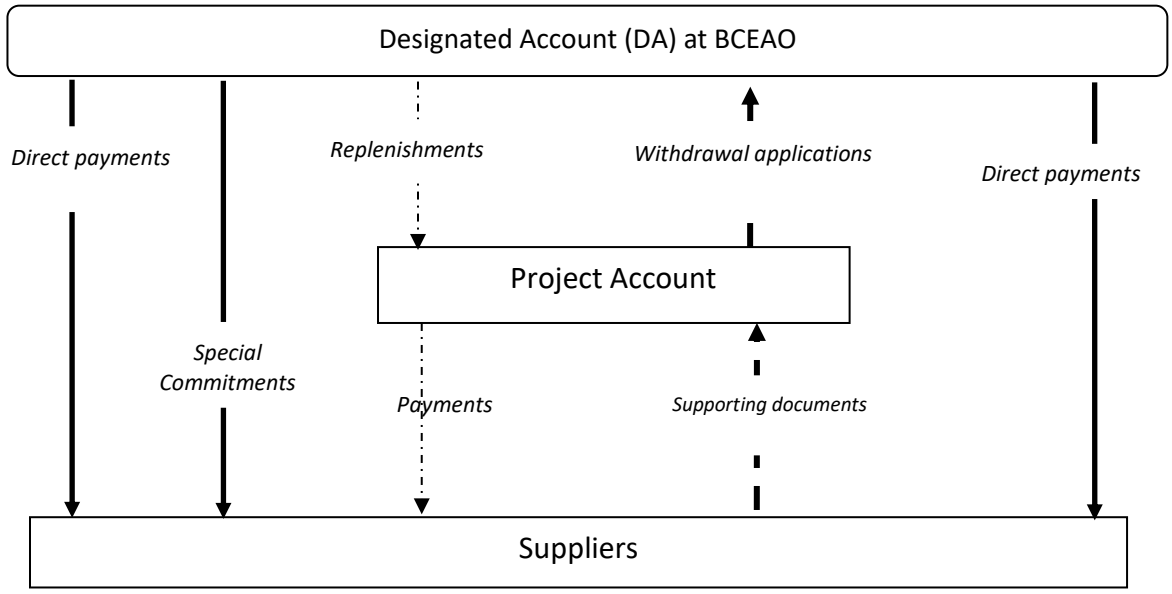
21. **External auditing.** An external auditor, with experience and qualifications satisfactory to the World Bank, will perform an audit of annual financial statements. If necessary, The PIU in accordance with the World Bank, may consider recruiting an individual consultant to perform additional and independent ex-post verifications. The cost of external audit and independent verification, if any, will be met by the Project Management Component. The project will comply with the World Bank disclosure policy of audit reports.

22. **The project will submit audited financial statements satisfactory to the World Bank (IDA) every year.** A single opinion on the Audited Project Financial Statements in compliance with International Standards on Auditing will be required. In addition, a Management Letter will be required. The audited financial statements must be submitted by the PIU to the World Bank within 6 months after closure of the fiscal year.

23. **Disbursement arrangements.** Project proceeds will finance 100 percent of eligible expenditures of the project. A DA in FCFA will be opened at the Central Bank for Central and West Africa States (*Banque Centrale des Etats de l'Afrique de l'Ouest*, BCEAO), for the PIU. Upon effectiveness, an initial advance of an amount set in the disbursement and financial information letter (DFIL), will be released by IDA to the DA, at the request of the PIU. The PIU will open in a commercial bank a Project Account, managed by the FM Unit with signatories of the Project Coordinator and the Project FM specialist.

24. **Disbursements supporting documentation.** Transactions based disbursement will be used. The DA will be set up to fund eligible expenditures based on the approved annual activity plans. The ceiling of the DA would be the equivalent of the cash forecast for one semester as provided for in the semi-annual IFR. All other supporting documentation evidencing eligible expenditures should be retained by the PIU and must be made available for review by World Bank missions, external auditors, and other controllers if any. Disbursement methods and formats for withdrawal applications and disbursements documentation are stated in the DFIL.

**Figure 1.2. Funds Flow - Future Financing**




25. **Local taxes.** Funds will be disbursed in accordance with project categories of expenditures and components, as shown in the Financing Agreement. Financing of each category of expenditure/component will be authorized as indicated in the Financing Agreement and will be inclusive of taxes according to the current country financing parameters approved for Burkina Faso.

26. **Governance and anti-corruption**. The PIU will put in place measures to avoid fraud and corruption in accordance with the World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants (revised as of July 1, 2016) referred to in the Financing Agreement. The following measures are envisaged to mitigate the risk of misuse, irregularities, and corruption: (i) the ToRs of the external auditor will comprise a specific chapter on fraud and corruption auditing; and (ii) the possibility of anonymously reporting suspected fraud based on the project GRM.

27. **Support to the implementation.** FM supervision will be conducted over the project's lifetime. The project will be supervised following a risk-based approach. The objective of the implementation support plan is to ensure the project maintains a satisfactory FM system throughout its life. Based on the current risk assessment, which is Substantial, at least two supervision missions are envisaged per year. The supervision will include a FM rating of the project. An implementation support mission will be carried before effectiveness to ensure the project readiness. The supervision intensity will be adjusted over time considering the project FM performance and FM risk level.

**Table 1.4. FM Implementation Support Plan**

| FM Activity | Frequency |
|---|---|
| **Desk reviews** | |
| Unaudited IFRs review | Bi-annually |
| Audit report review | Annually |
| Review of other relevant information | Continuous as they become available |
| **On site visits** | |
| Review of overall operation of the FM system | Bi-annually |
| Monitoring of actions taken on issues highlighted in audit reports, auditors' management letters, internal audit and other reports | As needed |
| Transaction reviews | Bi-annually and as needed |
| **Capacity building support** | |
| FM training sessions | As needed |

## C. Procurement

28. **Procurement rules and procedures**. Procurement will be carried out in accordance with: (i) the World Bank Procurement Regulations for IPF Borrowers Procurement dated July 2016, revised in November 2020; (ii) the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, revised in January 2011 and July 2016; and (iii) the provisions stipulated in the Financing Agreement. STEP will be the platform for preparing, submitting, reviewing, and clearing procurement plans and prior review procurement activities. STEP will also be used for uploading the documents and evaluation reports for Post Review Contracts. The PIM will elaborate on the procurement procedures, SPDs and model contracts associated with the market approaches and selection methods, for various procurement categories.

29. **All procuring entities as well as bidders, and service providers, i.e., suppliers, contractors, and consultants shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraph 3.32 and Annex IV of the Procurement Regulations.** When procurement is done in the national market, as agreed in the Procurement Plan, the country's own procurement procedures may be used with the requirements set forth or referred to in paragraphs 5.3 to 5.6 related to National Procurement Procedures. All Works procurements that apply SPDs will adopt provisions of the World Bank related to environmental, social (including SEA/SH and GBV), health and safety (ESHS) risks and impacts. This includes codes of conduct that include prohibitions against sexual harassment and sexual abuse.

30. **Procurement risk assessment and mitigating measures**. The project will be implemented by MARAH. MARAH has implemented several World Bank projects and is familiar with World Bank procedures. MARAH coordinates among others: PRAPS I (P147674) which was closed, and the ongoing PARIIS – BF (P154482), PRECA (P167945), PRAPS II (P173197), and PADEL-BF (P159476) projects. The main risks identified at the project level are: (i) the absence of the procurement specialist after the retirement of the current procurement specialist of PADEL-BF and (ii) the absence of the delegation of contract approval to the Project Coordinator in line with the Prime Minister's letter N. 2021-1383/PRES/PM/MEBF of December 31, 2021 (whereby only contracts of FCFA 10 million (US$ 16.900) or less could be approved by the Coordinator; other contracts are approved by the Minister, sometimes with delay); (iii) both the

existing and new staff have limited qualifications, insufficient procurement skills, and inadequate experience in World Bank procurement procedures; (iv) tender committee members are not trained in the World Bank's new procurement procedures; and (v) there are significant time delays in the procurement process. For this reason, it is proposed to competitively recruit another procurement specialist to be devoted to this project. With respect to the new institutional arrangement for projects implementation in Burkina Faso, this procurement specialist will work with the Directorate of Public Procurement (*Direction des Marchés Publics,* DMP) that has recently recruited new staff.

31. **The other identified risks at the country level are**: (i) the high insecurity of the areas in which project activities will be conducted; and (ii) the country's recent political situation. The assessment has rated the procurement risk as Substantial to the extent that the above constraints are mitigated. The PIM will define the project's required internal organization (including staffing arrangements) and implementation procedures for procurement activities. It will include, inter alia, all the relevant procedures for calling for bids, selecting consultants, and awarding contracts. The project monitoring arrangements for procurement will be specified.

**Table 1.5. Procurement Risks and Mitigation Measures**

| Identified Risks | Mitigation Measures | Responsibility | By When |
|---|---|---|---|
| Absence of procurement specialist after retirement of the current procurement o PADEL-BF | Recruit competitively a procurement specialist who will be devoted to the project. | MARAH | Before effectiveness |
| Limited qualification and experience of the whole staff in the National Procurement Framework (NPF) | Reinforce the procurement capacity by the training of the DMP, DGCMEF, PIU and the tender committee in World Bank procurement procedures with external training courses. | Project coordinator of PRECEL | During project life |
| Delays in reviewing procurement documents and decision by DCMP | Make close follow up of the procurement plan. | DMP/MARAH | On a regular basis |
| Delays in contract approval by the MARAH | Delegate the contract approval to the Coordinator of PRECEL in line with the prime minister's letter. | MARAH | 1 month after effectiveness |
| Internal organization and implementation procedures for procurement activities | Update the procurement section manual to ensure appropriate implementation of activities in line with the World Bank's general framework related to the project. The manual should describe procurement rules applicable to the project and a clear accountability system, as well as and responsibilities for decision-making and describing streamlined procurement procedures when applicable. | MARAH | Before effectiveness |

32. **The Project Procurement Strategy for Development (PPSD) and a Procurement Plan detailing the first 18 months of implementation have been approved prior to negotiations.** During implementation, the Procurement Plan will be updated as required and at least annually, to reflect actual program

implementation needs and improvements in institutional capacity.

33. **Given that insecurity and fragility affect considerable areas in Burkina and the country is also facing capacity constraints, the project will use flexibility and simplification in procurement.** The measures include the use of Recipient's national procurement provided the arrangements are consistent with the World Bank's Core Procurement Principles. At the request of the Government Hands-on Expanded Implementation Support (HEIS) approach will be considered during implementation (subject to the approval from the World Bank) to support this, in particular with respect to contract management, as indicated in the PPSD analysis. Special arrangements like direct contracting, use of Statements of Expenditures, third party monitors, local NGOs, Force Account, or civil servants needs, results-based arrangements, need for prequalification, PPP contracts, if any, will be considered and addressed.

34. **Special Considerations**. Burkina Faso is one of several countries affected by insecurity and fragility in the Sahel region alongside Chad, Mali, and Niger. An increased threshold for Request for Quotation (RfQ) to US$0.5 million for goods and US$1 million for works may be used as well. A Bid Securing Declaration may be used instead of bid security. Advance payment may be increased to 40 percent, while secured with the advance payment guarantee. The time for submission of bids and proposals can be shortened to 15 days in competitive national and international procedures, and to three (3) days for the RfQ, however, if bidders request an extension, it should be granted. The simplified procurement arrangements will be detailed in the procurement section of the PIM. Then project will require bidders/primary suppliers of solar-powered cold-chains (and other material, as applicable) to provide two declarations: a Forced Labor Performance Declaration (which covers past performance), and a Forced Labor Declaration (which covers future commitments to prevent, monitor and report on any forced labor, cascading the requirements to their own sub-contractors and suppliers).

35. **Procurement documents.** For international competitive procurement of works, goods, non-consulting service, and consulting services, the Recipient shall use the World Bank SPDs with minimum changes, acceptable to the World Bank, as necessary to address any project-specific conditions.

36. **Procurement information and documentation—filing and database.** Procurement information will be recorded and reported as follows:

- Complete procurement documentation for each contract, including bidding documents, advertisements, bids received, bid evaluations, letters of acceptance, contract agreements, securities, and related correspondence will be maintained at the level of respective ministries in an orderly manner, readily available for audit.
- Contract award information will be promptly recorded and contract rosters, as agreed, will be maintained.
- Comprehensive quarterly reports will be prepared indicating: (i) revised cost estimates, where applicable, for each contract; (ii) status of ongoing procurement, including a comparison of originally planned and actual dates of the procurement actions, preparation of bidding documents, advertising, bidding, evaluation, contract award, and completion time for each contract; and (iii) updated Procurement Plans, including revised dates, where applicable, for all procurement actions.

37. **General Procurement Notice, Specific Procurement Notices, Requests for Expression of Interest, and results of the evaluation and contracts award** should be published in accordance with advertising provisions in the Procurement Regulations. For request for bids and request for proposals that involve international bidders/consultants, the contract awards shall be published in the United Nations Development Business in line with the provisions of the Procurement Regulation.

38. **Training, workshops, study tours, and conferences**. Training (including training materials and support), workshops, and conference attendance (based on individual needs as well as group requirements), and on-the-job training will be carried out based on an approved annual training and workshop/conference plan that will identify the general framework of training activities for the year. A detailed plan and ToR providing the nature of training/workshop, number of trainees/participants, duration, staff months, timing, and estimated cost will be submitted to the World Bank for review and approval before initiating the process. The appropriate methods of selection will be derived from the detailed schedule. After the training, each beneficiary will be requested to submit a brief report indicating what skills have been acquired and how these skills will contribute to enhance his/her performance and contribute to the attainment of the PDO. Reports by the trainees, including completion certificate/diploma upon completion of training, shall be provided to the Project Coordinator, will be kept as parts of the records, and will be shared with the World Bank if required.

39. **Procurement Manual**. Procurement arrangements, roles and responsibilities, methods, and requirements for carrying out procurement shall be elaborated in detail in the Procurement Manual which will be a section of the PIM. The context of fragility and the capacity constraints in project countries will be considered, and simplified procurement arrangements will be designed accordingly. The PIM shall be prepared by the Recipients and agreed with the World Bank before effectiveness.

40. **Operating costs**. Operating costs financed by the project are incremental expenses, incurred by the PIU as approved by the World Bank, on account of project implementation, management, and M&E, including utilities; office space rental; office supplies; bank charges; vehicle operation, maintenance, and insurance; maintenance of equipment and buildings; communication costs; travel and supervision costs (that is, transport, accommodation, and per diem); and salaries of contracted and temporary staff. They will be procured using the procedures specified in the PIM, accepted and approved by the World Bank.

41. **Procurement procedures**. When approaching the national market, the country's own procurement procedures may be used with the requirements set forth or referred to in paragraphs 5.3–5.6 related to National Procurement Procedures and subject to certain requirements for national open competitive procurement. Other national procurement arrangements (other than national open competitive procurement) that may be applied by the Recipients (such as Limited/Restricted Competitive Bidding, (RfQ), Shopping, Local Bidding, and Direct Contracting), shall be consistent with World Bank core procurement principles and ensure that World Bank Anticorruption Guidelines and Sanctions Framework and contractual remedies set out in the Financing Agreement apply.

42. **Frequency of procurement supervision.** In addition to the prior review supervision which will be carried out by the World Bank, semi-annual supervision missions are recommended. Annual World Bank procurement post review will be conducted in the respective countries by the World Bank procurement specialists. The sample size will be based on the procurement risk rating for the implementing agencies in each country. The prior review procurements will be reviewed and cleared in STEP by the respective

country's World Bank procurement specialist.

43. **Procurement prior review**. The procurement risk is rated **Substantial**. Table 1.6 summarizes the procurement prior review for Substantial risk. These prior review thresholds can evolve according to the variation in procurement risk during the life of the project.

**Table 1.6. Procurement Prior Review Thresholds (US$) Based on the Risk**

| Contract Category | Risk Level | | | |
|---|---|---|---|---|
| | High | Substantial | Moderate | Low |
| Works, turnkey contracts and PPPs | 5,000,000 | 10,000,000 | 15,000,000 | 20,000,000 |
| Goods including Information systems and non-consulting services | 1,500,000 | 2,000,000 | 4,000,000 | 6,000,000 |
| Consulting services (firms) | 500,000 | 1,000,000 | 2,000,000 | 4,000,000 |
| Individual consultants | 200,000 | 300,000 | 400,000 | 500,000 |

44. **Contract management and administration**. For all prior review contracts, contract management plans (in line with the provisions of Annex XI of the Procurement Regulations) will be developed during contract creation and completed at the time contracts are signed.

45. **Summary of the PPSD:** The PPSD and the Procurement Plan detailing the first 18 months of implementation have been prepared by the Recipient and submitted to the World Bank. The project envisages Vaccine against PPR and Vaccine against CBPP, supply of veterinary drugs. The most important procurement of works can be rehabilitation of commune-type/province-type veterinary posts, rehabilitation of mixed vaccination parks, modern small and medium-capacity slaughterhouses, etc. The consultant services are regulatory activities regarding the technical assistance, capacity buildings, etc. The different approaches, selection methods, need for pre-qualification, estimated costs, prior review requirements, and timeframe are agreed between the recipient and the World Bank in the Procurement Plans. The initial Procurement Plan has been approved by the World Bank before the negotiations. During implementation, the Procurement Plans will be updated as required and at least annually, to reflect actual program implementation needs and improvements in institutional capacity implementation needs. While open national competition is generally the preferred method, in some areas the market and security situation might lead to other options.

## D. Implementation Support Action Plan

46. Implementation support missions will be carried out twice a year. A midterm review will be carried out to assess the project progress, achievement of the key indicators, risks and mitigation measures, and relevance of activities. The PRECEL will undertake an independent evaluation at the midterm and at closing. Implementation support funds for the World Bank will be provided by IDA.

47. The main areas of focus and skills requirements for implementation support to be provided by or through the World Bank are as summarized in Table 1.7.

**Table 1 7. Implementation Support Plan**

| Period | Focus | Primary Skills Needed | No. of Missions | Cost (US$) |
|---|---|---|---|---|
| Year 1 | • Project launch<br>• Initialization of project components<br>• FM systems functioning effectively<br>• Procurement practices following World Bank norms<br>• ESMF in place | Agricultural Economist/Team lead, FM Specialist, Procurement Specialist, Environmental Specialist, Social Safeguards Specialist, Financial Sector Specialist, Livestock Expert, Gender Specialist, M&E Specialist | 2 | 260,000 |
| Year 2 | • Monitor implementation of project activities<br>• FM, procurement, safeguards | Agricultural Economist/Team lead, FM Specialist, Procurement Specialist, Environmental Specialist, Social Safeguards Specialist, Financial Sector Specialist, Livestock Expert, Gender Specialist, M&E Specialist | 2 | 195,000 |
| Year 3 | • Monitor implementation of project activities<br>• FM, procurement, safeguards<br>• Midterm review | Agricultural Economist/Team lead, FM Specialist, Procurement Specialist, Environmental Specialist, Social Safeguards Specialist, Financial Sector Specialist, Livestock Expert, Gender Specialist, M&E Specialist | 2 | 195,000 |
| Year 4 | • Monitor implementation of project activities<br>• FM, procurement, safeguards | Agricultural Economist/Team lead, FM Specialist, Procurement Specialist, Environmental Specialist, Social Safeguards Specialist, Financial Sector Specialist, Livestock Expert, Gender Specialist, M&E Specialist | 2 | 195,000 |
| Year 5 | • Monitor implementation of project activities<br>• FM, procurement, safeguards | Agricultural Economist/Team lead, FM Specialist, Procurement Specialist, Environmental Specialist, Social Safeguards Specialist, Financial Sector Specialist, Livestock Expert, Gender Specialist, M&E Specialist Livestock Expert, M&E Specialist/Communication | 2 | 195,000 |

## ANNEX 2: Economic and Financial Analysis

1. **This annex presents the Ex-Ante Economic and Financial Analysis (EFA) for the project.** The analysis is based on the cost-benefit analysis (CBA) approach applied to the core project interventions: (i) Enabling Environment and Support Services for Livestock Promotion (Component 1) and (ii) Climate-Smart infrastructure and Livestock Value Chains Development (Component 2). This annex consists of three main parts. Part I of this annex introduces the identification of benefit streams, followed by Part II, which describes the methodology and assumptions used for the EFA. Part III summarises the overall financial and economic results of the project, including a sensitivity analysis under different scenarios.

### IDENTIFICATION OF BENEFITS

2. **In line with existing sectorial projects, PRECEL's main quantifiable benefits will be derived from higher, stable incomes and assets of sedentary livestock producers**[36] **due to enhanced, climate-resilient productivity increases and improved value-addition, competitiveness, and marketing of animal products through an integrated approach to targeted livestock value chain development.** The project activities are expected to generate three main benefit streams. First, producers and their organizations will benefit from productivity gains induced by building resilience through livestock genetic improvement, enhanced climate-smart animal nutrition, and strengthened disease control and prevention (e.g., vaccination for priority animal diseases). Their long-term sustainability will be ensured by better public and private service provision and delivery, and better access to market by investments in climate-smart hard and soft livestock infrastructures (e.g., slaughter facilities or market information systems), through the activities of Components 1 and Subcomponent 2.1. Second, producers and other value chain actors[37] will benefit from LIFF through higher access to business services and finance cost sharing facilities through MG (Subcomponent 2.2). Third, the project activities will generate important environmental benefits such as natural resources protection and reduced GHG emissions through sustainable technologies**.**

3. **As intangible benefits, improved incomes and assets will generate additional social benefits in the form of increased food security and nutrition, enhanced social and economic inclusion of youth and women and higher resilience of conflict-affected populations.** The project is also expected to create other benefits such as policy and institutional strengthening, greater and better access to finance for livestock producers or regional spill over effects from reduced transboundary animal diseases, which are non-quantified at this stage due to the difficulty of attributing them a monetary value.

### METHODOLOGY AND ASSUMPTIONS

4. **This CBA analysis follows the standard methodology recommended by the World Bank, as described in Gittinger (1982), Belli et al. (2001) and is aligned to the recent guidelines for economic and financial analysis.** This methodology is applied differently to the two mains benefit stream of the project reflecting the difference in the project intervention approaches.

5. **Given the focus of the first benefit stream on livestock production improvement and access to community market infrastructure, the present analysis quantifies the related benefits through herd**

[36] In continuity to PADEL-BF and in complementarity with PRAPS 1 and 2 (oriented towards pastoral livestock systems).
[37] Women, men, youth, groups, cooperatives, or individual entrepreneurs.

**projection modelling.** It uses the livestock herd dynamics models "EcoRum" of the Livestock Sector Investment Policy Toolkit (LSIPT). LSIPT is a program developed by FAO and CIRAD with the support of the World Bank for simulating bio-economic performances of herds of tropical domestic ruminants). The program calculates, in "with" and "without" project scenario, different livestock production outputs (meat, milk, hide and skins and manure) and financial outputs used to assess the overall viability of the proposed interventions, through the calculation of IRRs and NPVs. This methodology has been effectively used in the EFAs of other World Bank-financed projects supporting pastoral and agro-pastoral livelihoods in Burkina Faso and other Sahel countries, on which this project also builds, notably PRAPS- I, and PRAPS-II. This analysis also benefitted from some zoo-technical and price data collected recently as part of the PRAPS II design. These parameters have been identified through extensive literature review and consultations with livestock specialists and experts from FAO, CIRAD, IRAM, and from the national preparation team, which also includes PADEL-BF experts. The validity and relevance of such assumptions for the livestock population targeted by PRECEL has been crosschecked with sectorial experts. Estimated parameters include animal nutrition and manure management practices, parturition and prolificacy rates, average annual mortality rates average annual offtakes rates and live weight, herd structure and milk and meat productivity. A total of five (5) herd models under traditional sedentary production systems and improved sedentary systems under modern conditions (mainly peri-urban semi-intensive and intensive) for cattle, goat, sheep and poultry have been developed in order to have a comprehensive representation of the diversity of species and their related products in the project areas. The analysis also distinguished the animals (mainly cattle) benefiting from all project interventions i.e., vaccination, artificial insemination, quality feeds and technical support (full project impact), and animals benefiting from partial project intervention (vaccination impact -CBPP for cattle, PPR for small ruminants and Fowl Pox and New Castle's disease (NCD) vaccine for poultries and technical support). The analysis also assumed an important part of the animals would only benefit from partial support of project given the large number of animals vaccinated.

6. **The second benefit stream related to the LIFF and to market access is assessed through a financial analysis focused on the profitability of small, medium and large sub-projects related to eligible value chains.** This has been conducted by comparing the with-project (WP) situation, modelled from the perspective of the target beneficiaries, with the without-project (WOP) situation. As the intervention approach of this component is strongly demand-driven, given the diversity of potential livestock activities and the different profiles of actors who could be supported, some sub-projects have been modelled as examples and based on technical data coupled with data on prices provided by PADEL-BF completed with desk research. These sub-project models computed costs and benefits experienced by the beneficiaries, using market prices (full description below). Family labour is valued at the same price as hired labour. The opportunity cost of capital used is in line with the World Bank guidelines and the practice of recent projects, i.e., 12 percent.[38]

7. **The economic analysis followed a similar approach, aggregating the targeted results of the project and from the society viewpoint.** It uses the incremental benefits and a 75 percent survival rate for sub-projects under Subcomponent 2.2. As some of the project costs are already integrated in the individual models, the total project economic costs have been adjusted by considering the direct subsidies granted and other costs already included in the financial models to avoid double counting to determine the overall economic viability of the project. The discount rate used for the economic analysis is 6 percent and is in

[38] This is the interest rate charged on loans to the livestock related income generating activities in Burkina Faso.

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 IMPACT OF THE SUPPORT SERVICES FOR LIVESTOCK PROMOTION**

8. **The potential for productivity growth in the livestock sector has been hindered by major challenges such as poor animal feed and health.** Moreover, future climate projections reveal an increasing frequency of extreme climate events, which, in turn, are linked to shortages of quality feeding and to higher pest and disease incidence. This risk is adding to an already fragile animal health situation. Regional diseases like the CBPP, the PPR and Fowl Pox and NCD are rapidly spreading and already represent a health emergency. To address such challenges, interventions under Subcomponents 1.3 provide for animal support services to solve the current sectorial challenges and build its resilience. As described under the methodology and assumption section, the present analysis develops five herd projection models. The total population of animal supported and the initial population for each production system considered in the herd projection models was calculated based on the number of respective vaccinations planned by the project and on the information provided by the country team listed in Table 2.1.

**Table 2.1. Baseline Livestock Population of the Herd Projection Models**

| Livestock | Models | LSIPT Code | Total Animals over 6 Years | Baseline LSIPT |
|---|---|---|---|---|
| Cattle | Full impact | B1MR | 198,831 | 66,667 |
| Cattle | PPCB Vaccination-Partial impact | B2MR | 8,301,169 | 2,783,333 |
| Goats | PPR Vaccination- Partial impact | G2MR | 7,980,000 | 2,800,000 |
| Sheep | PPR Vaccination - Partial impact | O2MR | 11,970,000 | 4,200,000 |
| Poultry | Fowl pox and NCD vaccination - Partial impact | V2OV | 24,000,000 | 8,000,000 |
| | | **Total** | **52,450,000** | **17,850,000** |

9. **As building environmental mitigation and resilience is a core dimension of PRECEL in response to climate change threats to the livestock sector, the four 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 WP scenarios assume that droughts and rain failures occur every four (4) years during the first decade and every three years during the second decade. Moreover, based on the available bibliography, an additional level of complexity has been added to the analysis by distinguishing between two levels of drought intensity: (i) a “mild” drought, implying a 20 percent increase in mortality rates; and (ii) a “major” drought (one during each decade) leading to an increase in mortality rates of about 50 percent, for all age groups. Consequently, the analysis also considers the following 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.

10. 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 also on 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 WOP 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.

11. Based on the above assumptions, all five herd models show the additional value generated by the project investments, as presented in Table2.2.

**Table 2.2. Main Economic Results of the Herd Projection Model**

| Livestock | Model | LSIPT Code | NPV (@6 percent, 20-years, US$, millions) |
|---|---|---|---|
| Cattle | Full impact | B1MR | 2.03 |
| Cattle | PPCB Vaccination-Partial impact | B2MR | 32.62 |
| Goats | PPR Vaccination- Partial impact | G2MR | 18.87 |
| Sheep | PPR Vaccination - Partial impact | O2MR | 13.08 |
| Poultries | fowl pox and NCD vaccination - Partial impact | V2OV | 83.20 |

**FINANCIAL ANALYSIS RELATED TO THE LIVESTOCK IMPROVEMENT FINANCIAL FACILITY (LIFF)**

12. **According to the integrated approach to value chain development of PRECEL, productivity gains unlocked by the abovementioned investments under Component 1 will be channelled towards the expansion and the modernization of production, processing and marketing of selected livestock products needed to meet the growing national and regional demand.** Building on the achievements of PADEL-BF, the project will support such process by reducing financial risk by increasing credit availability through MGs and business services support under Subcomponent 2.2. In particular, PRECEL plans to support three types of projects: (i) 4,300 small-sized sub-projects, for which the IDA contribution will be up to US$5,000 representing about 60-70 percent of each sub-project cost, with the remaining 30-40 percent to be financed by either credit or direct contribution by beneficiaries; (ii) 300 medium-sized sub-projects to which IDA will contribute up to US$50,000 representing 60 percent of each sub-project cost with the remaining 40 percent to be financed by credit (30 percent) and beneficiaries' contribution (10 percent); and (iii) 30 big-sized sub-projects for a total cost of around US$1,000,000 whose 40 percent will be financed by IDA, 50 percent by credit, and the rest by the beneficiaries. Such contributions will be used to finance investment in improved technologies but also working capital requirements where needed, generally repaid according to the credit terms of the financial institution (interest rate, grace period depending on the nature of the activity[39]).

13. **Small-sized sub-projects.** To estimate the benefits from such activities, as an example, two models have been developed, based on the available information: a pig-fattening activity and a local improved

[39] For instance, given that in apiculture additional hives will produce honey only after some time, the model provides a repayment in two years.

chicken hatchery. The first model assumes a WOP scenario characterised by a farmer with a capacity of 20 pigs per fattening cycle with inadequate fattening house and equipment. On the other hand, the access to finance allowed by the project will materialize a WP situation with a modern pig house and equipment allowing the producers to more than double his or her fattening capacity to 50 pigs per cycle. Similarly, the project financing will also allow a considerable improvement for the hatchery: from a WOP situation of a hatchery of 1,000-egg capacity per cycle for 10 cycles per year to a 1200-egg capacity per cycle for 12 cycles per year and a higher egg hatch rate.

14. **Medium-sized sub-projects.** Given the size of such projects, the analysis developed two models related to two groups of producers who have been active for a number of years and are not only willing to increase their production but also to start processing and selling their products. The first model assumes a group or alliance formed by 5 beekeepers who double their initial production (a WOP situation where one beekeeper has 40 hives each producing about 19 kg of raw honey) reaching a capacity of 80 hives each with a producing capacity of 21 kg per hive. Most importantly, the beekeepers will establish a honey-processing centre allowing them to sell about 7,600 litres of refined honey and 216 kg of wax per year. The second model is based on a group or alliance of 5 small local poultry producers who will invest in more adequate poultry houses, better animal feed and veterinary services so as to increase their production from a poultry flock of 750 units per 6 flocks/year (WOP situation) to a poultry flock of 1000 units per 10 flocks/year (WP situation). Additionally, the project will enable them to invest collectively in a mobile slaughter unit allowing them to sell about 118,000 slaughtered chickens per year.

15. **Big-sized sub-projects.** Considering the amount planned for such projects, these are assumed to focus mainly on the advanced processing and sale of livestock products. To estimate the related benefits, the present analysis, informed by the experience of PADEL-BF, models an alliance of 20 milk producers. Even if they will use some of the financing for increasing their animal production and productivity, this will be mostly channelled toward the establishment of a modern, processing dairy unit. Such unit will allow them to advance their business from a WOP situation where they produce pasteurized milk and yoghurt to a WP situation where they produce a wider range of dairy products (packaged yoghurt in 4 different sizes, packaged butter, cream, and cheese) and in this way, to more than double the value of their sales.

**Table 2.3. Indicative Financial Returns for Sub-projects**

| Sub-project Size | Sub-project Type | Initial Investment[a] | Net Additional Revenue[b] (US$/unit/year) | NPV (@12 percent, 20-yr, US$) | IRR (percent) |
|---|---|---|---|---|---|
| Small | Pig fattening | 6,246 | 2,658 | 11,965 | 43 |
| | Poultry hatchery | 6,012 | 2,057 | 8,578 | 40 |
| Medium | Modern beekeeping and honey processing center (5 associates) | 82,377 | 34,375 | 160,617 | 46 |
| | Poultry production and mobile slaughtering unit (5 associates) | 82,618 | 31,780 | 125,328 | 39 |
| Big | Dairy processing unit (20 associates) | 998,988 | 526,946 | 2,823,677 | 73 |
| *Note:* a. Including IDA contribution, credit and the beneficiaries' contributions. | | | | | |

| Sub-project Size | Sub-project Type | Initial Investment[a] | Net Additional Revenue[b] (US$/unit/year) | NPV (@12 percent, 20-yr, US$) | IRR (percent) |
|---|---|---|---|---|---|
| b. Add. revenue is an average over the lifespan of the main investment. | | | | | |

16. **Based on these parameters, the financial models demonstrate the profitability of the investments.** The analysis shows that all indicative sub-projects that could be supported by the project generate positive additional benefits, ranging from US$2,057 for the poultry hatchery to US$526,946 for the PA of 20 associates involved in dairy processing. Looking at the 20-year NPV at a discount rate of 12 percent and at the financial internal rate of return (IRR), the results are more than satisfactory ranging from a NPV of US$8,578 and an IRR of 40 percent for the poultry hatchery to about US$2.8 million and an IRR of 73 percent.

**OVERALL ECONOMIC RESULTS**

17. **The overall estimated benefits of PRECEL 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 using the Costab software, by including the taxes, and i all costs (for a grand total of about US$190 million, composed of: IDA allocation for an amount of US$150 million; beneficiaries' financing for an amount of US$15.1 million; financial institutions' financing for an amount of US$22 million; and national budget financing for an amount of US$2.9 million). For the years after the closure of PRECEL, 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. Given the indicative nature of the model, it has been conservatively assumed a 25 percent rate of failure for the funded sub-project. Concerning the adoption rate for herd projection models, this varies according to the model.[40]

18. **Overall, the economic results of the proposed project are positive,** generating a NPV (at 6 percent social discount rate) of the net additional benefits of US$189.6 million and an EIRR of 18.4 percent (over a 20-year period and for a budget of US$190 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. In addition, these economic results are robust when testing several sensitivity scenarios, including delays in implementation, cost overruns and reductions in benefits.

19. **These economic results have been tested against several risk scenarios, including reduced delays in implementation, cost overruns, etc..** 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.

[40] It depends mainly on the losses related to the vaccination.

**Table 2.4. Sensitivity Analysis**

| Scenario | | EIRR (percent) | NPV (US$ millions) |
|---|---|---|---|
| *Baseline scenario* | | 18.4 | 189.6 |
| Increase in costs (percent) | +10 | 16.8 | 175.2 |
| | +20 | 15.3 | 160.7 |
| | +30 | 14.1 | 146.2 |
| Decline in revenues (percent) | −10 | 16.6 | 156.2 |
| | −20 | 14.7 | 122.8 |
| | −30 | 11.2 | 74.9 |
| Delays in benefit realization (years) | 1 | 15.8 | 163.6 |
| | 2 | 13.6 | 130.3 |
| | 3 | 11.9 | 106.1 |
| | 4 | 10.5 | 84.3 |
| Failure rate (percent) | +10 | 12.1 | 130.3 |
| | +20 | 10.4 | 106.1 |

20. **The valuation of environmental externalities further enhances the economic justification of PRECEL.** As presented in Annex 6 (GHG Accounting), the project is estimated to reduce GHG emissions from livestock production by 0.48 percent (27,840 tCO2-eq per year). This is mainly explained by the reduction of 2.34 percent of methane enteric that is representing 57 percent of all GHG emissions in the project. Furthermore, the project will reduce by 10.17 percent the emission intensity by kilogram of protein produced (CO2 eq per kg protein) due to the improvement of the total protein production (10.8 percent). This yearly total environmental benefit has been included in the economic calculations in a phased manner, assuming that its full realisation will follow the gradual implementation of the Project (i.e., 100 percent of environmental gains will only be achieved in year 7). In line with the World Bank guidelines,[41] the GHG emissions results have been valued using the social price of carbon, using the gradually increasing estimates at both low and high ranges. As such, when evaluating these environmental benefits using the social price of carbon estimates, the overall economic results of the Project increase to an NPV of US$202.65 million and an EIRR of 19.1 percent (assuming the low range pricing) and to an NPV of US$215.68 million and an EIRR of 19.7 percent (assuming the high range pricing).

[41] Based on the World Bank *Guidance note on shadow price of carbon in economic analysis* (November 2017).

## ANNEX 3: Gender Analysis, Proposed Interventions and Result Indicators

**Summary Table - Gender Analysis, Proposed Interventions and Result Indicators**

| Gender Gap | Action | Result (Indicators) |
|---|---|---|
| Differences in the types of livestock owned by women and men, and in the resources that women and men can access, create barriers to women's participation in the livestock sector. | Across the project, activities will be geared to benefit women and youth in every aspect possible. At least 40 percent of the project's 1,500,000 expected direct beneficiaries will be women. | Number of direct beneficiaries |
| Lack of information and own fewer collateralizable assets that can unlock financing to invest in their current livestock enterprises or to buy higher-value large ruminants to gain a better position in the value chain. | Under Subcomponent 2.2, the LIFF will allow eligible livestock producers and other livestock value chain stakeholders to access finance. Personal contribution for women has been reduced compared to men and dedicated business development supported will be provided. At least 40 percent of eligible beneficiaries for MGs will be women. | Number of beneficiaries' sub-projects financed<br><br>Female livestock farmers supported with Business Development Trainings (Number) |
| Women have less access to services (extension advice, animal health), limiting the productivity of their livestock enterprises. Less information flows to women on new technologies and best practices, potentially puts their animals at greater risk and their livestock activities at a competitive disadvantage relative to men's. | Under Subcomponents 1.2 and 1.3, the project will strengthen the delivery of husbandry and livestock health services and improve the coordination between animal, human, and environmental health services, leading to enhanced delivery of extension and animal health services to all beneficiaries, thereby increasing productivity by reducing livestock morbidity and mortality. At least 40 percent of these beneficiaries will be women. | Number of direct beneficiaries |
| Low adoption rates of livestock innovations among women are linked to norm-based socialization and limitations on women's rights in male-dominated power hierarchies and resource ownership and control arrangements in households and communities. These norms relegate rural women to limited rights in household decision making. Most critically, these factors also impose additional costs on women as innovation adopters – i.e., over and above other objectively verifiable adoption costs (e.g., prices of external inputs, or handling and infrastructure requirements of technologies). | All implementing partners will be required to proactively synchronize their investments and advocacy efforts to ensure that women's roles and constraints are fully understood and reflected in all outreach and information packaging. The aim will be to identify and support gender-equitable dynamics and norms in rural communities. This will increase the inclusivity of women's voices and needs through all phases of the adoption and innovation process. At a minimum, investments will be directed to all adult members in the household and incorporate gender perspectives in awareness creation. | Number of direct beneficiaries<br><br>Workplans of implementing partners |

## ANNEX 4: Summary of Adaptation and Mitigation Benefits under the Project

| **COMPONENT 1: ENABLING ENVIRONMENT AND SUPPORT SERVICES FOR LIVESTOCK PROMOTION (US$61.58 MILLION EQUIVALENT)** | | |
|---|---|---|
| **Subcomponent 1.1: Technical Assistance to Support to Policy Formulation, Planning, and Capacity Strengthening (US$6.30million)** | | |
| The objective of this subcomponent is to strengthen the climate friendly policy environment, knowledge base, and human resource capacity of the livestock subsector as a springboard for enhancing targeted livestock value chain performance through increased productivity and climate resilience. The aim is to catalyze and mainstream policy reforms and strengthen institutional that promote livestock sector transformation toward improved systems that are climate smart, market-oriented, profitable, and sustainable. | | |
| **Activities** | **Climate Adaptation Benefits** | **Climate Mitigation Benefits** |
| In this subcomponent, the project will:<br>(i) prepare a climate-smart operational strategic LMP, emphasizing strengthening currently adequate capacities for climate adaptation and mitigation; (ii) review and update national livestock sector policies on feeding, breeding, dairy, and animal health including climate-smart pasture management; (iii) develop a climate-smart genetic resource management and enhancement strategy, with climate-resilient large ruminants as a priority; and (iv) undertake a capacity-building program for the Ministry of Agriculture, Livestock and Fisheries (MARAH) to improve climate friendly livestock policy and regulation formulation, enforcement, M&E, and technical knowledge related to the different production systems. | Mainstreaming climate change considerations in policy reforms institutional capacity strengthening activities can identify incentives and arrangements that enable and empower livestock keepers to adopt livestock climate-smart practices.<br><br>Climate-smart policies and strengthened institutions can help livestock keepers cope with the adverse effects of climate change.<br><br>Climate-smart policies and strengthened institutions can promote innovative approaches to local breed development driven by the environmental exigencies of livestock keeping groups, focusing on development of local breeds as well as promotion of 'exotic' breeds from comparable environments that display more locally appropriate attributes such as drought survival and disease resistance. | Climate-smart policies and strengthened institutions can remove obstacles to implementing climate-smart practices and create synergies with technologies and practices that reduce GHG emissions.<br><br>The project is expected to enhance carbon capture and sequestration resulting in annual net emissions reduction of **27,840 $tCO_2e$.** |

| **Subcomponent 1.2: Support to Animal Husbandry and Advisory Support Services (US$18.28 million)** | | |
|---|---|---|
| The objective of this subcomponent is to build livestock producers' resilience to climate change and reduce the sector's GHG emissions by improving the availability and adoption of superior climate-resilient livestock breeds and promoting GAHPs, and climate-resilient feed resources adapted to the diversity of sedentary livestock production systems. The aim will be to contribute directly to climate change adaptation and mitigation by reducing methane emissions per unit of meat or milk produced (based on improved feeding and manure management) and by increasing carbon sequestration (based on improved pasture and rangeland management). | | |
| **Activities** | **Climate Adaptation Benefits** | **Climate Mitigation Benefits** |
| In this subcomponent, the project will: (i) develop climate and user-friendly comprehensive extension training materials (including digital guides) on GAHPs and breed improvement in line with the implementation of the climate-smart genetic resource management and enhancement activities with climate-resilient large ruminants as a priority, emphasizing heat tolerance; (ii) strengthen the national genetic improvement program by distributing high performance bulls (adapted to high temperatures, low quality diets, and greater disease challenges) to selected farmers for breeding purposes, and investments in building; (iii) promote improved climate smart feed production techniques (the use of agricultural by-products, composition of balanced feed, feed storage technologies) and improved climate-smart feeding practices adapted to animal needs (balanced feed rations), with potential to reduce methane production; and (iv) . support distribution of climate smart seeds and feeds to eligible farmers through the Ministry's e-voucher system. | Local breed improvement for heat and disease-tolerance enhances resilience to anticipated climate shocks, while reducing pressure on feed resources and preventing loss of biodiversity and local livestock breeds.<br><br>Distribution of drought and flood resilient seeds and feeds enhances resilience to climate shocks.<br><br>Improved animal health and productivity allows for reduced herd sizes and less stress on the environment. | The provision of breeds that are better adapted to climate change and the use of agricultural by-products, composition of balanced feed, feed storage technologies, and balanced feed rations will reduce methane production.<br><br>Improved animal health and productivity will allow for reduced herd sizes and less stress on the environment.<br><br>The project is expected to enhance carbon capture and sequestration resulting in annual net emissions reduction of **27,840 $tCO_2e$.** |

| **Subcomponent 1.3: Support to Animal Health Services Strengthening (US$37.00 million)** | | |
|---|---|---|
| The objective of this subcomponent is to strengthen the delivery of livestock health services and improve the coordination between animal, human, and environmental health services. Improvements in the delivery of animal health services to all beneficiaries (including youth and women) will increase productivity by reducing livestock morbidity and mortality, in turn improving the resilience of livestock and livestock-based livelihoods to climate shocks, including diseases induced by climate change. Developing effective animal health services is a vital strategy for dealing with climate change. | | |
| **Activities** | **Climate Adaptation Benefits** | **Climate Mitigation Benefits** |
| In this subcomponent, the project will strengthen the surveillance and control systems for emerging and other priority animal diseases through field epidemiology training program in favor of public and private veterinary services, and sensitization of farmers in related issues | Improved veterinary services and facilities to deal with diseases induced by climate change will enhance the resilience and productivity of livestock holdings.<br><br>Strong and efficient veterinary services, combined with good coordination of public health services will allow for early detection of disease hazards, thereby lowering the risks of climate change on animal health.<br><br>Investment in local, national, and regional surveillance of climate-sensitive animal diseases, especially endemic infectious diseases, will enhance preparedness and responses to incidences and upsurges in these diseases. | Solar powered cold chains in a decentralized system will reduce GHG emissions in targeted rural areas.<br><br>The project is expected to enhance carbon capture and sequestration resulting in annual net emissions reduction of **27,840 $tCO_2e$.** |
| **COMPONENT 2: CLIMATE SMART LIVESTOCK INFRASTRUCTURE AND VALUE CHAINS DEVELOPMENT (US$113.52 MILLION EQUIVALENT)** | | |
| **Subcomponent 2.1: Support for Climate-Smart Productive Infrastructure and Marketing (US$23.40 million)** | | |
| The objective of this subcomponent is to support MARAH and local authorities to establish or rehabilitate essential climate smart livestock infrastructures (e.g., livestock common assets for value addition, livestock markets infrastructures, slaughter facilities, etc.). The aim will be to overcome physical and organizational barriers to livestock value chain development and efficient and resilient markets, thereby allowing producers and traders to increase product value while protecting the environment more effectively. | | |
| **Activities** | **Climate Adaptation Benefits** | **Climate Mitigation Benefits** |
| Under the climate-smart livestock infrastructure thrust, this subcomponent will finance: (i) common assets for value addition (such as milking equipment, cooling centers, and transport services) that also serve to increase resilience and mitigate climate change; (ii) climate-smart upgrading/establishment of livestock markets with | Improvements in infrastructure for handling of live animals and livestock products (i.e., slaughter facilities, milking equipment, cooling centers, transport, services) following climate-resilient design standards (climate-proofed) will reduce exposure to extreme rainfall, heat stress and humidity, decrease vulnerability to drought and flooding, lower health risk and improve livestock productivity, enhance nutrient use efficiency, and | Improvement in infrastructure for handling of live animals and livestock products (i.e., slaughter facilities, milking equipment, cooling centers, transport, services) following climate-resilient design standards (climate-proofed) will reduce exposure to extreme rainfall, heat stress and humidity, decrease vulnerability to drought and flooding, lower health risk |

| | | |
|---|---|---|
| perimeter fencing, administrative buildings, water sources, weighbridges, paddocks, loading ramps, and veterinary outposts, aiming to improve animal welfare, marketing efficiency, and climate resilience (climate-smart investments will include rainwater harvesting provisions to reduce vulnerability drought and flooding and more shading for animals to reduce heat stress) | reduce stress on natural and manufactured feed resources. | and improve livestock productivity, enhance nutrient use efficiency, and reduce stress on natural and manufactured feed resources.<br><br>Resource-efficient technologies (for example, photovoltaic energy) and buildings will reduce GHG emissions.<br><br>The project is expected to enhance carbon capture and sequestration resulting in annual net emissions reduction of **27,840 $tCO_2e$.** |
| Under the market development and efficiency thrust, this subcomponent will finance the development of an integrated livestock market information system that takes advantage of advances in digitization to reach dispersed livestock actors with timely information about buyer preferences, commodity prices, livestock supply and demand conditions, market and climate-related risks, food safety and SPS standards, disease control measures, and other relevant information. | Higher volume and quality of information on climate-related risks in livestock systems allows for improved management of multiple interrelated climate risks, thereby boosting resilience.<br><br>Strengthened institutions and capacities for identifying and responding to emerging climate-related food safety and SPS risks reduces waste and spoilage and associated losses in productivity and incomes. | Strengthened institutions and capacities for identifying and responding to emerging climate-related food safety and SPS risks reduces waste and spoilage and associated GHG emissions.<br><br>The project is expected to enhance carbon capture and sequestration resulting annual net emissions reduction of **27,840 $tCO_2e$.** |
| **Subcomponent 2.2: Support to Access to Finance (US$90.11 million)** | | |
| This subcomponent aims to de-risk investments in livestock value chains (primarily in the beef, dairy, sheep, goats, and poultry) by facilitating access to finance and related advisory services and other appropriate risk management instruments aiming to strengthen the readiness of relevant institutions to face emergencies and manage risks and crises related to the livestock sector and participating financing institutions (FIs). Investments will focus on: (i) business development for livestock sector value chain actors and capacity building for FIs; and (ii) on a LIFF with multiple elements. Expenditures across the main climate smart activity areas are as follows:<br>Capacity building = US$48,600<br>Matching grants (MG) = US$52.06 million<br>Business development s = US$1.65 million | | |
| **Activities** | **Climate Adaptation Benefits** | **Climate Mitigation Benefits** |
| Through MGs provided under the LIFF, this subcomponent will allow eligible livestock producers (women, men, youth, groups, cooperatives or individual entrepreneurs) and | Breeds adapted for heat and disease-tolerance enhance resilience to anticipated climate shocks, while reducing pressure on feed resources and preventing loss of biodiversity and local livestock breeds. | Investments in infrastructure for handling of live animals and livestock products (i.e., slaughter facilities, milking equipment, cooling centers, transport, services) following climate- |

| | | |
|---|---|---|
| other livestock value chain stakeholders to access finance, including through PAs. MGs will finance both investment items (works, goods, capacity building and technical support) and working capital requirements at collective and individual levels. Investments may cover production items such as inputs, live animals, animal feed, small-scale processing, and improved waste management systems. Supported packages would include, inter alia, climate smart essential infrastructure (e.g., cattle handling facilities, milk collection centers, feedlots, grass fodder production methods, etc.), enhanced genetic merit livestock (e.g., grade dairy cattle, pigs, goats), access to improved services (e.g., veterinary, artificial insemination, community livestock/animal health worker training), marketing and value addition activities (cold-storage facilities, transport vehicles, meat/dairy processing equipment, etc.). | Drought and flood resilient seeds and feeds enhances resilience to climate shocks.<br><br>Healthy and productive animals allow for reduced herd sizes and less stress on the environment.<br><br>Investments in infrastructure for handling of live animals and livestock products (i.e., slaughter facilities, milking equipment, cooling centers, transport, services) following climate-resilient design standards (climate-proofed) will reduce exposure to extreme rainfall, heat stress and humidity, decrease vulnerability to drought and flooding, lower health risk and improve livestock productivity, enhance nutrient use efficiency, and reduce stress on natural and manufactured feed resources. | resilient design standards (climate-proofed) will reduce exposure to extreme rainfall, heat stress and humidity, decrease vulnerability to drought and flooding, lower health risk and improve livestock productivity, enhance nutrient use efficiency, and reduce stress on natural and manufactured feed resources.<br><br>Improved waste management systems can minimize GHG emissions, pollution and dissemination of pathogens, and renewable energy, including through bio and solar energy.<br><br>The project is expected to enhance carbon capture and sequestration resulting in annual net emissions reduction of **27,840 $tCO_2e$.** |

## ANNEX 5: Greenhouse Gas Accounting

1. **GHG Emissions Accounting in World Bank Projects.** In its Climate Change Action Plan (2021-2025), the WBG committed to supporting countries toward the lower-carbon development paths and investing in Sustainable Livestock meeting triple-win benefits: enhancing productivity, reducing GHG emissions, and improving resilience. The ex-ante GHG emission quantification is therefore an essential step to assess the climate impact of development projects and manage actions reducing GHG emissions and sequestering carbon. Moreover, GHG accounting analysis also allows for optimizing the consensus between food production and GHG emission, through indicators like GHG emission intensities, in a production sector such as livestock.

2. **Accounting methodology.** The Ex-Ante Carbon-balance Tool (EX-ACT), developed by FAO in 2010 is used by the World Bank to assess the GHG emission impact of Projects related to the Agriculture, Forestry, and Other Land Use (AFOLU) sector. EX-ACT includes a module entitled “grassland” in which the livestock and manure management sector is mainly considered under the Tier 1 approach methodology (IPCC, 2016; IPCC, 2019). However, to estimate the impact of technical improvements in livestock production using advanced animal and production parameters, such as the case in PRECEL, the Tier 2 approach is necessary. This second approach allows considering improvements in animal herd dynamics such as fertility and mortality rates, animal weights, milk production, and animal feed. Emissions from feed production also need to be accounted. For this reason, the Global Livestock Environmental Assessment Model-interactive (GLEAM-i), developed at FAO was used to carry out PRECEL GHG accounting. It allowed estimating precisely Tier 2 emission factors and GHG emission sources for cattle, sheep, goats, and poultry systems considered by the Project.

3. **The Global Livestock Environmental Assessment Model-interactive (GLEAM-i).** GLEAM-*i* is a publicly available and free tool specific to estimating the GHG emissions from different livestock species and production systems from all countries in the world. The livestock species covered in GLEAM-i are four ruminant species (cattle, buffalo, sheep and goat); and two monogastric species (chicken and pigs). The production systems embedded in the tool are grassland-based and mixed for ruminants; backyard, broiler and layers for chicken; and backyard, intermediate and industrial for pigs (FAO, 2017; MacLeod et al., 2017). The emissions sources covered by the tool are listed in Table 5.1, and the details regarding the background calculations in GLEAM-i can be found in the GLEAM manual (FAO, 2017). The project implementation phase is 6 years of actual implementation, and the capitalization phase is assumed to be 14 years. GLEAM-*i* can be coupled with the Livestock Sector Investment and Policy Toolkit (LSIPT) used for the Economic and Financial Analysis (EFA) of livestock projects and investments (a tool used for the EFA of PRAPS-2). In particular, and with a similar methodology as the one in LSIPT, GLEAM-*i* has an embedded herd dynamic model that estimates animal numbers based on demographic parameters such as age at first parturition, fertility and mortality rates, and replacement rates. In addition, GLEAM-*i* estimates feed requirements for each animal species, system, and cohort based on their weights, activity, reproduction status, and level of production. Direct emissions resulting from the consumption of these feed resources (enteric methane and emissions from manure) are based on their digestibility and nitrogen content. Indirect emissions related to feed resources depend on their origin and nature (e.g., pastures, crop residues, grains, and their by-products, produced domestically or imported).

**Table 5.1. Sources of Emissions Covered in GLEAM-i**

| Sources of Emissions | | Description |
|---|---|---|
| Feed $CO_2$[a] | field operations | $CO_2$ emissions arising from the use of fossil fuels for field operations |
| | fertilizer production | $CO_2$ emissions from the manufacture and transport of synthetic nitrogenous, phosphate and potash fertilizers |
| | pesticide production | $CO_2$ emissions from the manufacture, transport and application of pesticides |
| | processing and transport | $CO_2$ generated during the processing of crops for feed and the transport by land and/or sea |
| | blending and pelleting | $CO_2$ arising from the blending of concentrate feed |
| Feed LUC[b] $CO_2$ | soybean cultivation | $CO_2$ emission due to LUC associated with the expansion of soybean |
| | palm kernel cake | $CO_2$ emission due to LUC associated with the expansion of palm oil plantations |
| | pasture expansion | $CO_2$ emission due to LUC associated with the expansion of pastures |
| Feed $N_2O$[c] | applied and deposited manure | Direct and indirect $N_2O$ emissions from manure deposited on the fields and used as organic fertilizer |
| | fertilizer and crop residues | Direct and indirect $N_2O$ emissions from applied synthetic nitrogenous fertilizer and crop residues decomposition |
| Feed $CH_4$[d] | Rice production | $CH_4$ emissions arising from the cultivation of rice used as feed |
| Enteric fermentation $CH_4$ | | $CH_4$ emissions caused by enteric fermentation |
| Manure management $CH_4$ | | $CH_4$ emissions caused by manure management |
| Manure management $N_2O$ | | $N_2O$ emissions arising from manure storage and management |
| Direct energy use $CO_2$ | | $CO_2$ emissions arising from energy use on-farm for ventilation, heating, etc. |
| Embedded energy use $CO_2$ | | $CO_2$ emissions arising from energy use during the construction of farm buildings and equipment |

*Note:* a. Carbon dioxide; b. Land use change; c. Nitrous oxide; d. Methane.

4. **Data sources.** The GHG accounting under GLEAM-i was carried out on the basis of data provided by the PAD documents of the PRECEL Project, the EFA, and the baseline data related to agropastoral feed and manure management from the PRAPS project in which Burkina Faso is included.

5. **Activity data.** The same assumptions as for the EFA conducted with LSIPT were considered to define the parameters in situations with the project and used for activity data.

(a) The analysis considered the five main systems as defined and conducted with LSIPT. This analysis differentiated livestock systems benefiting from the full and partial impact of the project. In addition, to increase the uptake of climate smart practices, the project will also provide climate-smart extension services targeting 300,000 benefiting farmers under Subcomponent 1.2. Therefore, modest improvements in feed and manure management were also included in ruminants under partial impact.

(b) With the project, the animal numbers are expected to increase up to 10 percent, and the systems to be more productive. For ruminants, protein production is expected to increase up to 7 percent resulting from decreased death rates of adult and young animals and increased fertility rate, live weight, and weight at birth. For poultry, production is expected

to increase up to 11 percent mainly due to the improvement of animal health and the dissemination of good breeding practices.

(c) Feed improvements were assumed to result in an increase of the proportion of more digestible feed in the ration. These improvements were modelled in GLEAM-i in the following way: for cattle with full impact of the project, a 5 percent increase in hay or silage from grass and legumes, a 5 percent increase in fresh mixture of grass and legumes, and a 10percent decrease in crop residues (straw from millet and sorghum). For cattle with the partial impact, a 3 percent increase in hay and silage from legumes, a 2 percent increase in maize, and a 5 percent decrease in crop residues. For small ruminants (partial impact only), a 5 percent increase in fresh mixture of grass and legumes and a 5 percent decrease in hay from adjacent areas (e.g., roadsides).

(d) The project also aims to improve manure management through biogas production. For cattle with full impact, 15 percent of the manure produced are assumed to be moved from solid storage to biogas production. The remaining are divided between 60 percent left on pastureland during grazing, 5 percent in solid storage, and 20 percent daily spread on crop fields as in sedentary livestock under village conditions, cattle manure is a key element of the integrated crop-livestock systems. For cattle with partial impact, only 3 percent of manure are assumed to be used in biogas production and 3 percent for daily spread. The remaining manure is left on pastureland (60 percent) and in solid storage (34 percent).

(e) Emissions from new markets and infrastructures for live animals built for the project were considered marginal compared to the proportion of emissions from animal sources. Therefore, infrastructures were considered negligeable in the assessment compared to project activities affecting animals, their feed base, and their manure. Constructions from the project are expected to use mostly locally sourced material and existing estimates for emissions from infrastructures in pastoral and agro-pastoral systems in Sub-Saharan Africa are estimated to account for less than 2 percent of total emissions, while enteric methane for example accounts for over 60 percent (FAO, 2013)

6. The carbon balance is estimated as the difference between the annual average over the 20 years of baseline (without project) and the annual average over the 20 years with project.

**RESULTS**

7. The ex-ante analysis shows a **net negative balance** of **27,840 $tCO_2$-eq/year** for the project, or a reduction of 0.48 percent compared to the situation without project. This is mainly explained by the reduction of 2.34 percent of methane enteric that is representing 57 percent of all GHG emissions in the project. The reduction of animal emissions is mostly the result of better feed quality and improvements of system productivity.

8. Animal numbers are not expected to grow significantly despite the improvements in animal health, because of the assumptions made on drought events during the course of the project. Increases in production (carcass weights, fertility rates etc.) lead to increases in emissions but they are compensated by the modest improvements in feed and manure managements from Subcomponent 1.2.

9. The emission intensity representing the quantity of GHG emitted by kilogram of protein produced ($CO_2$ eq/kg protein) showed a decrease of 10.17 percent due to the improvement of the total protein production (10.8 percent). The reduction of emission intensities for all ruminant and poultry systems reflects the efficiency improvement resulting from the project. As the PRECEL project focuses mainly on improving system productivity increasing animal head and protein production, the decrease in emission intensity reflects the better efficiency of all livestock systems.

10. The largest contributors to emissions are cattle, however, the largest gains in productivity and reduction in emissions intensities are in small ruminants mainly due to the large animal numbers of small ruminants covered by the project.

## ANNEX 6: Map of Project Intervention Areas


**Porcs:** Centre ouest, Sud Ouest, Centre Sud, Centre, Hauts Bassins

**Seeds production:** Haut Bassin, Cascades, Boucle du Mouhoun

**Milk:** Bassin de l'ouest principal (Haut Bassin, Sud Ouest, Cascades, Boucles du Mouhoun)

**Poultry**: Countrwide

**Fish markets:** Bobo Dioulasso, Ouagadougou

**Abattoirs**: Tenkodogo, Koubri, Saaba, Fada N'Gourma, Dédougou, Banfora

**Fish Production**: Samandéni, Bagré, Ouaga, Koubri, Bazega

**Fattening for ruminants:** Centre ouest, Sud Ouest, Centre Sud, Centre, Hauts Bassins