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Report No: PAD5291

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT
IN THE AMOUNT OF US$30 MILLION

AND

A GRANT IN THE AMOUNT OF US$5 MILLION
FROM THE
GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAM (GAFSP)

TO THE

KYRGYZ REPUBLIC

FOR A

RESILIENT AGRI-FOOD CLUSTERS DEVELOPMENT PROJECT (RACDP)

MARCH 15, 2024

Agriculture and Food Global Practice
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {January 31, 2024})

Currency Unit =	KYRYGZ SOM (KGS)
KGS 89.3471 =	US$1

FISCAL YEAR
January 1 - December 31

Regional Vice President: Antonella Bassani
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ABBREVIATIONS AND ACRONYMS

ABCC	Agribusiness Competitiveness Center
AGF	Agriculture and Food
AI	Artificial insemination
AM	Accountability Mechanism
APNIP	Agriculture Productivity and Nutrition Improvement Project
ASSP	Agricultural Support Services Project
CERC	Contingency Emergency Response Component
CLM	Credit Line Manual
COVID-19	Coronavirus disease 2019
CPF	Country Partnership Framework
CSA	Climate-smart agriculture
CSF	Community Seed Fund
CPSD	Country Private Sector Diagnostic
DA	Designated Account
ECA	Europe and Central Asia
EEU	Eurasian Economic Union
ERR	Economic Rate of Return
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
E&S	Environmental and Social
ESMF	Environmental and Social Management Framework
ESSs	Environmental and Social Standards
EX-ACT	Ex-Ante Carbon-balance Tool
FAO	Food and Agriculture Organization of the United Nations
FIs	Financial Institutions/Intermediaries
FM	Financial Management
FMS	Financial Management Specialist
GAFSP	Global Agriculture and Food Security Program
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GP	Global Practice
GRID	Green, Resilient, and Inclusive Development
GRS	Grievance Redress Service
IDA	International Development Association
IDPIP-AF	Additional Financing to Integrated Dairy Productivity Improvement Project
IFAD	International Fund for Agricultural Development
IFR	Interim Financial Report
IPF	Investment Project Financing
KRII	Kyrgyz Research Institute for Irrigation
JICA	Japan International Cooperation Agency
KRIA	Kyrgyz Research Institute of Agriculture

KRIV	Kyrgyz Research Institute of Veterinary
KLPRI	Kyrgyz Livestock and Pasture Research Institute
LMP	Labor Management Procedures
M&E	Monitoring and evaluation
MCPs	Milk collection points
MoF	Ministry of Finance
MoWRAPI	Ministry of Water Resources, Agriculture and Processing Industry
NDCs	Nationally Determined Contributions
NSSD	National Strategy for Sustainable Development
OECD	Organization of Economic Cooperation and Development
PDO	Project Development Objective
PFM	Public Financial Management
PIU	Project Implementation Unit
POM	Project Operational Manual
PP	Productive Partnership
PPP	Public-private partnership
PPSD	Project Procurement Strategy for Development
PRAMS	Procurement Risk Management Assessment System
PSC	Project Steering Committee
R&D	Research and development
RACDP	Resilient Agri-food Clusters Development Project
REDP	Regional Economic Development Project
RED-2	Second Regional Economic Development Project
RIUs	Regional implementation units
SCSFP	Support for Community Seed Funds Project
SCVT	State Commission for Variety Testing
SHGs	Self-help groups
SEP	Stakeholder Engagement Plan
SOE	Statements of Expenditure
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
ToR	Terms of Reference
US$/USD	United States Dollar
VC	Value Chain
VCM	Value Chain Model
VTP	Variety Testing Plots
VTS	Variety Testing Stations
WB	World Bank
WP	With Project
WoP	Without Project
XDR/SDR	Special Drawing Rights

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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Kyrgyz Republic	Resilient Agri-food Clusters Development Project		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P178120	Investment Project Financing (IPF)	Moderate	

Financing & Implementation Modalities

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

Expected Approval Date	Expected Closing Date
08-Apr-2024	31-Dec-2029
Bank/IFC Collaboration	
No	

Proposed Development Objective(s)

To increase productivity and climate resilience of selected agri-food clusters and in case of an eligible crisis or emergency, respond promptly and effectively to it.

Components

Component Name	Cost (US$)
Component 1. Investment for Agri-food Clusters Development	21,200,000.00
Component 2. Strengthening Institutions and Systems	11,850,000.00
Component 3. Operational Support and Project Management	1,950,000.00
Component 4. Contingent Emergency Response Component (CERC)	0.00

Organizations

Borrower:	Kyrgyz Republic
Implementing Agency:	Ministry of Finance (MoF), Ministry of Water Resources, Agriculture, and Processing Industry (MoWRAPI)

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? No

Is this project Private Capital Enabling (PCE)? No

SUMMARY

Total Operation Cost	**35.00**
Total Financing	**35.00**
of which IBRD/IDA	**30.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Development Association (IDA)	30.00
IDA Shorter Maturity Loan (SML)	30.00

Non-World Bank Group Financing

Trust Funds	5.00
Global Agriculture and Food Security Program	5.00

IDA Resources (US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
National Performance-Based Allocations (PBA)	0.00	0.00	30.00	0.00	30.00
Total	**0.00**	**0.00**	**30.00**	**0.00**	**30.00**

Expected Disbursements (US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029
Annual	0.00	3.85	6.05	8.65	9.95	6.50
Cumulative	0.00	3.85	9.90	18.55	28.50	35.00

PRACTICE AREA(S)

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Finance, Competitiveness and Innovation

CLIMATE

Climate Change and Disaster Screening

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

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate

3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Overall	Moderate

POLICY COMPLIANCE

Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

ENVIRONMENTAL AND SOCIAL

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

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

ESS 9: Financial Intermediaries	Relevant

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

LEGAL

Legal Covenants

Sections and Description
SCHEDULE 2. Section I. A. (a) Through MoWRAPI, establish, by not later than sixty (60) days from the Effective Date, and thereafter maintain throughout Project implementation, a Project steering committee ("PSC") to be responsible for providing strategic guidance for Project implementation and for ensuring cross-agency coordination, with mandates, functions, responsibilities, structures, resources and staff, all as further described in the POM and acceptable to the Association.
SCHEDULE 2. Section I. A. (b) Through MoF, maintain throughout the Project implementation, the credit line management unit ("CLMU") to be responsible for performing key management functions for its respective part of the Project, including coordination, fiduciary, monitoring and evaluation, social and environmental standards management and reporting functions, as well as overall financial management of the Project, with mandates, functions, responsibilities, structures, resources and staff, all as further described in the POM and acceptable to the Association.
SCHEDULE 2. Section I. A. (c) Through MoWRAPI, maintain throughout the Project implementation, the ABCC to be responsible for performing key management functions for its respective parts of the Project, including coordination (including with the regional implementation units), fiduciary, monitoring and evaluation, social and environmental standards management and reporting functions, with mandates, functions, responsibilities, structures, resources and staff, all as further described in the POM and acceptable to the Association.
SCHEDULE 2. Section I. A. (d) (i) through MoWRAPI by no later than sixty (60) days from the Effective Date, hire two (2) environmental and social specialists, and (ii) through MoF, by no later than sixty (60) days from the Effective Date, hire one (1) environmental and social specialist, all with qualifications, experience and terms of reference satisfactory to the Association and thereafter maintain such specialists throughout Project implementation.
SCHEDULE 2. Section I. E. 1. The Recipient shall prepare and thereafter furnish to the Association not later than November 15 in each calendar year, for the Association's consideration, a draft work plan of activities proposed for inclusion in the Project for the following calendar year.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	Article IV 4.01 (a)	MoF and MoWRAPI have adopted the POM in form and substance satisfactory to the Association	IBRD/IDA
Effectiveness	Article IV 4.01 (b)	Environmental and Social Management Framework	IBRD/IDA

		and Labor Management Procedure, both satisfactory to the Association, have been prepared, consulted upon, disclosed and adopted by the MoF and MoWRAPI, through CLMU and ABCC respectively	
Effectiveness	Article IV 4.01 (a)	The execution and delivery of this Agreement on behalf of the Recipient have been duly authorized or ratified by all necessary governmental and corporate action(s)	Trust Funds

I. STRATEGIC CONTEXT

A. Country Context

1. **The Kyrgyz Republic's economy remains heavily dependent on gold production, remittances, and foreign aid**. The economy grew at an average rate of 4.5 percent during 2000-2019, shrank by 8.4 percent in 2020 and moderated to 6.3 percent in 2022 and 3.9 percent in the first half of 2023. The economy was hit hard by the pandemic in 2020 but began recovering in 2021 as GDP grew by 3.6 percent.[1] The 2023, growth is projected at 3.5 percent due to continuing slowdown in agriculture and manufacturing sectors. High food prices, job insecurity, and declining remittances will continue to be the most significant concerns. Overall, growth is constrained by large infrastructure gaps, weak governance, poor business environment, onerous regulations, and lack of a competitive private sector.

2. **The country anticipates a slight reduction in poverty due to enhanced social protection and wage growth, yet rural communities persist in facing acute poverty and low agricultural productivity**. The COVID-19 pandemic increased the poverty rate from 9.7 percent in 2019 to 15.5 percent in 2022. However, in 2023 poverty levels are expected to decline by 0.6 percent to 14.9 percent, reflecting the positive effect of increased social protection programs and wage increases.[2] The population in rural areas, comprising about 65 percent of the total, suffers from higher absolute and relative poverty then the urban population. Poverty in the Kyrgyz Republic also has strong gender and spatial dimensions – being particularly high in female headed households, rural populations, and "lagging" regions. A direct consequence of the high incidence of rural poverty is also reflected in low agricultural productivity. Continuing use of outdated technologies and production practices and low quality of inputs such as seeds and fertilizers led to low yields.[3]

3. **The Kyrgyz Republic ranks among the most vulnerable countries to climate change in Central Asia**.[4] The temperature has increased consistently over the past 80 years at an average rate of 0.1˚C/decade, leading to a significant loss of 'greenness' in the lowland and cropland regions.[5] Increased frequencies and intensities of natural disasters risk the livelihoods of the vulnerable and poor rural populations who mainly rely on agriculture, with negative impacts on pasture and land conditions, water availability, and environmental degradation. Water shortages directly impact agricultural operations, constrain productivity and lead to economic losses. Adopting climate-smart agriculture (CSA) as an integrated approach to managing landscape is now more urgent than ever. This would include a) increased productivity (producing more and better food that improves nutrition security and boosts incomes); b) enhanced resilience (reducing vulnerability to drought, pests, diseases, and erratic weather patterns by improving capacity to adapt); and c) reduced Greenhouse Gas (GHG) emissions (pursuing lower emissions for each calorie or kilo of food produced). Other measures such as better access to and integration in markets can also lead to increased resilience of smallholder farmers to climate change.

4. **A robust and sustainable economic recovery and growth requires a greater focus on diversification and private sector investment.**[6] The Kyrgyz Republic's reliance on a few export commodities has intensified the economy's vulnerability to shocks. A key recommendation emerging from the 2021 World Bank Country Private Sector Diagnostic

[1] World Bank. Europe and Central Asia Economic Update, Fall 2022.
[2] World Bank. Europe and Central Asia Economic Update, Fall 2023.
[3] Mogilevskii et al. 2017. The outcomes of 25 years of agricultural reforms in Kyrgyz Republic.
[4] World Bank. 2014. Turn Down the Heat: Confronting the New Climate Normal. Washington, DC.
[5] Zhou, Y., Zhang, L., Fensholt, R., Wang, K., Vitkovskaya, I., & Tian, F. 2015. Climate Contributions to Vegetation Variations in Central Asian Drylands. Remote Sensing, 7(3), 2449–2470. URL: https://www.mdpi.com/2072-4292/7/3/2449
[6] World Bank Group. 2021. "Country Private Sector Diagnostic: Creating Markets in the Kyrgyz Republic, Unleashing the Private Sector to Rebuild Development Success."

(CPSD) is for a greater focus on diversification. A diversified agriculture sector is one of the important pillars to support a robust and sustainable economic recovery. To diversify the sector, the private sector and Government alike have identified the need for improved trade and logistics infrastructure to efficiently and hygienically aggregate, store and prepare a greater range of horticultural or other perishable products for domestic consumption and export. The project is expected to increase opportunities for leveraging new investment in sub-sectors that have shown significant potential such as horticulture and dairy. This project also includes a Global Agriculture and Food Security Program (GAFSP) financing grant to support institutional capacity to leverage climate-smart technologies as well as building producers' capacities to become effective value-chain actors and credible partners.

B. Sectoral and Institutional Context

5. **Agriculture remains the main source of livelihoods in rural areas but is dominated by smallholders**. The sector contributes about 12 percent to GDP and employs nearly 30 percent of all labor in the country. The sector consists mainly of small-scale production systems with over 470,000 farm units and more than 700,000 rural households that collectively produce over 95 percent of the total agricultural products in the country. The overall agricultural growth in the Kyrgyz Republic has remained positive, averaging 2 percent per year. However, most farmers are small in scale (less than five hectares) and not well integrated in agri-food value chains. They engage mostly in mixed crop-livestock systems and household gardening and produce often for domestic consumption. Most surplus production remains unprocessed as it enters the market. Middle- and large-scale production systems are mostly privately owned, and benefit from commercial investment targeted to production of wheat, barley, sugar beet, maize, and potato.[7]

6. **Productivity remains below potential, and agriculture faces significant climate change risks that are expected to intensify in the future**. While livestock numbers have risen, productivity gains remain small due to low levels of investment, pasture degradation, livestock diseases and insufficient access to veterinary services. Climate vulnerability for crops and livestock emerging from increased heat stress and increased flooding causes damage to crops and livestock and directly reduces productivity. Similarly, increased prevalence of crop and animal diseases affects the sector and prolonged heat-stress, and high temperatures exacerbate these impacts with reduced fertility and milk yields. Such impacts disproportionately affect smallholders and poorer households who are least able to afford local water storage, irrigation infrastructure, and technologies for adaptation. Women and poorer rural livelihoods are most affected by flash flooding and landslides as they spend proportionately more time in exposed residential and subsistence production areas. The government's agriculture growth policies aim to integrate smallholders and strengthen support services and farm-to-market infrastructure within priority agri-food clusters across the country.

7. **Linkages among smallholders and agri-food enterprises remain fragile with missed opportunities for effective integration of smallholders into market mechanisms**. While considerable investments have been made in large public infrastructure for agriculture, such as irrigation canals, major roads, and electric grids, significant unmet needs persist for on-farm small-scale investments for productivity gains such as improved on-farm irrigation services, improved livestock breed and crop seed varieties, and improved processing and value addition operations that meet the requisite food safety and nutritional standards. The likely impacts from extreme climate events could affect the entire value chain downstream, including post-harvest operations, processing, and storage facilities, etc. directly leading to reduced productivity of the agriculture sector. Without addressing the capacities of producers and processors as well as strengthening capacities of the support institutions, the existing risk along the value chain and overall sector productivity would remain undermined. Similarly, constraints in access to agricultural inputs such as improved seeds, fertilizer, farm equipment, extension services,

[7] In the Kyrgyz context smallholder farms are enterprises with fewer than 50 hired workers, medium enterprises are those with between 51 and 200 workers, and large enterprises have more than 200 workers (FAO 2019).

and financing also constrain productivity. Experience from the ongoing World Bank financed projects[8] has shown that ensuring availability of quality inputs, equipment, and knowledge directly supports productivity gains through improved quality and yields for both crops and dairy. The project considers such climate-induced challenges to directly respond and build future capacity to respond through focusing on specific agri-food clusters.

8. **Women are involved in all agricultural processes, especially related to household-level production, small-scale greenhouse production, home-based processing, and backyard livestock including milking, milk processing and sale of dairy products**. Historically, when the state and collective farms were dissolved in the 1990s, land shares were distributed equally with about 50 percent being provided to woman as a key measure to address gender parity. However, farms are often made up of several land shares with an estimate of about 12 percent of the total farms registered to women.[9] Coupled with lower levels of ownership of assets such as machinery and livestock, access to larger and longer-term credit remains limited for women. Although basic educational achievements are similar, women also tend to have less access to advisory services, training programs and information. Accordingly, programs targeting women and their specific constraints are essential and can be successful, as seen in some World Bank financed projects[10] that provided high-quality seeds coupled with trainings that enabled women to increase production, sales, and income, as well as improve nutritional status of the family. The Integrated Dairy Productivity Improvement Project (IDPIP, P155412) has also successfully provided training to more than 5,000 women and enabled 2,880 women to become dairy cow owners, allowing them to earn cash by selling milk. The project would scale up these activities and build on the results of IDPIP.

9. **The Kyrgyz Republic has the potential to benefit from its strategic proximity to the Chinese, South Asian, and Russian markets.** The Kyrgyz Republic is a net exporter of several agricultural commodities (e.g., dairy products, potatoes, beans, vegetables, and other horticulture products). Strong export potential exists for additional agricultural products from Kyrgyz Republic (such as berries, cherries, walnuts, fresh apricots, and plums, etc.) to China, Russia, and Central Asian markets, subject to meeting food safety and other requirements.[11] The Government's *COVID Anti-Crisis Plan* calls for re-starting economic activity and supporting income generating activities where agriculture is expected to contribute. The Government is making concerted efforts to align the country's regulatory framework and public food safety enforcement capacity to improve competitiveness of agricultural value chains. The February 2021 *Presidential Decree on agro-industrial complex development* is intended to promote agri-food clusters across the country to improve farmers' access to innovation, resource-saving and climate resilient practices, and digital technologies to enhance productivity and processing systems.[12] However, to maximize yields and quality milk and crop produce, farmers will require 'climate-smart' technologies and practices. Without intervention, support is likely to be available only to wealthier farmers. Notably, access to credit and necessary agricultural inputs represent major barriers to adoption of adaptation technologies. The livestock subsector can both be susceptible to climate risk, and drive climate risk. At the same time, climate changes can impact both on the net primary productivity of the land which feeds livestock, and in some cases on the physical health of the animals themselves, particularly through hazards such as droughts, but also through second-order impacts such as increased prevalence of disease.

[8] Agriculture Productivity and Nutrition Improvement Project (APNIP) and Integrated Dairy Productivity Improvement Project (IDPIP).
[9] National Statistical Committee. 2005. Women and Men of the Kyrgyz Republic. 2000-2004. Bishkek. Table 4.9. p. 81. [in Russian]
[10] Such as Support for Community Seed Funds Project (SCSFP), Agricultural Productivity and Project (APAP) and Agricultural Productivity and Nutrition Improvement Project (APNIP). See also World Bank. 2015. In the Kyrgyz Republic: Women Working Together to Grow Vegetables and Profits. 13 January 2015.
[11] World Bank. 2020. Central Asia's Horticulture Sector – Capitalizing on New Export Opportunities in Chinese and Russian markets.
[12] Decree of the President S. Japarov on agro-industrial complex development (February 2021) available at: http://www.president.kg/ru/sobytiya/ukazy/18616_ukaz_prezidenta_sadira_ghaparova_omerah_porazvitiyu_agropromishlennogo_kompleksa_kirgizskoy_respubliki (no pages provided; Decree is available as an online webpage).

10. **The current scale of agriculture sector-wide support requires consistent investments and institutional strengthening**. A sector-wide growth program is needed that responds to the Government's vision of transforming the agriculture sector through the agro-industrial complex. Such a sector-wide program would address systemic challenges of low productivity, resilience to climate vulnerabilities and shocks, and constraints to value addition, quality, and food safety compliance. The project is designed as a standalone project with potential for scale-up to include other clusters and support for improved regulatory and compliance mechanisms to strengthen resilient, green, and competitive agriculture in the Kyrgyz Republic. The current agriculture portfolio in the Kyrgyz Republic constitutes of multiple projects that either support select subsectors (e.g., dairy) or integrate agriculture as a separate component (e.g., productive partnerships in regional development programs in Osh and Batken). This project adds strategic value by supporting not only specific agri-food clusters in selected regions but also improving national scale systems within the agriculture sector that contribute to economic growth, jobs, development of the rural areas, resilience, and food security.

C. Relevance to Higher Level Objectives

11. **The proposed Project aligns with the World Bank Group's Country Partnership Framework** for Kyrgyz Republic FY24-28 (Report No.182689-KG, discussed by the Board of Executive Directors on October 31, 2023). The new CPF places programming focus on energy, water, and agriculture, with an emphasis on leveraging private investments and enhancing climate resilience. The project would directly contribute to the proposed High-Level Outcome 2 (Improved Access to Sustainably Managed Natural Resources) by addressing key constraints to improvements in agricultural productivity and value chain competitiveness by adopting climate-smart technologies. The project would also improve service delivery and create an enabling environment for private sector development; and boosting resilience of the food system within agri-food clusters.

12. **The proposed project is well-aligned with the World Bank Climate Change Action Plan, 2021-2025**[13], that promotes the Green, Resilient, and Inclusive Development (GRID) approach[14] to eliminate extreme poverty and boost shared prosperity. This project would integrate: (i) the "build back greener" approach from the COVID-19 crisis; (ii) climate-change mitigation and adaptation practices in the agriculture sector; and (iii) long-term food security risks associated with external shocks. The project would support smallholders' and processors' access to finance and knowledge for adoption of climate-smart technologies. The project would contribute towards the Kyrgyz Republic striving to achieve the triple-win benefits of enhanced productivity, reduced Greenhouse Gas (GHG) emissions, and improved resilience by targeting sector-specific interventions. For instance, by focusing on dairy and horticulture clusters, the project would promote improved and better adapted breeds and varieties, improved management and use of inputs, and other strategies that can enhance production, reduce emissions, and increase resilience. The project is also aligned with the findings of the 2022 FAO's *Adoption of Climate Technologies in the Agrifood System: Investment Opportunities in the Kyrgyz Republic*. The project would prioritize activities that include use of climate-smart technologies such as drip irrigation, integrated crop management and integrated pest management, improved manure management, further incorporation of heat and drought tolerant varieties with pest and disease resistance, improvement of crop and pasture rotation systems, and selection of more productive adapted cattle breeds.

13. **The proposed project is in line with the country's national development strategies and agriculture policy.** A significant part of the 2018-2040 *National Strategy for Sustainable Development* (NSSD) is devoted to agriculture, and the government's priority for the country to not only ensure its own food security, but also to "regain the status of a major

[13] World Bank Group, Climate Change Action Plan, 2021-2025. Supporting Green, Resilient, and Inclusive Development. World Bank, 2021.
[14] From COVID-19 Crisis Response to Resilient Recovery. Saving Lives and Livelihoods while Supporting Green, Resilient, and Inclusive Development (GRID). The World Bank Group Paper, April 9, 2021.

supplier of organic agricultural products and processed goods to the international market that meets international standards and requirements." The document also recognizes the importance of integrating smallholder producers into groups (calling them "nodes of growth").[15] The *Development Program of the Kyrgyz Republic (2018-2022)* reaffirms these priorities, and also calls for the establishment of support services for agricultural projects in the regions together with accompanying infrastructure (such as processing enterprises and transport companies).[16] The Government has prioritized nine agri-food clusters[17] (recently increased to 15) as its vision for developing a competitive and resilient agriculture sector.

14. **The proposed project is consistent with the country's Nationally Determined Contribution (NDC)** under the Paris Agreement. In the latest NDC submitted to the United Nations Framework Convention on Climate Change (UNFCCC), adopted nationally in September 2021 and at the COP-26 meeting Glasgow in November 2021, the Kyrgyz Republic commits to an overall mitigation goal of reducing greenhouse gas (GHG) emissions by 16.63% by 2025 and by 15.97% by 2030 under the "business as usual" scenario. These goals would be increased with donor support to a reduction of 36.61% by 2025 and 43.62% by 2030. The NDC recognizes the importance of adopting a Low-Carbon Development Strategy and a National Adaptation Plan. The NSSD envisions a future with "negative CO2 emissions", to make Kyrgyz Republic the "greenest country in the region". The project is consistent with the NDS and the NDC through a clear focus on climate resilience that reduces vulnerability of crops and livestock to drought, pests, diseases, and other climate-related risks and promotes adoption of improved technologies and practices for better market access.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

15. The proposed Project Development Objective (PDO) is *to increase productivity and climate resilience of selected agri-food clusters and in case of an eligible crisis or emergency, respond promptly and effectively to it*.

16. The *Productivity* dimension of the PDO will focus on producers and processors and other value chain participants (associations, unions, cooperatives, or self-help groups) for improving their production quality and volumes, and their capacity to better access markets.

17. The *Climate resilience* dimension of the PDO will focus on producers and processors, as well as public services (livestock and seed) for enhancing climate adaptation and mitigation through improved technologies and practices.

18. The project would promote climate-smart agriculture (CSA) as an integrated approach to explicitly focus on climate change impacts on the landscapes (crop and livestock) to systematically address the synergies and tradeoffs between productivity (quality and volumes), and climate resilience (adoption of technologies and practices).[18] Improved technologies would include use of climate resilient seeds, dairy animal breeds, balanced use of fertilizers, drip irrigation,

[15] The *National Development Strategy of Kyrgyz Republic for 2018-2040* available at: http://www.stat.kg/en/nsur/ (select pages: 86 – 91).
[16] The *Development Program of the Kyrgyz Republic "Unity, Trust and Creation" for 2018-2022* available at: http://donors.kg/images/DEVELOPMENT_PROGRAM_OF_KR_Unity_trust_creation.pdf (select pages: 6, 8, 32 – 33).
[17] The Agri-food Clusters Development Program is available on MoWRAPI website. The nine (9) agri-food clusters include: dairy (milk), horticulture (fruits and vegetables), meat, fish (trout), vegetable oils, sugar (beet), potato, honey, and grain crops.
[18] The Inter-governmental Panel on Climate Change (IPCC), 5th Assessment Report (2014), defined climate resilience as "The capacity of a social, economic, and environmental systems to cope with a hazardous event or disturbance, responding or reorganizing in ways that maintain its essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation".

and energy-efficient greenhouses, etc. Improved practices would include land management and soil conservation, reduced tillage, mulching, residue management, carbon sequestration and nutrient management, crop rotations with legumes and grasses, and promoting integrated crop-livestock production, etc. The project would also promote digital technologies for access to market information and climate-smart technologies and practices.

PDO Level Indicators

19. The achievement of the PDO would be measured by following key indicators:

- Increase in yields within each agri-food cluster (percentage)
- Increase in the sale of agricultural products by the Project beneficiaries (percentage)
- Farmers adopting improved agricultural technology (Corporate Results Indicator (CRI, by gender))
- Number of people receiving direct benefits (by gender)

20. The percentage increases in yield and sales of agricultural products would include yields of milk and milk-based products in the dairy cluster and crops supported by the project in horticulture cluster. The number of climate-smart technologies and practices would include those that directly address producers and processors' ability to manage and withstand climate vulnerabilities such as drought and dry conditions, pests and diseases, and other climate-induced risks in the dairy and horticulture clusters.

B. Project Components

Component 1: Investment for Agri-food Clusters Development (US$21.2 million)

21. This component would support investment loans in each selected agri-food cluster by financing producers and productive partnerships among producers and aggregators/processors engaged in production and value addition. The purpose of the investment loans to productive partnerships and other cluster participants is to increase farmers' access to financing to directly support the production and processing operations that facilitate improved market access. The investment loans would prioritize climate-resilient and energy-efficiency, energy efficient equipment in line with the highest efficiency standards considerations to maximize the project's adaptation and mitigation climate co-benefits through utilizing an implementation methodology that provides funding for climate-smart production and processing. The productive partnerships would cover multiple producer groups in and across one value chain – including farmers, collectors, processors, traders, and exporters. The productive partnerships would be formed around specific market opportunities and would be managed by a lead processor, producer organization or cooperative. Based on the demand, the investments for productive partnerships could include on-farm application of production improvement with climate resilient technologies, modern and more efficient farm equipment, climate resilient crop varieties or livestock breeds (such as drought-tolerant and heat-resistant seeds and breeds), post-harvest operations, and value chain relevant facilities (e.g., storage, washing, grading, packing, pre-cooling, cold storage). The productive partnerships would receive investment loans in accordance with agreed eligibility criteria. Detailed eligibility criteria and lending procedures will be described in a Credit Line Manual (CLM) within the overall Project Operational Manual (POM). The selection and due diligence of the Participating Financial Institutions (PFIs) would also be supported through this component. The financial and commercial viability of the productive partnerships would be assessed by the PFIs (participating financial institutions) as selected qualified commercial banks. The investment loans component design is assessed in compliance with the provisions of World Bank's Operational Policy 10 (on Financial Intermediary Financing (FIF)) in Annex 4.

22. The investments would provide: (i) working capital loans to enable productive partnerships to access their immediate needs for boosting production for spring and winter planting (agricultural inputs, such as seeds, fertilizers, and fuel) as well as necessary post-production and processing harvesting activities for smallholders, and (ii) loans for purchase

of green investments like efficient farm machinery, warehouses, greenhouses, and other productive assets. The investment loans would be provided under 3 windows: (i) productive partnerships through the lead aggregator, (ii) individual farmers and/or farmers groups, and (iii) private seed and animal breeding farms. The description of targeting and credit terms would be included in the Credit Line Manual (CLM) as part of the overall POM. This project would support the following two agri-food clusters: (i) dairy cluster and (ii) horticulture cluster.[19]

23. **(a) Dairy cluster.** This cluster would scale up the related activities of the ongoing IDPIP to include Jalal-Abad, Naryn, and Chui oblasts, with potential for increased production and exports of high-value dairy products. The investments would be screened by third-party for climate resilience and based on adoption of green, climate-smart technologies following a checklist given in the Credit Line Manual. Support to dairy cluster will be complemented by Component 2 activities in Chui and Jalal-Abad oblasts including training for productivity and quality improvement, and artificial insemination (AI) services.

24. **Expected mitigation and adaptation co-benefits**. The dairy cluster approach is designed to achieve co-benefits in terms of climate change mitigation and adaptation with the aim of increasing productivity through higher yields per animal rather than through increased herd numbers. Examples of investments may include purchase of more efficient cattle breeds, improvement of animal housing, production of feed and fodder, equipment e.g., milking machines, fodder cutting machines, small tractors and tillage equipment, processing equipment, dairy processing companies' infrastructure and production lines, establishment of new milk collection points equipped with cooling tanks and equipment for milk quality analysis, etc. The project approach to achieving the climate co-benefits would include promoting productive dairy animals of more efficient breeds, adopting good husbandry practices including animal health and welfare, nutrition and feeding, and manure management for increasing productivity, reducing losses, and increasing carbon uptake. The project would also promote better introduction of climate-resilient varieties of fodder crops such as leguminous perennials (alfalfa and sainfoin) that are drought, heat, and disease tolerant and provide better soil cover, erosion control and nitrogen fixation.

25. **(b) Horticulture cluster.** This cluster would support producers and processors in Jalal-Abad, Chui, and Naryn oblasts. Naryn has significant potential for diversification into high-value horticulture crops (e.g., berries and vegetables) and Jalal-Abad is well known for several horticulture products (e.g., prunes, vegetables, nuts, etc.). The local administration in Naryn oblast is currently promoting diversification to high value horticulture products such as berries (e.g., blackcurrants, sea-buckthorn, etc.) to increase the export potential and income generation for the local population, especially women and youth. The project would support investments that integrate, inter alia, digital tools for monitoring efficient use of water and fertilizer, testing, and monitoring harvests for contamination, etc. Green investments would be prioritized through screening of business proposals by third-party for climate resilience and adoption of green, climate-smart technologies based on the checklist given in the Credit Line Manual. The horticulture cluster will be complemented by component 2 activities in Jalal-Abad and Naryn oblasts.

26. **Expected mitigation and adaptation co-benefits**. The horticulture cluster approach is designed to achieve co-benefits in terms of climate change mitigation and adaptation with the aim of increasing productivity through higher yields of horticultural crops and improved use of natural resources including water and soil management. Examples of investments may include: (a) planting of perennial trees and berries that can provide benefits through soil conservation and reduced erosion as well as increased incomes and improved nutrition; (b) installation of drip irrigation systems for more efficient use of water and increased productivity; (c) development of energy and water-use efficient greenhouses for production of marketable produce, applying the highest efficiency standards where possible; (d) improved processing technologies; (e) improved product storage and packaging to reduce post-harvest losses; (f) establishment of good quality nurseries with more productive varieties and greater diversity of crops. The project would promote productive varieties

[19] The detailed overview of the dairy and horticulture clusters is available in a separate technical note to the PAD.

through horticulture nurseries, efficient land preparation and soil fertility management for planting of quality seedlings, efficient use of water and fertilizers in greenhouses, integrated pest management to limit usage of chemical fertilizers and pesticides, effective and safe and climate-control storage units, and improved handling, packing and conservation of post-harvest produce.

Component 2: Strengthening Institutions and Systems (US$4.2 million GAFSP, US$7.65 million IDA)

27. This component will be implemented by the Ministry of Water Resources, Agriculture and Processing Industry (MoWRAPI) to support the two agri-food clusters: (i) dairy cluster in Chui and Jalal-Abad oblasts; and (ii) horticulture cluster in Naryn and Jalal-Abad oblasts.

28. **Sub-component 2.1 Training and capacity building of agri-food clusters (US$4.2 million GAFSP)**. This sub-component would be financed through the GAFSP grant to provide climate smart training and capacity building of beneficiaries including farmers and processing enterprises, and other participants in the targeted agri-food clusters. This would include mobilizing the productive partnerships consisting of producers, producer groups, and processors engaged in dairy and horticulture clusters. Training curricula would include improved production, product quality management, livestock husbandry and health, integrated pest, and disease management, sanitary and phytosanitary (SPS) compliance, food safety, resource efficient and emissions reducing agricultural practices, and adoption of climate resilient technologies and practices. Training and capacity building would also be provided for the relevant departments of the MoWRAPI. The training activities for the agri-food clusters would be expected to enable producers and processors to become credible partners for increasing their potential to access credit. Training would focus on improving: (i) organizational and business development; (ii) climate resilient, nutrition smart, and green technology adoption; (iii) productivity; and (iv) market readiness. In addition, artificial insemination services will be provided to support breed improvement.

29. **Expected mitigation and adaptation co-benefits**. The training and capacity-building sub-component will cover a range of topics relevant to climate adaption and climate change mitigation including: (a) training of farmers and producer groups as described in the cluster development focusing on climate resilient, nutrition smart, and green technologies; (b) training of dairy plants, milk collectors, and horticultural product processors to improve their organizational skills, market access, food safety and knowledge of energy-efficient technologies (in line with the highest efficiency standards); (c) capacity-building of seed, livestock, artificial insemination and veterinary specialists to provide climate-smart services for farmers; (d) technical support for development of improved strategies for seed and livestock breeding programs; and (e) development of digital tools for breeding records and seed data recording. All training and capacity building activities would involve increasing understanding of climate risks and skills for adoption of improved technologies and practices within the business development process of processors and aggregators in each agri-food cluster.

30. **Sub-component 2.2. Seed system improvement (US$4.35 million)**. This sub-component would support the enabling environment for policies, strategies, legal frameworks, standards, and organisations associated with seed and planting material. The project would support the development, trialing, and selection of improved, locally adapted, high value market-preferred seed varieties that are climate resilient. This would include providing low emissions and energy efficient equipment in line with the highest efficiency standards. Support will be provided to relevant departments of MoWRAPI and seed farms including fruit and berry nurseries selected by MoWRAPI. Support for variety multiplication and commercial production, processing, storage, delivery, and distribution networks would be provided along with training of seed producers for multiplication of high-quality super elite, elite and first reproduction seeds and planting materials. The project would also support the marketing, dissemination and quality assurance of seeds and planting materials through upgrading laboratories, seed, and variety testing centers at the district level for assessing and accrediting quality available to farmers in the supply chain. The project would promote use of commercially available seeds and planting materials to

shift away from current practices of using low quality, segregating, low yield seeds and materials through timely advice that can access high-value markets.

31. **Expected mitigation and adaptation co-benefits**. The sub-component will achieve mitigation and adaptation benefits through modernization of the seeds and planting material production systems. Through improvements in seed variety breeding and selection, variety assessment and approval, multiplication, testing, and certification procedures, this sub-component would contribute to availability of improved, high value market-preferred seed varieties of field, forage, and vegetable crops. Varieties would include those that maximize returns to the farmers, being locally adapted with increased tolerance to climate stresses, such as heat and drought, with resistance to pests and diseases that require minimal farmer inputs, and are able to produce nutritious, high-value and market and consumer preferred products. At present, the MoWRAPI estimates that certified seeds of the main field crops, including cereals and cotton, do not meet the market demand and that the practice of using farmer-saved seeds of old, unimproved, low-yield, low-value, climate-change vulnerable, segregating varieties is widespread. Countering these practices through promoting and adopting high-value, market-preferred varieties that are also climate resilient (including drought, heat, and disease tolerant) and would directly contribute to climate mitigation and adaptation.

32. **Sub-component 2.3. Improved livestock breeding and information management system (US$3.3 million)**. This sub-component would support improvement of animal breeding policies and regulations and the development of a national meat and dairy breeding plan (through sub-component 2.1). Support will be provided to relevant departments of MoWRAPI, and state and private livestock breeding farms selected by MoWRAPI through provision of quality bulls, farm equipment and associated climate-smart technologies. This sub-component would also support integration of a One Health approach to animal breeding and information management system that promotes a holistic approach to livestock management that integrates the animal-human-environment nexus. This sub-component would finance: (i) upgrading the regional veterinary laboratories in Jalal-Abad and Chui oblasts; (ii) establishment of breeding information system; and (iii) expansion of the cadre of qualified AI technicians with improved skills to support farmers.

33. **Expected mitigation and adaptation co-benefits**. This sub-component aims to achieve climate co-benefits through enhancement and modernization of the national livestock breeding system and AI chain. This element, in combination with (i) promoting an adequate and nutritious forage base using adapted varieties with drought and salinity tolerance and resistance to pests and diseases, and (ii) improving access to animal health services, will help improve dairy cattle productivity through increased feed intake at pasture and during the winter period, more efficient feed conversion, reduced impact of parasites and diseases, and overall improved husbandry practices, resulting in reduced GHG emissions/liter of milk. In addition, strengthening diagnostic capacity at the oblast level to quickly identify potentially harmful zoonosis and support rapid action in case of disease outbreaks. To reduce losses and promote efficiency, the dairy farmers would be linked with milk collection points (*Jamaat*) that will also improve their market linkages with dairy processors. The dairy processors would be supported to adopt more efficient processes that could include water conservation and energy efficient (solar powered) equipment.

Component 3: Operational Support and Project Management (US$0.8 million GAFSP and US$1.15 million IDA)

34. This component would support project implementation, including developing a centralized project monitoring and evaluation system that is adopted by the CLMU and ABCC and regional implementation units, a communication and citizen engagement strategy, compliance with environment and social standards and fiduciary requirements, training, and incremental operating costs. This component will also finance the preparation of cluster feasibility studies for future investments aimed at including other agri-food clusters. This component would also provide professional development and other interventions to promote gender diversity in agriculture sector institutions.

Component 4: Contingent Emergency Response Component (CERC) (US$0)

35. The project would include a zero-dollar component that would provide support in the event of an eligible crisis or emergency, including climate-related disasters, to reallocate project funds to support emergency response. This component would draw from the uncommitted credit/grant resources under the project from other components to cover emergency response. An emergency eligible for financing is an event that has caused or is likely imminently to cause, a major adverse economic and/or social impact to the Borrower, associated with disaster.

Corporate Commitments

36. **Climate Co-benefits**. The project addresses climate adaptation and mitigation in several ways. The expected climate co-benefits from the selected agri-food clusters of dairy and horticulture, as well as from the supporting activities of training and capacity building, improvements to seed and livestock breeding and information management, along with the approximate funding levels are described in Annex 3. In addition, an ex-ante assessment has been conducted employing the FAO Ex-Ante Carbon-balance Tool (EX-ACT) tool to determine the potential project impact on greenhouse gas (GHG) emissions. The total net carbon balance of the project is estimated at 27,579 tCO2-eq of mitigated emissions (which means that carbon sequestration outweighs emissions within the project) per year at full development or 551,579 tCO2-eq during the whole project lifetime. Considering the estimated shadow price of carbon will evolve from year to year according to the World Bank Shadow Price of Carbon Guidance Note, 2017 (CPI adjusted prices, US$ 2022), the overall project EIRR and ENPV were re-calculated. The results of scenarios with low carbon price (starting from US$50 and evolving over years), high carbon price (starting from US$99 and evolving over year) and without carbon are presented in Annex 3.

37. **Gender**. Outreach to women and addressing constraints to women's participation in and economic benefits from the project is well integrated within the project design. The project would address two key areas of constraints faced by women: (i) improved knowledge and skills gaps including knowledge of climate risks and adaptation; and (ii) improved incomes for women through jobs in management and skilled processing. The 2023 World Bank and UKAid Country Gender Assessment, shows that women's labor force participation in the Kyrgyz Republic was 44.1 percent in 2022, compared to 74.5 percent for men. Gender gaps remain in entrepreneurship and wages, with women earning only 75 percent of what men earn. The project would ensure that women – as well as youth and other vulnerable groups – are well represented in the investments loans recipients as part of the producers' groups and productive partnerships. The project would also ensure that all training and capacity building activities align with specific needs for women participants such as considerations for women's daily routines and household responsibilities as well as childcare facilities. The detailed gender gap assessment and mitigation actions are provided in a separate technical note to the PAD and Table 1 below presents a summary of the key gender gaps that the project will help address through specific actions, and the corresponding indicators to measure the results.

Table 1. Gender gaps, actions, and result indicators

Gap	Action	Indicator
Women's Income Generation Opportunities ▪ High poverty in female-headed households and rural areas. ▪ Low women's representation in farm registration. ▪ Women's limited ownership of assets and access to credit.	Component 1: Investment for Agri-food Clusters Development ▪ Investment loans for women in producer groups. ▪ Financing producers and partnerships in agri-food clusters. ▪ Prioritizing climate-resilient and energy-efficient investments	- Loans provided to women producers groups (Number)

Gap	Action	Indicator
▪ Women and poorer rural livelihoods are more affected by climate risks.		
Knowledge and Skill Gap ▪ Women's limited access to advisory services, training programs, and information. ▪ Gender disparities in labor force participation, entrepreneurship, and wages.	Sub-component 2.1: Training and capacity building of agri-food clusters. ▪ Tailoring training and capacity building to women's schedules. ▪ Training in animal husbandry, nutrition balance, and access to services, meeting women's needs and addressing their challenges. Component 3: Operational Support and Project Management. ▪ Providing professional development and other interventions to promote gender diversity in agriculture sector institutions	- Women who are able to use improved knowledge and skills post-training (Number) - Women employed in processing and value-added activities (dairy and horticulture) (Number)

38. **Citizen engagement**. The project beneficiaries include: (i) sub-loan borrowers served by the PFIs; (ii) state institutions and government organizations (e.g., research institutes and laboratories); and (iii) processors/aggregators and farmers engaged in dairy and horticulture. Level of engagement and ability of the project to adapt to the beneficiary feedback will vary due to differences in the nature of the activities with different beneficiaries. Project implementation will start with broad information campaigns to raise the awareness about the project objectives and activities. Information sheets and project brochures will be prepared and posted in public places like regional, district and village level offices of the government institutions and local self-government bodies (*Ail Okmotu*). Public gatherings at the regional and district levels will be held to present the project objectives and activities and to answer the questions about the project. Interested parties can follow up and maintain a continuous contact also through the GRM channels. A consultancy company will be hired to mobilize the beneficiaries into training groups, as well as to establish links between the processors/aggregators and smallholders/farmers. Participation of women and youth will be ensured across all activities. Contents of the training modules developed by the subject matter experts will also seek feedback from the participating farmers and trainees to allow adjustments to training materials (e.g., adding new topics or emphasizing certain topic areas more, etc.). In addition, free exchange of ideas, Q&A sessions will be inherent part of all training programs. Similarly, public institutions will be consulted, and their views will be considered in implementing the support packages for them. Overall, approach of the project will be to be vigilant and flexible to the extent possible to meet the changing needs of its beneficiaries.

39. **Maximizing Finance for Development/Private Capital Enabling**. The project would potentially enable the private capital investments in two ways, which are intertwined. *Firstly*, the project would establish productive partnerships to link the producers and processors in the dairy and horticulture clusters. The project's support includes mobilization of farmers' groups and linking them to the processors or aggregators, training of beneficiaries to enhance the productivity, quality, and resilience, establishment of dedicated demonstration farms for practical training. In addition, the bulk of the project funds (US$21.2 million) would be used for loans to the participants of the clusters, individual farmers and enterprises, seed and livestock breeding farms. *Secondly*, the project would finance the improvement of public services such as upgrading the laboratories and research institutes working in seed sector, livestock breeding, animal health, and food safety. It can be reasonably expected that project financed investments into improved inputs, equipment, capacity building, public services and strengthening the linkages between the value-chain players will lead to increased productivity, sales and income. The latter can induce the participants of the clusters to further expansion and/or improvement of their businesses, which would require additional investments. The latter can be done either from their own savings or, most likely, from external sources such as commercial banks or investors. Thus, the investments and improvements in the performance of the targeted clusters achieved under the project can play a private capital enabling role. However, because the investments by the private sector - and particularly those which are future derivatives of the currently expected activities - are beyond the control of the project, they cannot be predicted or estimated as a Results

Indicator. Nevertheless, during its implementation the project can monitor, to the extent possible, the cases of additional investments derived as a direct result of the project with a caveat that usually the individual entrepreneurs and commercial banks are unwilling to share their financial data.

C. Project Beneficiaries

40. The total number of direct and indirect beneficiaries will be based on exact number of loans provided to the producers and productive partnerships for each value chain. However, an estimated number of direct beneficiaries is expected to be about 8,000 and indirect beneficiaries about 20,000. Direct beneficiaries would include individual farmers/producers, producer groups, small and medium processors, and other value chain stakeholders participating in the agri-food clusters. Other beneficiaries include staff of the veterinary laboratories, trained artificial inseminators, and staff of government institutions involved in livestock breeding and seed production systems. Indirect beneficiaries would include farming communities, household members of loan and training recipients, and other value chain stakeholders and rural communities who may not be direct loan recipients. To address the knowledge and skills gaps for women, the project would specifically design training and demonstration activities around women's schedules to ensure these activities are aligned with women's daily routine. Additionally, the training providers would include women trainers for improved experiential exchange with women participants at all trainings. The training and capacity building activities would include specific information on climate risks and adaptation associated with different areas of crop and livestock management.

41. The project focuses on dairy and horticulture clusters where women are particularly active. Experience from IDPIP indicates around 54 percent of the participants in the dairy producer training groups were women. Previous experience, in the Agriculture Productivity and Nutrition Improvement Project indicates that 90 percent of vegetable producer group members are women for production in household plots. It is likely that this percentage of women will be less with larger scale fruit tree production, and further up the value chain for both dairy and horticulture activities.

Table 2. Summary Cost Table by Components and Financiers

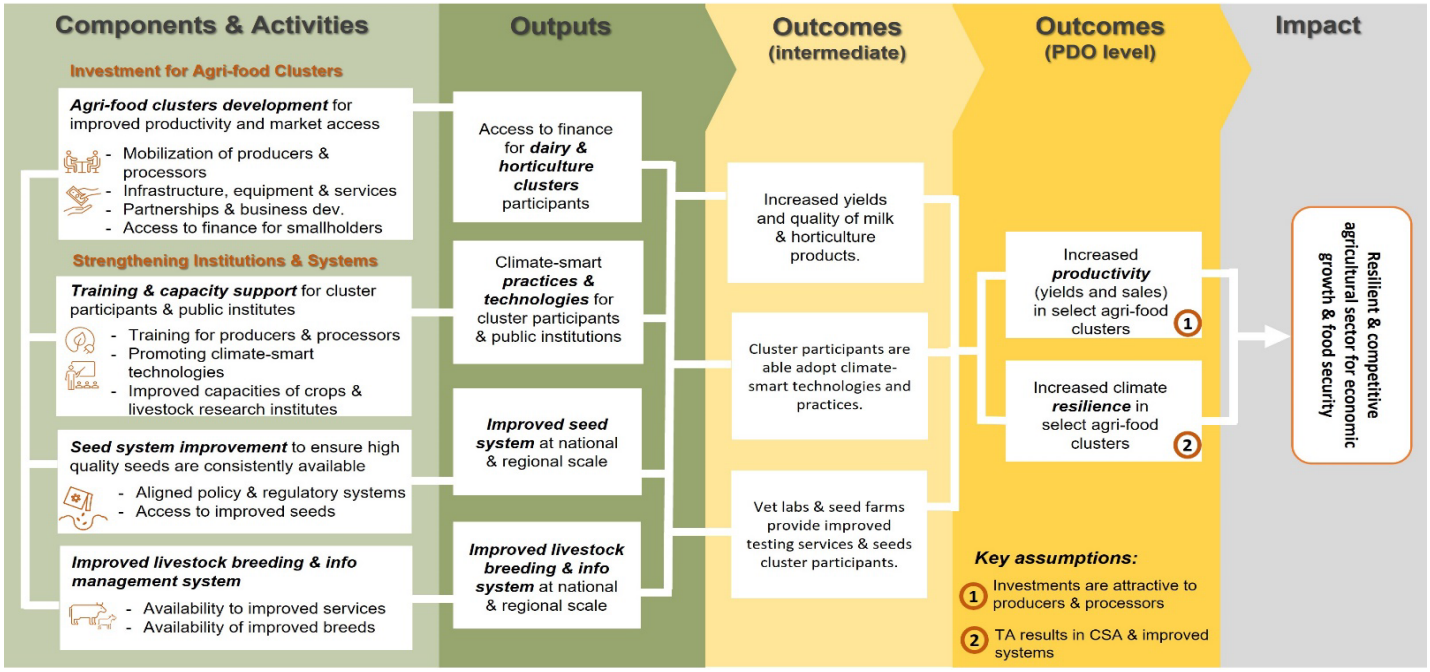
	IDA Credit	GAFSP Grant	Total
	Amount ('000 US$)	Amount ('000 US$)	Amount ('000 US$)
Component 1. Investment for Agri-food Clusters Development	**21,200**	**-**	**21,200**
Component 2. Strengthening Institutions and Systems	**7,650**	**4,200**	**11,850**
Sub-component 2.1. Training and capacity building of agri-food clusters	-	4,200	4,200
Sub-component 2.2. Seed system improvement	4,350	-	4,350
Sub-component 2.3. Improved livestock breeding and information management system	3,300	-	3,300
Component 3. Operational Support and Project Management	**1,150**	**800**	**1,950**
Component 4. Contingent Emergency Response Component (CERC)	0	0	0
Total	**30,000**	**5,000**	**35,000**

D. Results Chain

42. The proposed project would address the key constraints to improvements in productivity while adopting climate-smart and modern technologies that can increase competitiveness of agri-food value chains in the Kyrgyz Republic. The higher-level outcome of the project is to contribute to food security in the country by supporting agri-food cluster development as a direct response to Government's agro-industrial complex program that aims to address key sector constraints, including: (i) access to finance; (ii) low productivity; (iii) dated, and labor and resource-intensive farm practices; (iv) low nutrition quality and limited value addition; and (v) limited access to competitive markets. The Theory of Change (Figure 4) shows how the proposed project responds to the persisting problems of low levels of investments to

increase productivity, unsustainable production practices, and limited services to producers and aggregators, while incorporating climate-resilience in the agriculture sector of the Kyrgyz Republic.

Figure 4. Theory of Change



E. Rationale for Bank Involvement and Role of Partners

43. **Rationale for Bank Involvement**. The World Bank has a long history in supporting the agriculture sector in the Kyrgyz Republic acting as the catalyst for supporting the country's national development strategies and agriculture policy. Agriculture sector growth features front and center in the country's long-term vision in the 2018-2040, and the World Bank investment portfolio directly contributes to that. The World Bank is seen as a global leader in bringing new knowledge and expertise to support food security and competitiveness of the agri-food clusters for the Kyrgyz Republic. Recognizing the importance of integrating smallholder producers with value addition, and processing operations within different regions of the country, the World Bank is also seen as a reliable partner for delivering results. This project builds on lessons learned from previous and ongoing engagements as well as exploiting the World Bank's comparative advantage in providing long-term support to transform agriculture sector into a growth-oriented sector. Given the importance of agriculture for most of the country's population, IDA remains a key source of investments for the Kyrgyz Republic to address different sectoral constraints in a sustainable, climate-smart, and inclusive manner.

44. **The project design promotes the Green, Inclusive and Resilient Development options for the agriculture sector**. The proposed investments are Green, as they address efficient natural resource use (land and water), by promoting improved inputs (seed varieties and breed stocks) and by providing the much-needed investments for shifting production and processing operations to climate-smart and resource efficient practices. The proposed investments are designed to be Inclusive, by focusing on enhancing access to investments and services for women and other underserved rural communities. In addition, the focus on smallholder farmers and linking them with processors/aggregators and other value chain participants, would remain a key to promoting inclusive approach for increased competitiveness in each agri-food cluster. The inclusion of smallholders will be ensured through training and capacity building of the PFIs to ensure that

smallholder producers are well represented in Productive Partnerships. The proposed investments are Resilient, as they strengthen the institutional and back-end services to become aligned with climate risks to the production of livestock and crops sub-sectors and promote appropriate measures for adaptation. The productivity constraints related to cycles of droughts and floods, increasing water scarcity, and other extreme events are often highlighted as the main areas where improvements and investments are needed.

45. **Role of partners**. The project is prepared in consultation with multiple development partners operating within the agriculture and other economic development sectors in the Kyrgyz Republic. For instance, discussions with bilateral partners such as the Korean Development Agency (KOICA), the Japanese Development Agency (JICA), and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) focused on past projects that these agencies have implemented in the country to support value chain assessments and market access for producers. In addition, discussions with the UN agencies like the International Fund for Agricultural Development (IFAD) and FAO focused on not only learning about their investments in the agriculture sector, but also to explore potential areas for collaboration under each agri-food cluster.

F. Lessons Learned and Reflected in the Project Design

46. The RACDP design reflects key lessons from World Bank-financed agriculture projects in the Kyrgyz Republic and ECA Region. These include:

47. **Building on positive results adds credibility**. The RACDP design reflects lessons learned from several previous and ongoing Bank-funded projects as well as interventions from other donors. In particular, the project scales up activities of the IDPIP, particularly those successful activities pertaining to milk quality and milk collection, animal breeding (AI), veterinary support, dairy processors, and farmer demonstrations and training. The project would scale up support for fodder crop planting by providing good quality certified seed to framer groups, with farmers repaying the value of the seed after harvest for further purchase and distribution of seeds.

48. **Complementarity to regional development approach with flexibility and adjustments for scaling up**. The project builds on the experience from the two ongoing Regional Economic Development Projects in Osh and Batken. These two projects include establishing Productive Partnerships (PPs) as a key support to value chain competitiveness. The PPs link processors/aggregators and producers along the value chain. At this stage, 15 PPs in Osh have been approved including PPs in dairy and horticulture. Scaling-up this approach in the horticulture and dairy clusters would provide consistency and complementarity of World Bank investments in the agriculture sector. Similarly, lessons from the completed project of other development partners such as the JICA Dairy Project in Chui oblast provide information on workable solutions for linking producers to processors and for market access for smallholders. Other relevant projects include IFAD's completed Livestock Management and Development Projects (LMDP1 and LMDP2) and the parallel Bank-funded Pasture and Livestock Management Project (PLMP, P145162), which together supported the move from government control to community pasture management by Pasture Users Unions at the local level, along with substantial associated animal health and veterinary strengthening including establishment of a network of private veterinarians.

49. **Transforming institutional capacities and service standards require complementary capacity and information support**. Several laboratories are proposed under RACDP, including 4 zonal veterinary labs (in Chui and Jalal-Abad), 8 rayon seed testing facilities (covering all oblasts except Osh and Batken). Experience from other projects will be considered, including the ongoing REDP (for veterinary and seed testing) and IDPIP (for zonal veterinary laboratories) and from the completed Agricultural Support Services Project (ASSP) which initially helped modernize the seed and variety testing system in the 2000s. Lessons learned will include the laboratory structure and technical specifications for equipment that will need to be procured, as well as the need to ensure operational budgets in the future.

50. **Design and implement agriculture support interventions with wider context in mind**. The project is designed with consideration of the lessons learned from past and ongoing projects within agriculture, water, environment, and regional urban development. Within the agriculture sector, a strategic refocus is required for investments and institutions to shift from food self-sufficiency to food security with systematic increases to productivity and competitiveness for a resilient food system. A single, one-time investment project would not be sufficient to support all aspects of the sector transformation. The project design adopts a systematic approach to best serve the needs of the country by scaling up the proposed interventions to other agri-food clusters as well as to cover additional regions in the country. Starting with the two, but promising, agri-food clusters of dairy and horticulture in well-defined geographical locations that have comparative advantages for production and processing, the project would build a strong results and evidence chain to design follow on projects. This project also promotes strategic interventions on seed and livestock systems improvement to improve quality of service delivery for the producers, processors, and other value chain participants. At the farm level, improved agricultural practices are also expected to lower chemical applications, pollution, and improve water utilization, yielding reductions in GHG emissions and improvements for soil carbon sequestration.

51. **Including focused interventions for women's participation improves prospects of project success**. Identifying tailored activities in the project design, provides higher degree of implementation success in increasing the share of project benefits for women as well as other groups such as youth. This project adopts an integrated approach to including women as prominent stakeholders in all activities under the project. Experience from the IDPIP original and Additional Financing projects has shown that women exhibit a stronger sense of common purpose and commitment and work closely to ensure successful implementation of group activities within the dairy borrowing groups as well as in the community seed funds. Building on the positive experience of IDPIP, this project would also include several specific interventions that directly respond to women-specific needs, for example, the targeted training programs on animal husbandry and nutrition balance, improved access to veterinary and other service providers during the times convenient to women beneficiaries, etc. This project would address two specific areas to improve women's participation and increase benefits to women through: (i) bridging the knowledge and skill gap including knowledge of climate risks and adaptation; and (ii) increasing women's income generation opportunities especially in management and skilled processing related jobs.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

52. The MoF will have the responsibility for the implementation of component 1 of the project through the Credit Line Management Unit (CLMU) as the Project Implementation Unit (PIU) for MoF. The MoWRAPI will be responsible for implementation of component 2, with the Agribusiness Competitiveness Center (ABCC) as the PIU. Component 3 will be implemented jointly by CLMU and ABCC. Both CLMU and ABCC have extensive experience in implementing World Bank-financed projects and are consistently rated as satisfactory for project management performance. Day-to-day project management, monitoring and reporting, procurement and financial management functions, and implementation of environmental and social standards for the proposed project would be carried out by CLMU and ABCC. CLMU will be responsible for the procurement under component 1 and component 3. ABCC will be responsible for procurement under Component 2 and Component 3. ABCC will be responsible for preparation of the financial management reports for Component 2 and provide these to the CLMU for consolidated FM reporting for the project.

53. The CLMU has been successfully implementing the revolving fund component under the IDPIP and its Additional Financing projects. The CLMU will be responsible for implementation of the component 1 (investment for agri-food

clusters development) and will have the following functions: (i) administration of the credit line for producers and processors through supporting investments for the productive partnerships; (ii) liaising with the project's PFIs and collection of the regular reports from the PFIs.

54. The ABCC has extensive experience in implementing World Bank-financed projects and ABCC has consistently rated as satisfactory for project management performance. Day-to-day project management, monitoring and reporting, procurement and financial management functions for Component 2, and implementation of environmental and social standards for the proposed project would be carried out by ABCC. The ABCC has adequate technical and fiduciary capacity and would be further strengthened to ensure regional implementation units (RIUs) are adequately staffed and have the requisite fiduciary and safeguards capacity. In line with the proposed project design, the institutional capacity assessment (including fiduciary management) of the ABCC would be updated to ascertain areas where staff and technical coordination might need to be augmented/strengthened to support implementation in new regions of the country.

55. ABCC and CLMU will jointly implement the project management tasks under component 3 (operational support and project management).

56. The ABCC and CLMU will prepare the POM to include detailed implementation mechanisms for the project. The POM would be prepared to describe the full extent of implementation under each project component. The existing POM available from the IDPIP-AF and the Productive Partnerships Manual available from the REDP and RED-2 projects may be used to present the implementation approach for this project. The POM will also describe the detailed mechanisms for development of each agri-food cluster as well as training and capacity building, modernization of seed sector, and livestock breeding and information management. The POM will also describe the overall project management tasks including day-to-day project management, and coordination between the project stakeholders. The CLMU will prepare the Credit Line Manual (CLM) to describe the implementation strategy for the component 1 (investments for agri-food clusters development). The CLM will be part of the overall POM. The detailed implementation arrangements and implementation support plan are included in Annex 2.

B. Results Monitoring and Evaluation Arrangements

57. A centralized monitoring and evaluation (M&E) system would be implemented as part of the project design. The ABCC and CLMU would be responsible to undertake the following tasks: (a) regular monitoring of the performance of the project towards achievement of its objective and result indicators; (b) progress reports on all project components to identify and address potential issues that may impact implementation progress in a timely manner; (c) preparation of semi-annual progress reports. The centralized M&E system would use digital data gathering and processing tools for the ABCC and CLMU and regional implementation units. The existing M&E staff would be augmented be additional specialists within regional offices and would be responsible for data collection, analysis, evaluation, and coordination between MoWRAPI, ABCC, and regional units. In addition, the M&E together with relevant staff will also report on compliance with environmental and social (E&S) standards and consolidate input from ABCC and CLMU and each regional implementation unit. The M&E Framework will be an integral part of the POM and a detailed review of the implementation progress will be conducted at the project's midterm review to assess the progress, potential for scale-up and any adjustments required.

58. Results monitoring would also include beneficiary engagement and satisfaction surveys for various agriculture services under each agri-food cluster and associated institutional services. Beneficiary satisfaction surveys would be designed to ensure gender and economic disaggregated data and would be conducted annually for selected investments and services after the start of project implementation. The beneficiary survey would not only assess satisfaction levels attributable to project interventions, but also broader knowledge of improved agricultural practices and climate-smart

technologies and their use. The communication and citizen engagement strategy would inform the survey design, diversity, and location of respondents to ensure that various aspects of the project design are adequately reflected. In addition, a baseline survey would be conducted in the first year of project implementation after effectiveness and an impact evaluation will be carried out prior to project closing.

C. Sustainability

59. **Technical sustainability**. All project activities are designed to enhance the capacity and incentives for producers and processors in the dairy and horticulture clusters during and after project implementation. The project would equip smallholder farmers with the required knowledge, skills, and the organizational support to become effective partners to processors and aggregators as well as other participants in the value chain. The improved capacity of small-scale producers would be critical also for improving their access to the capital required for investments that directly support their production processes leading to higher and better yields with efficient use of inputs. At the same time, the improved quality of technical advice and support to processors would enable them to not only become better partners for small-scale producers, but also to improve their own businesses through assured quality of yields produced by smallholders. The processors would acquire improved skills to obtain funding from the financial sector, which will complement the advisory and TA activities provided by the project. The productive partnerships selected through the project would catalyze growth within the dairy and horticulture clusters and create a demonstrative effect to replicate such effects into other clusters. The project is aligned with the goals of the Paris Agreement on both mitigation and adaptation. The project design directly addresses the mitigation risks through adoption of improved breeds and animal health and nutrition management to reduce GHG emission overtime instead of increasing the number of animals. The project also promotes key adaptation strategies against climate and disaster risks by introducing seed varieties that are tolerant to heat and drought-stress as well as to pests and diseases.

60. **Institutional sustainability**. At the institutional level, the project would address critical capacity and systems gaps within the livestock and seed sub-sectors. Specifically, the project activities would: (a) build capacity of the implementing agencies in key areas of organizational performance (contract management, data collection, monitoring, evaluation, and reporting, etc.); (b) build functional communication channels between different departments and support agencies involved in various aspects of agriculture support service at national and regional levels; and (c) build improved and timely information delivery systems using digital tools for effective facilitation of producers, processors, and other value chain participants for planning and undertaking key activities within their operations. In addition, producers, especially smallholders, often face limitations in accessing timely and accurate information to access services and inputs. The project activities would address some of these challenges to create demonstrative experience for future scaling up into new regions and clusters.

61. **Environmental and social sustainability**. The project would also improve E&S sustainability of the dairy and horticulture production systems in the selected regions by reducing the associated GHG emissions and actively promoting green-transition through climate-smart technologies and practices within different production and processing operations. The Environment and Social Commitment Plan (ESCP) identifies several measures to mitigate the project's E&S impacts during the project implementation. In the longer term, the project is expected to lay out a well-defined pathway for good E&S sustainability actions to be adopted into agriculture sector generally and within specific agri-food clusters specifically. At the national, regional, and local levels, the MoWRAPI, its various departments, and institutions, would be provided with the required knowledge and skills to integrate sound environmentally and socially sustainable options for delivery of services. In addition, training and capacity building activities would also include strengthening various beneficiary agencies as well as the implementation agency (ABCC) to acquire improved capacity in key areas of good agricultural practices, climate-smart agriculture, and social inclusion.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis (if applicable)

Paris Agreement alignment

62. The operation is aligned with the goals of the Paris Agreement on both mitigation and adaptation. Mitigation risks of GHG emissions will be addressed through measures to improve efficiency and reduce losses along the value chain, that may include storage (for example, installation of modern milk cooling tanks, improved fruit and vegetable storage), transport (for example, better milk transport using reduced emission vehicles), and processing (for example, energy efficient systems including solar powered equipment). Other mitigation measures will include installation of drip irrigation to improve water use efficiency and reduce water use, and training and demonstrations in GHG mitigation measures such as improved manure management and utilization of fertilizers. The main climate and disaster risks including drought, heat, and increased incidence of pests and diseases will be addressed through adaptation measures such as steps to increase availability and use of improved seeds and varieties of crops and breeds of dairy cattle; and demonstrations and training in climate-smart technologies and practices both in the dairy and horticulture sectors. Details of mitigation and adaptation measures are given in Annex 3.

Rationale for public sector provisioning/financing, if applicable

63. Project funding would help fill an important investment gap in the country where relatively little direct funding has been allocated to improve service delivery, build resilience, or build the capacity of producer organizations. Most investments have focused on upgrading infrastructure, supporting productivity improvements within key value chains and increasingly on export and food safety requirements. Limited investment has been devoted to strengthening service providers within the public sector, testing more effective input supply models, and strengthening producer organization.

Value added of the Bank's support

64. The World Bank Group has extensive experience internationally in supporting development of rural enterprises, enhancing competitiveness and market integration, and strengthening agricultural institutions. The Bank also brings extensive experience to supporting the development of access to finance instruments and a track record of positive performance of agriculture sector projects in the country.

Economic and financial analysis

65. A value chain approach applying a cost benefit analysis is performed based on different dairy and horticulture production, processing and marketing activities budgets and models under both with and without project scenarios. The expected benefits from the project include: (i) increased horticulture productivity and production through improved seed/planting material production and multiplication, access to training and extension services, provision of drip irrigation systems; (ii) increased dairy productivity and production through improved breeds (artificial insemination), access to training and extension services, and improved fodder production; (iii) adoption of improved on-farm CSA/climate-resilient technologies; (iv) reduced post-harvest losses at farm level and along the targeted value chains due to facilitated market access and improved storage capacities and approach; (v) increased average producer prices and greater share of benefits accruing to them thanks to strengthened producers' organizations and partnerships, linkage of smallholders with traders/aggregators, value chain platforms; (vi) expanded market opportunities; (vii) additional employment generated at both on-farm and off-farm level and downstream of the targeted value chains; (viii) increased incomes of direct and indirect beneficiaries; (ix) increased fiscal revenues resulting from higher turnover of targeted smallholders and other

value chain actors; (x) reduced net GHG emissions as a result of adoption of improved livestock and horticulture practices as well as CSA/climate-resilient technologies.

66. The financial analysis provides an example of the practical application of the value chain (VC) approach and the findings of the analysis for the indicative dairy and horticulture value chains. Such methodology is intended to provide an indication of how the VC approach would be applied in the context of the proposed project. As such, it does not represent the only elements or indication for supporting enterprises, sub-sectors and/or activities, hence would have to be assessed in conjunction with the other eligibility criteria as well. The size and number of different value chain elements may vary.

67. Nine indicative models, identified during the design, were prepared to demonstrate the financial viability of potential investments. All models show the prospective benefits and rate of return derived from improved enabling environment, enhanced public livestock and horticulture support services, and the access to required financing training, demonstrations, and advisory services. These models were used as building blocks for the dairy and horticulture value chain models (VCMs). The basis of this analysis is an illustration of the interrelationships between primary producers and rural enterprises (processors) in the value chain potentially to be supported by the project. The goal of the VCM analysis was to estimate an average incremental net benefits per US$1 of investments that would be used for the calculation of an overall incremental benefit stream of the project. The VCM analysis resulted in US$ 0.40 as an average annual net benefits per US$ 1 of investments.

68. Given the above benefit and cost streams, the base case economic internal rate of return (EIRR) is estimated at 24.9 percent. The base case net present value of the project's net benefit stream, discounted at 6 percent is US$47.8 million in economic terms. Economic returns of the base case scenario were tested against changes in benefits and costs and for various lags in the realization of benefits. In relative terms, the EIRR is equally sensitive to changes in costs and in benefits. In absolute terms, these changes do not have a significant impact on the EIRR, and the economic viability is not threatened neither by the 20 percent decline in benefits nor by a 20 percent increase in costs, since the economic rate of return (ERR) in both cases remains well above the discount rate. A one-year delay in project benefits reduces the ERR to 20.2 percent, that remains economically viable. See Annex 6 for more details.

GHG analysis

69. An ex-ante assessment of the impact of the project on the GHG emission has been undertaken using the FAO Ex-ACT tool. The net carbon balance is the difference between the gross results of With and Without Project scenarios achieved for 20 years, including 5 years of project implementation and 15 years of capitalization periods. The project would finance several activities that are included in the GHG accounting tool. The analysis shows that the estimated total net carbon balance of 27,579 tCO2-eq as mitigated emissions (which means that carbon sequestration outweighs emissions within the project) per year at full development or 551,579 tCO2-eq during the entire project duration. Considering the estimated shadow price of carbon that will evolve from year to year according to the World Bank Shadow Price of Carbon Guidance Note, 2017 (CPI adjusted prices, US$ 2022), the project's overall economic internal rate of return (EIRR) and the economic net present value (ENPV) are re-calculated. The results of scenarios with low carbon price (starting from US$50 and evolving over years), high carbon price (starting from US$99 and evolving over year) and without carbon are presented in Table 3 below.

Table 3. Project Economic Indicators with Carbon Externalities

Indicator	Without carbon benefits scenario (Base case)	Low carbon price scenario	High carbon price scenario
ENPV (US$ million)	47.8	66.5	85.1
EIRR	24.9%	36.5%	56.4%

B. Fiduciary

(i) Financial Management

70. Financial Management (FM) arrangements under the project will be same as under the ongoing IDPIP, with flow of funds, budgeting, accounting, reporting, internal controls, and external audit implemented by the two project implementing units, the CLMU for component 1 and ABCC for component 2 although CLMU will be responsible for consolidated financial reporting of the whole project. As a result of the FM assessment for the FM arrangements at both implementing agencies, including accounting, reporting, planning, budgeting, cash flow and internal controls and staffing are assessed to be adequate for the project implementation. Both agencies continue to meet World Bank requirements under the project and have significant experience in implementation of Bank-funded projects. FM arrangements will be reflected in the relevant section of the POM to meet specific requirements of the project. With respect to accounting and reporting, both agencies will continue to use systems based on existing accounting software, which should be also modified for accounting and financial reporting purposes of the project.

71. Quarterly Internal unaudited Financial Reports will be submitted to the Bank within 45 days after the quarter end. Annual audits of project financial statements will be provided to the Bank within six months after the end of each fiscal year as well as at project closure. The Borrower has agreed to disclose the audit reports for the project within one month of their receipt from the auditors, by posting the reports on websites of both implementing agencies.

72. Disbursements under the project will be in line with the World Bank's Disbursement Guidelines for Investment Project Financing. The project's two designated accounts (DAs) for the credit and the grant, in US$, will be opened and maintained at a financial institution acceptable to the Bank and will be managed by the CLMU. The following disbursement methods may be used under the project: reimbursement, advance, direct payment, and special commitment. The project will continue to use statements of expenditures as supporting documentation for advances and reimbursements. The ceiling for each DA, as well as detailed instructions on withdrawal of project proceeds, will be provided in the Disbursement and Financial Information Letter (DFIL).

73. The project risk after applying risk mitigation measures for Control Risk and overall residual FM Risk is assessed to be *Moderate*.

(ii) Procurement

74. Procurement functions will be implemented by CLMU and ABCC with the assistance of technical consultants and staff of other relevant units. CLMU and ABCC implement several projects funded by WB and have adequate capacity and personnel to support project implementation and application of procurement rules and procedures of the WB. CLMU and ABCC will assign qualified procurement specialists to handle all procurement related matters of project implementation.

75. **Procurement capacity assessment**. The World Bank conducted a capacity assessment of ABCC and CLMU, and the Project procurement risk is assessed as *Substantial*. The assessment identified major risks that would potentially cause procurement delays or inappropriate procurement decisions. Details of the key risks and the corresponding mitigation measures are discussed in Annex 5 and recorded in the Procurement Risk Management Assessment System (PRAMS) of the World Bank.

76. **Capacity improvements needed**. Project implementation will be led by ABCC/CLMU with participation of the same team that is currently implementing the IDPIP-AF project. Currently ABCC and CLMU have dedicated Procurement Specialists for the ongoing IDPIP-AF project which is handling daily responsibilities on procurement and contract

management. Considering the scope of procurement and finance activities, it is necessary to have separate procurement specialist for this project otherwise there will be a delay in the project activities deadlines. To bring the procurement arrangements in compliance with the World Bank's requirements, the ABCC will need to implement the following mitigation actions: First, the ABCC will hire additional procurement specialist/assistant for the project with ToRs and qualifications acceptable to the Bank, as well as technical experts in education area to increase capacity for preparation of ToRs and specifications for goods. Second, the ABCC should have an opportunity to be registered separately for the project as a purchaser in the state procurement portal. The bidding process shall not be canceled solely because the minimum bid price is larger than the amount allocated by the procuring entity for the procurement. Third, procurement packaging will be done carefully to foster competition; there will be wide and advance advertising as well as proactive search and outreach with potential suppliers, contractors, or consultants. Fourth, there will be more emphasis and training on appropriate contract management as well as regular physical inspections by World Bank supervision missions.

77. **Applicable Procurement compliance**. Procurement for the proposed Project shall be carried out in accordance the World Bank Procurement Regulations for IPF Borrowers, dated September 2023 (Procurement Regulations). Specific procurement procedures to be followed for managing project resources will be documented in the POM.

78. **Procurement Strategy and Procurement Plan**. Based on the Project requirements, operational context, economic aspects, technical solutions, and market analysis, a Project Procurement Strategy for Development (PPSD) has been developed for the Project by the client. Most of the Project resources are envisaged to finance activities related to seed system improvement, and improvement of livestock breeding and information system. Based on the PPSD, the Procurement Plans (PPs)for the project are prepared by ABCC and CLMU and have been agreed with the World Bank. Specific procurement procedures to be followed for managing Project resources will be documented in the POM. The PPSD and PP will be updated regularly during the Project implementation period to provide necessary justifications for procurement arrangements and planning. For each contract, the procurement method, market approach, cost estimate, World Bank review requirements, and time frame for implementation shall be agreed between the borrower and World Bank team and duly reflected in the updated Procurement Plans. The Project will use the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) online tool for the planning and tracking of all procurement transactions. The STEP tool will also record all procurement documentation and contract details.

C. Legal Operational Policies

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

D. Environmental and Social

79. The Project Environmental and Social risk rating is *Moderate*. The project has positive long-term impacts associated with improving the productivity and competitiveness of agri-food value chains, supporting the adoption of climate-smart and modern technologies for improved food safety and security, enhancing agri-food practices, creation of new jobs, and contributing to the improvement of socio-economic conditions in rural areas. In addition, the proposed project is expected to generate climate co-benefits through inter alia the adoption of climate-resilient crop varieties by

farmers, crop diversification for increased production of higher value and nutrient-rich horticulture products, and potential use of renewable energy and energy-efficient technologies and drip irrigation systems. Additionally, agricultural production is prone to severe weather events (such as heat, drought, flooding, hail, strong winds) and pests and disease outbreaks that affect productivity of crops and livestock, with the incidence likely to increase with climate change. While the project addresses climate resilience through development of adapted crop varieties and livestock breeds, use of drip irrigation and other technological improvements, and value chain development, there remains a risk that weather-related events may affect agricultural output and thus achievement of the development objectives.

80. The project will not include any intervention that would result in significant environmental risks and impacts. The project mainly covers training, TA, and agri-food production and processing modernization activities focusing on two agri-food clusters: dairy and horticulture. It supports inputs and services for on-farm production of, fodder, horticulture, livestock breeding, and dairy products. Input and services include improved seeds and seedlings, fertilizers, feed, breed, food safety, and quality testing, animal vaccination, sanitary and phytosanitary and veterinary services, and high-efficiency irrigation and renewable energy systems. It also includes some structure/ facility improvements of animal houses, laboratories and equipment, processing warehouses, veterinary laboratories, and accreditation centers. There are also some risks of social exclusion resulting from a lack of awareness about the project, particularly for vulnerable groups and women. Other risks could be related to grievance management and stakeholder/citizen engagement issues. The project is not expected to involve labor influx into local communities.

81. The potential environmental and social risks and impacts are of low to moderate impact, mostly temporary, and can be mitigated by applying the best construction and/or agri-processing practices. The project will not finance tobacco production, processing, or marketing and seeks to help tobacco-producing countries diversify away from tobacco.

82. An Environmental and Social Management Framework (ESMF) has been prepared and draft disclosed as part of appraisal. The consultation on the draft ESMF will be completed to finalize the ESMF and re-disclose it before approval. This ESMF will include assessments of the project's potential environmental and social (E&S) risks, recommended mitigation measures, guidance on environmental and social screening of activities and instruments, and specific plans, including implementation arrangements, and indicative budgetary resources, based on the best practices and COVID-19 related World Health Organization (WHO) and WB Guidelines. The ESMF will also suggest a series of environmental and social aspects consistent with the ESF and applicable Environmental and Social Standards (ESSs) to be included in the proposed project TA activities, training, and demonstration activities. The project includes a CERC. The activities financed by the CERC would be demand- and event-driven and will be detailed in the POM and CERC Manual. In case that the CERC is triggered, the ESMF will be updated to describe the environmental and social risk management procedures for screening, assessing, and managing risks associated with CERC activities and providing a positive list of activities funded under CERC.

83. The project has prepared a Stakeholder Engagement Plan (SEP) and disclosed as part of appraisal. Key objectives of the SEP are to maintain a constructive relationship with stakeholders, ensure that stakeholder views can be considered in project design and implementation, specifically in the management of environmental and social performance, provide means for inclusive engagement with all project-affected parties, and ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format. The Borrower will develop project-level Labor Management Procedures (LMP) acceptable to the Bank no later than the effective date of the credit.

84. Besides ESS1 and ESS10, the specific ESF standards relevant to the project activities include ESS2, ESS3, and ESS4.

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 Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, visit https://accountability.worldbank.org.

VI. KEY RISKS

86. **The project's overall risk rating is assessed as Moderate**. The government, through its policies, is facilitating agriculture sector development through improved productivity (production volumes, quality, and competitiveness) and resilience to climate vulnerabilities, which forms the basis for this project. The overall risk rating is based on *Substantial* risk ratings for fiduciary (moderate for FM and substantial for procurement), and technical design, and *Moderate* risk ratings for political/governance, macro, institutional capacity, environment and social safeguards, climate hazards, and other risks.

87. **Fiduciary risk is rated as Substantial**: Financial Management risk is assessed as moderate as both ABCC and CLMU have adequate FM capacity in place which will be assessed during preparation and if needed FM risk will be revisited and necessary mitigation measured will be proposed. Procurement risk is assessed as substantial because of additional risks, such as: risk of accountability of procurement decisions due to limited capacity to prepare specifications for the proposed investments; procurement planning due to increase of gas/oil prices; potential procurement delays due to limitations at the market and local currency depreciation; potential contract implementation delays due to geopolitical impacts on logistical chain, and perceived high level of corruption, as suggested by Transparency International's Perceptions of Corruptions Index. These risks will be mitigated through requirements for proper fiduciary implementation arrangements, including requirements for adoption of POM, FM, and procurement manual, installation of the accounting system compliant with Bank's FM requirements, conducting annual external financial audit, hiring of the competent fiduciary staff, capacity building through customized training and strong supervision.

88. **Technical design is rated as Substantial**: The project's technical design is assessed as having substantial risk considering the design consists of a mix of credit line, training, and public service delivery. The key risks may include exclusion of smallholders by the potential financial intermediaries and inadequate capacity to promote climate-smart technologies and activities in the loan approval process. Mitigation measures would include training and capacity building of the PFIs to ensure that smallholder producers are well represented, and the loan application and approval process includes mechanism to prioritize selection of climate-smart activities in the business plans being considered for the loans under the credit line.

ANNEX 1. Results Framework and Monitoring

PDO Indicators by PDO Outcomes

Baseline	Closing Period
Productivity and Climate Resilience	
Increase in yields within each agri-food cluster (Percentage)	
Feb/2024	Dec/2029
0.00	10.00
Increase in the sale of agricultural products by the Project beneficiaries (Percentage)	
Feb/2024	Dec/2029
0.00	10.00
Farmers adopting improved agricultural technology (Number) CRI	
Feb/2024	Dec/2029
0.00	5000
➢Farmers adopting improved agricultural technology - Female (Number) CRI	
0.00	2180
➢Farmers adopting improved agricultural technology - male (Number) CRI	
0.00	2820
Number of people receiving direct benefits (Number)	
Feb/2024	Dec/2029
0.00	8,000
➢Of which, the number of females (Number)	
Feb/2024	Dec/2029
0.00	3,200

Intermediate Indicators by Components

Baseline	Closing Period
Component 1. Investment for Agri-food Clusters Development	
Loans provided to Productive Partnerships (Number)	

Feb/2024	Dec/2029
0	15
Loans provided to smallholder farmers and/or groups (Number)	
Feb/2024	Dec/2029
0	2,900
Loans provided to women producers groups (Number)	
Feb/2024	Dec/2029
0	1,200
Loans provided to private seed and animal breeding farms (Number)	
Feb/2024	Dec/2029
0	10
Percentage of credit line investments that finance climate change (adaptation and/ or mitigation) measures (Percentage)	
Feb/2024	Dec/2029
0	80
Women employed in processing and value added activities (dairy and horticulture) (Number)	
Feb/2024	Dec/2029
0	290
Non-performing loans as a share of total outstanding loans (Percentage)	
Feb/2024	Dec/2029
0	5
Component 2. Strengthening Institutions and Systems	
Number of smallholder producers/processors receiving productivity enhancement support (person) (Number)	
Feb/2024	Dec/2029
0	6,000
➢Of which, female producers/processors (Number)	
Feb/2024	Dec/2029
0	3,000
Demonstration farms promoting fruits and berry cultivation using climate smart technologies and practices (horticulture cluster) (Number)	
Feb/2024	Dec/2029
0	15
Increased positive pregnancy post-service delivery of artificial insemination (dairy cluster) (Percentage)	
Feb/2024	Dec/2029
0	65
Women who are able to use improved knowledge and skills post-training (Number)	

Feb/2024	Dec/2029
0	2,000
Number of cows artificially inseminated by high-quality certified semen (Number)	
Feb/2024	Dec/2029
0	20,000
Staff of public sector institutions and service providers (policy, research & development, vet & animal health advisory and extension) trained (Number)	
Feb/2024	Dec/2029
0	100
Farmers receiving inputs or services on climate resilient or sustainable agriculture practices (farmers) (Number)	
Feb/2024	Dec/2029
0	4,000
Number of seed farms and fruit and berry nurseries supported under the project (Number)	
Feb/2024	Dec/2029
0	5
Component 3. Operational Support and Project Management	
Central monitoring and evaluation system with regional and site-level geo-tags for project activities and beneficiary outreach (Yes/No)	
Feb/2024	Dec/2029
0	Yes
Grievances registered related to delivery of project benefits that are actually addressed (Core) (Percentage)	
Feb/2024	Dec/2029
0.00	100
Beneficiaries satisfied with project activities (both clusters) (Percentage)	
Feb/2024	Dec/2029
0	90
➢Women beneficiaries satisfied with project activities (Percentage)	
Feb/2024	Dec/2029
0	80
Share of beneficiaries who feel that they have been well informed about the project and their views have been heared (Percentage)	
Feb/2024	Dec/2029
0	80
Component 4. Contingent Emergency Response Component (CERC)	

Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Productivity and Climate Resilience	
Increase in yields within each agri-food cluster (Percentage)	
Description	Overall milk and horticulture productivity at the farm level
Frequency	**Annual (starting in year 2)**
Data source	**Survey and/or key informant interviews**
Methodology for Data Collection	Annual representative survey of beneficiaries, i.e., producers, processors, and other value chain actors in dairy and horticulture clusters to collect information on farm-level production in terms of volume and quality. This will include land area for production of horticulture and expected milk yields production in loan applications.
Responsibility for Data Collection	**ABCC/CLMU/PFIs (at impact assessment)**
Increase in the sale of agricultural products by the Project beneficiaries (Percentage)	
Description	Beneficiary level data of sales for milk and horticulture produce
Frequency	**Annual (starting in year 2)**
Data source	**Survey and/or key informant interviews**
Methodology for Data Collection	Annual representative survey of beneficiaries, i.e., producers, processors, and other agricultural value chain actors in dairy and horticulture clusters to collect information about farmgate prices from sale of produce.
Responsibility for Data Collection	**ABCC/CLMU/PFIs (at impact assessment)**
Farmers adopting improved agricultural technology (Number) [CRI]	
Description	This indicator measures the number of farmers (of agricultural products) who have adopted an improved agricultural technology promoted by the project.
Frequency	**Annual (starting in year 2)**
Data source	**Survey**
Methodology for Data Collection	Annual representative survey of beneficiaries, i.e., producers, processors, and other agricultural value chain actors in dairy and horticulture clusters. The methodological approach will be based on the general concept of technology adoption, which refers to the knowledge, processes and/or products that producers incorporate into on-farm production systems and processors into processing activities.
Responsibility for Data Collection	**ABCC/CLMU/PFIs (at impact assessment)**
Farmers adopting improved agricultural technology - Female (Number) [CRI]	
Description	Number of women producers who have adopted an improved agricultural technology promoted by the project.
Frequency	**Annual (starting in year 2)**
Data source	**Survey**
Methodology for Data Collection	Disaggregated data for women beneficiaries
Responsibility for Data Collection	**ABCC/CLMU/PFIs (at impact assessment)**
Farmers adopting improved agricultural technology - male (Number) [CRI]	
Description	Number of men who have adopted an improved agricultural technology promoted by the project.
Frequency	**Annual (starting in year 2)**
Data source	**Survey**
Methodology for Data Collection	Disaggregated data for men beneficiaries
Responsibility for Data Collection	**ABCC/CLMU/PFIs (at impact assessment)**
Number of people receiving direct benefits (Number)	
Description	Number of direct beneficiaries reached by the project means the total number of beneficiaries served by both CLMU and ABCC.
Frequency	**Semi-annual**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular progress reports for all project components
Responsibility for Data Collection	**ABCC and CLMU**
Of which, the number of females (Number)	
Description	Number of women means actual number of women within direct beneficiaries reached by the project.
Frequency	**Semi-annual**

Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular progress reports for all project components
Responsibility for Data Collection	**ABCC and CLMU**

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Component 1. Investment for Agri-food Clusters Development	
Loans provided to Productive Partnerships (Number)	
Description	This indicator measures number of productive partnerships established between producers and processors and provided loans for dairy and horticulture production and processing operations.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular reports from PFIs on number and amounts of loans.
Responsibility for Data Collection	**CLMU/PFIs**
Loans provided to smallholder groups (Number)	
Description	This indicator measures number of smallholder producers and producers groups provided loans for dairy and horticulture production and processing operations.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular reports from PFIs on number and amounts loans.
Responsibility for Data Collection	**CLMU/PFIs**
Loans provided to women smallholder groups (Number)	
Description	This indicator measures number of women producers provided loans for dairy and horticulture production.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular reports from PFIs on number and amounts loans.
Responsibility for Data Collection	**CLMU/PFIs**
Loans provided to private seed and animal breeding farms (Number)	
Description	This indicator measures number of loans provided for establishing and strengthening seed production and processing. It also meansures number of loans provided to animal breeding farms.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular reports from PFIs on number and amounts of loans.
Responsibility for Data Collection	**CLMU/PFIs**
Percentage of credit line investments that finance climate change (adaptation and/ or mitigation) measures (Percentage)	
Description	This indicators meausres percentage of loans provided for climate-smart technologies and practicess to improve production and processing of dairy and horticulture products.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular reports from PFIs on amounts of loans and types of technologies and farm-level and processing-related activities.
Responsibility for Data Collection	**CLMU/PFIs**
Women employed in processing and value added activities (dairy and horticulture) (Number)	
Description	This indicators measures number of women employed by processing companies that receive credit, training and other support from the project.
Frequency	**Annual (starting in year 2)**
Data source	**Survey**
Methodology for Data Collection	Annual representative survey of beneficiaries, i.e., producers, processors, and other agricultural value chain actors in dairy and horticulture clusters to collect information on womne employed in processing activities.

Responsibility for Data Collection	**CLMU/PFIs**
Non-performing loans as a share of total outstanding loans (Percentage)	
Description	This indicator measures percentage of loans that are late on payments or delayed beyond the agreed repyment schedules.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Regular reports from PFIs on number and amounts of loans.
Responsibility for Data Collection	**CLMU/PFIs**
Component 2. Strengthening Institutions and Systems	
Sub-component 2.1 Training and capacity building of agri-food clusters	
Number of smallholder producers/processors receiving productivity enhancement support (person) (Number)	
Description	The productivity enhancement support is in the form of mobilization and training on improved livestock and horticulture management. This indicators measures the training and capacity building interventions provided to producers, processors, and other cluster participants including those who will potneially become members of productive partnerhsips, producers groups, and seed and animal breeding enterprises to receive credit support from the project. Gender disaggregated data will be collected to report on number of women producers/processors receiving training and capacity building support.
Frequency	**Semi-annual**
Data source	**Traning reports and post training follow up**
Methodology for Data Collection	Traning reports and post training follow up
Responsibility for Data Collection	**ABCC**
Women who are able to use improved knowledge and skills post-training (Number)	
Description	This indicators meausres number of women who participate in training and capacity building activities and report that they are able to use the newly acquired knowledge and skills in livestock and horticulture tasks.
Frequency	**Semi-annual**
Data source	**Traning reports and post training follow up**
Methodology for Data Collection	Traning records including training reports and post training follow up reports
Responsibility for Data Collection	**ABCC**
Staff of public sector institutions (policy, research & development, vet & animal health advisory and extension) trained (Number)	
Description	Specialized training, capacity building activities organized for the staff of MoWRAPI departments and institutions. This indicator will be reported under GAFSP tier 2.2 output indicator #10 Persons receiving capacity development support (person) Disaggregation: Of which, number of females.
Frequency	**Semi-annual**
Data source	**Training and post-training follow up reports**
Methodology for Data Collection	Reports from each department and institution and post-training performance evaluations
Responsibility for Data Collection	**ABCC**
Farmers receiving inputs or services on climate resilient or sustainable agriculture practices (farmers)	
Description	This indicator only measures relevant trainings provided to farmers on climate-smart agriculture technologies and practices. Indicator tracks GAFSP M&E Plan - Tier 2 indicators for climate impact of GAFSP contributions.
Frequency	**Semi-annual**
Data source	**Traning reports and post training follow up**
Methodology for Data Collection	Traning records including training reports and post training follow up reports
Responsibility for Data Collection	**ABCC**
Demonstration farms promoting fruits and berry cultivation using climate smart technologies and practices (horticulture cluster) (Number)	
Description	Establishment of demonstration farms and training and services accessed by project beneficiaries.
Frequency	**Semi-annual**
Data source	**Documentation of demonstration farms and records of activities conducted at farm level**
Methodology for Data Collection	Reports from each demonstration farm included in the project
Responsibility for Data Collection	**ABCC**

Sub-component 2.2 Seed system improvement	
Number of seed farms and fruit and berry nurseries supported under the project (Number)	
Description	Support provided to the seed farms and fruit and berry nurseries.
Frequency	**Semi-annual**
Data source	**ABCC reports**
Methodology for Data Collection	ABCC reports from each seed farm and nurseries included in the project
Responsibility for Data Collection	**ABCC**
Sub-component 2.3 Improved livestock breeding and information management system	
Increased positive pregnancy post-service delivery of artificial insemination (dairy cluster) (Percentage)	
Description	This indicators measures rate of conception post-service delivery of artificial insemination (AI) services.
Frequency	**Semi-annual**
Data source	**Survey**
Methodology for Data Collection	Representative survey of farmers who participate in project activities including receiving AI services.
Responsibility for Data Collection	**ABCC**
Number of cows artificially inseminated by high-quality certified semen (Number)	
Description	Dairy farmers owning cows served with AI services by the project.
Frequency	**Semi-annual**
Data source	**Test records and other reports**
Methodology for Data Collection	Reports from AI service providers
Responsibility for Data Collection	**ABCC**
Component 3. Operational Support and Project Management	
Central monitoring and evaluation system with regional and site-level geo-tags for project activities and beneficiary outreach (Yes/No)	
Description	Development and functioning of a central M&E system used by PIUs and regional implementation teams. Both ABCC and CLMU will add data in the central M&E system created by ABCC.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Quality and regularity of the progress reports generated by the M&E system
Responsibility for Data Collection	**ABCC and CLMU**
Grievances registered related to delivery of project benefits that are actually addressed (Core) (Number)	
Description	Measuring transparency and accountability mechanisms established by the project so the target beneficiaries have trust in the process and are willing to participate, and feel that their grievances are attended to promptly. Grievances also incldues querries, appeals, information requests etc.
Frequency	**Quarterly**
Data source	**Quarterly progress reports**
Methodology for Data Collection	Quality and regularity of the progress reports generated by the M&E system
Responsibility for Data Collection	**ABCC and CLMU**
Beneficiaries satisfied with project activities (both clusters) (Percentage)	
Description	This indicator measures to what extent the project addresses the needs of all project beneficiaries.
Frequency	**Annual**
Data source	**Survey**
Methodology for Data Collection	Representative survey of project beneficiaires under all components/sub-components
Responsibility for Data Collection	**ABCC and CLMU**
Share of beneficiaries who feel that they have been well informed about the project and their views have been heared (Percentage)	
Description	This indicator measures to what extent the project addresses the needs of all project beneficiaries, listen to their concerns and incorporates those concerns in the project.
Frequency	**Annual**
Data source	**Survey by ABCC and impact assessment by CLMU**
Methodology for Data Collection	Representative survey of project beneficiaires under all components/sub-components
Responsibility for Data Collection	**ABCC and CLMU**

ANNEX 2: Implementation Arrangements and Support Plan

COUNTRY: Kyrgyz Republic
Resilient Agri-food Clusters Development Project

Project Implementation Arrangements

1. The MoWRAPI will have the overall responsibility for implementation of Part 2 of the Project, with the Agribusiness Competitiveness Center (ABCC) as the implementing entity and MoF will have the responsibility for the implementation of Part 1 of the Project. The Credit Line Management Unit (CLMU) will be the unit within the MoF implementing Part 1 of the Project. The CLMU and ABCC have extensive experience in implementing World Bank-financed projects and CLMU and ABCC has consistently rated as satisfactory for project management performance. Day-to-day project management, monitoring and reporting, procurement and financial management functions, and implementation of environmental and social standards for the proposed project would be carried out by CLMU and ABCC. CLMU will be responsible for the procurement under Component 1 and Component 3. ABCC will be responsible for procurement under Component 2 and Component 3. Overall financial management of the project will be the responsibility of CLMU.

2. The CLMU has accumulated extensive experience in the implementation of various World Bank projects in the Kyrgyz Republic, over the last years including the successful implementation of 5 agricultural projects using agribusiness financial instruments such as structured finance, Revolving Fund, etc. The CLMU under the MoF has a huge capacity to support the financial management functions required for the project, including budget planning, accounting, financial reporting, organization of external audits, cash flow and internal controls. The CLMU under the MOF has consistently received a "satisfactory" rating. All projects implemented by the CLMU are successful and have unqualified external audit reports. The CLMU would utilize the current environmental and social specialist and if needed, would hire additional specialist.

3. The ABCC has adequate technical and fiduciary capacity and would be further strengthened to ensure regional implementation units (RIUs) are adequately staffed and have the requisite fiduciary, environment and social capacity. In line with the proposed project design, the institutional capacity assessment (including fiduciary management) of the ABCC is completed to ascertain areas where staff and technical coordination might need to be augmented/strengthened to support implementation in new regions of the country. The additional staff would be recruited for RIUs in Jalal-Abad and Naryn while PIU staff based in Bishkek would cover the implementation in Chui. This would include hiring of staff for environment and social as well as technical implementation of all project components. The ABCC would hire two additional environmental and social specialists to be based in the project oblasts Chui, Naryn and Jalal-Abad.

4. The ABCC and CLMU would prepare the POM to include detailed implementation mechanisms for the project. The POM would be prepared to describe the full extent of implementation under each project component. The POM would also describe the detailed mechanisms for development of each agri-food cluster as well as training and capacity building, modernization of seed sector, and livestock breeding and information management. The POM would also describe the overall project management tasks including day-to-day project management, coordination between ABCC and CLMU and other project stakeholders.

5. A **Project Steering Committee (PSC)** would be established to provide strategic guidance for project implementation, as well as ensure that key issues that need to be resolved are brought to the attention of the Cabinet of Ministers and speedy resolution is facilitated. The PSC would consist of representatives of the MoWRAPI, Ministry of

Economy and Commerce, MoF, Governor's Offices in Chui, Naryn, and Jalal-Abad oblasts, as well as representatives from the dairy and horticulture private sector approved by the order of MoWRAPI as recommended by ABCC.

Strategy for Implementation Support

6. This project builds on the experiences and lessons from the ongoing IDPIP and extends the existing implementation support arrangements especially for the dairy cluster development (component 1), the training and capacity building (sub-component 2.1), improved livestock breeding and information management system (sub-component 2.3) and associated project management including M&E, fiduciary compliance monitoring, and monitoring of environment and social standards (component 3).

Implementation Support Plan

7. The WB task team from the Agriculture and Food Global Practice (AGF GP), would provide the overall implementation support and would oversee appropriate implementation of the Project, in line with WB procedures, standards, and requirements.

8. The WB's AGF GP task team would comprise of technical (dairy and livestock management, horticulture and agronomy, and seed), fiduciary (FM and procurement), and social and environment experts. It is expected that implementation support by the WB team will be more intense during the first two years of project implementation period during which time, if needed, more frequent implementation support missions may take place during the first part of the project, as needed. Support of the Bank staff based in Bishkek will be used extensively, during the first two years of the project implementation.

9. The task team would review the periodic progress reports and conduct implementation support missions at least twice a year to provide consistent guidance and support to the PIU and RIUs teams. The missions will review the implementation progress, provide recommendations and guidance, and agree on the action plan/next steps. Advice and guidance from the WB team will be available at other times through videoconferencing and local staff support.

10. For FM related implementation support, the WB's Financial Management Specialist (FMS) will conduct risk-based financial management supervision within six months of project effectiveness, and then at appropriate intervals. The FMS would review the project's quarterly IFRs, annual audited financial statements and auditor's management letter including remedial actions. The FMS would coordinate joint fiduciary missions with procurement colleagues. For procurement compliance monitoring, the WB's Assigned Procurement Specialist will join the regular implementation support missions and update the PRAMS to assess adequacy of procurement related risks and mitigation measures. If needed, separate procurement supervision missions would also take place. For monitoring implementation of agreed ESS applicable to the project, the WB's Social and Environmental Specialists would join implementation support missions at least once a year throughout the project implementation period. When needed, more frequent missions may be organized to support the implementation of environmental and social standards.

ANNEX 3: Climate Co-benefits and GHG Emission Assessment

COUNTRY: Kyrgyz Republic
Resilient Agri-food Clusters Development Project

Projected impacts of climate change in agriculture sector

1. The agriculture sector is heavily influenced by the effects of climate variability. Climate change and natural disasters impact the livelihoods of the most vulnerable and poor rural populations relying on agriculture. Increasing climate variability and related disasters are only likely to increase stress on food and livestock production systems due to increased frequency of extreme events such as landslides, floods, mudflows, and avalanches. Direct effects of increased climate variability include alterations to carbon dioxide availability, precipitation, and consistently increasing temperature leading to a significant loss of 'greenness' in the lowland and cropland areas of the country. Indirect effects include through impacts on water resource availability and seasonality, soil organic matter transformation, soil erosion, changes in pest and disease profiles, the arrival of invasive species, and decline in arable areas due to desertification. Within agriculture, the livestock subsector can both be susceptible to climate risk, and drive climate risk. Climate change impacts the net primary productivity of the land which feeds livestock, and in some cases on also the physical health of animals particularly through hazards such as droughts, but also through second-order impacts such as increased prevalence of disease.

2. The effects of climate risks are more pronounced for the poorer communities and smallholder producers, who are often least prepared to take adaptive measures and access local water storages, irrigation infrastructure, and other technologies for adaptation. In the Kyrgyz Republic there is evidence that women and poorer rural livelihoods are most likely to be affected by flash flooding and landslide as they spend proportionately more time in exposed residential and a subsistence production area. Increases in the intensity and frequency of drought stand out as some of the most significant risks associated with climate change. There is strong evidence that these risks could disproportionately impact the poorest groups in the Kyrgyz Republic.

3. The demand for irrigation is likely to grow significantly, potentially leading to water deficits for crop production. Melting processes associated with climate change pose a significant threat to hydropower generation and the quality and availability of water for irrigated agriculture. To maximize yields, farmers will require ‘climate-smart’ infrastructure and technologies. Without intervention these resources are likely to be available only to wealthier farmers. Notably, access to credit and necessary agricultural inputs represent major barriers to adoption of adaptation technologies.

Expected climate co-benefits from the project interventions

4. The proposed project address climate adaptation and mitigation in several ways through the activities identified under each component and sub-component. The expected climate co-benefits from the selected agri-food clusters of dairy and horticulture, as well as from the supporting activities of training and capacity building, seed sector improvements, and improvements to livestock breeding and information management are described in the Table A2.1. below along with the approximate funding levels.

Table A3.1. Summary of climate co-benefits by component

Sub-components and Activities	Climate Adaptation Benefits	Climate Mitigation Benefits
Component 1: Investment for Agri-food Clusters Development (US$ 21.2 million)		
Dairy Cluster (approx. US$ 10.6 million. Actual allocation to be based on number of loans provided) Establishing productive partnerships between producers and processors Providing funding to productive partnerships along milk value chain to improve market linkages, processing, and to take advantage of market opportunities. Promoting improved feed and fodder crops for dairy animals Purchasing of improved dairy breeds for higher milk yields[20]	Increasing smallholder resilience by strengthening mechanisms for milk collection, aggregation, transport, processing, and distribution through support to dairy production partnerships and hubs, thus improving efficiency, reducing losses, and adding value to smallholder production. Enhanced access to markets is a major contributor to the ability of smallholders to adapt to climate change and associated shocks. Design and construction of any infrastructure will consider local climate risks such as extreme heat, floods, water scarcity, etc., through appropriate selection of sites and building materials. Providing adapted varieties of fodder crops (with heat and drought tolerance and resistance to pests and diseases) used for winter feed, especially perennial legumes (alfalfa, sainfoin), thus increasing animal productivity, reducing losses (weight loss over winter and reduced mortality), and for soil cover and nitrogen fixation. The potential technologies and equipment for climate smart, energy-efficient, in line with the highest efficiency standards, and reduced-emissions will be included in the loan eligibility criteria. An estimated 2,900 direct beneficiaries will receive loans for improved and energy efficient milk production with improved dairy breeds, as well as for milk collection, processing, and transporting activities that would lead to reductions in emissions from energy use, and from milk losses.	Establishing productive partnerships between milk producers and dairy processors with investments to support modern industry-standard energy-efficient milk collection and storage of milk in good condition, and modern industry-standard milk quality testing equipment. These improvements will improve quality, reduce losses from spoiled milk, and enable more transport-efficient collection of bulk milk for delivery to milk processors. Supporting dairy processors to improve processing operations (including new products, packaging, storage, transport (reduced emissions), and infrastructure improvements) through provision of modern industry-standard energy-efficient equipment in line with the highest efficiency standards (including solar-powered). Improvements could also include introducing modern food safety requirements, and water conservation technologies (for example, improved piping and water flow control).[21] Any activities related to collection and transportation of milk and dairy products will include energy- and fuel-efficient vehicles and other equipment.[22]
Horticulture Cluster (approx. US$ 10.6 million. Actual allocation to be based on number of loans provided) Establishing productive partnerships between producers and processors Establishing quality nurseries	Establishing productive partnerships between horticulture producers and processors with investments to support good quality nurseries (containing high-value saplings of varieties desired by farmers, including those with early establishment, fruit quality, uniformity, yield, and free of pests and diseases) with productive and adapted varieties (drought and heat tolerant) and diversified range of fruit, berry, and vegetable crops. The nurseries would incorporate climate informed design and construction to build resilience against climate	Prioritization of investments in high-value and high-yield horticulture crops, and fodder corps which provide better soil cover, erosion control and nitrogen fixation, along with improved water use efficiencies through drip irrigation and energy efficient installations in line with the highest efficiency standards in Kyrgyz Republic – the

[20] A broad evaluation of the impact of the original IDPIP in Issyk-Kul is expected soon, but the results are encouraging with an average 8 percent increase in milk volume for project beneficiaries. This project would extend the approach adopted under IDPIP in Chui and Jalal-Abad regions.
[21] Specific support will be determined by the dairy processors with the help of an experienced local dairy consultant, with applications assessed based on criteria including energy efficiency and climate mitigation benefits.
[22] Specific activities will be determined by the participants through an application process, with support from value chain experts. Applications will be assessed based on criteria including energy efficiency and climate benefits as well as value chain benefits.

Sub-components and Activities	Climate Adaptation Benefits	Climate Mitigation Benefits
Diversification of horticulture crops by smallholders Promoting water saving technologies for horticulture farms (particularly drip irrigation using modern industry-standard drip lines, water tanks and pumps, contour irrigation, short-furrow irrigation, water measuring devices). Establishing greenhouses with modern industry-standard energy efficient greenhouses and drip irrigation.	vulnerabilities such as extreme heat, floods, and local exposure to climate events/disasters. Increased planting of diversified range of fruit, berry, and vegetable crops by smallholder farmers. Sustainable development of horticulture production through diversification, increased growing of high-value perennial crops of adapted varieties (heat and drought tolerant) to increase resilience of smallholder producers, especially women, who are particularly vulnerable to climate change related events. Improved ability to manage water shortages and build resilience to drought and water scarcity by using water conservation technologies (such as drip irrigation, water monitoring devices, and rainwater harvesting.	estimated emissions reductions and carbon sequestration from land use and cropland activities is -52168 to – 54671 tCO2-eq. Installation of drip irrigation to improve water use efficiency, reduce water use and increase production.
Component 2: Strengthening Institutions and Systems (US$ 11.85 million)		
Sub-component 2.1: Training and capacity building of agri-food clusters (US$4.2 million GAFSP)		
Dairy Cluster (US$ 2.1 million) Training on climate-smart technologies and practices for dairy producers, processors/aggregators, and other value chain participants	Demonstrations and training in climate-smart technologies and good animal husbandry including animal welfare, nutrition and feeding, manure management, animal health, and pasture regeneration and management, thus increasing productivity, reducing losses, and increasing carbon uptake.	Training topics would include GHG emission reduction measures including manure management, nutrition management, feeding practices, feed production with reduced GHG emissions, sourcing low-emission feeds or forage to increase feed conversion efficiency, and reduce methane emissions, and efficiency improvement measures to reduce the herd size.
Horticulture Cluster (US$ 2.1 million) Training on climate-smart technologies and practices for horticulture producers, processors/aggregators, and other value chain participants	Demonstrations and training in climate-smart technologies such as efficient land preparation, seedling quality and planting, soil fertility management, water management, crop management (pruning etc.), and integrated pest management to limit usage of chemical fertilizers and pesticides, and effective and safe storage and conservation of produce.	Training farmers on a range of GHG mitigation and climate adaptation practices including improved utilization of fertilizers, energy efficient post-harvest processing and storage e.g., use of solar powered equipment and low energy cooling chambers, etc. in line with the highest efficiency standards.
Sub-component 2.2: Seed system improvement (US$ 4.35 million)		
Improving crop productivity through support for the modernization of the seed and sapling production system Support to seed farms for production of climate resilient seeds for fodder and other crops	Improve seed testing and certification, variety assessment and approval, variety breeding and seed multiplication, thereby increasing the availability of good quality seeds of field crops, forage crops, and vegetable crops as well as saplings of fruit trees and berries. Increased resilience to incidence of drought, higher temperatures and increased frequency of extreme weather	Using good quality seed from improved varieties of alfalfa and sainfoin through the CSF approach resulted in yields achieved by participating farmers averaging around 40 percent higher than neighboring farmers using seed collected from existing fields.[23]

[23] From SCSFP and Agricultural Productivity and Nutrition Project (APNIP).

Sub-components and Activities	Climate Adaptation Benefits	Climate Mitigation Benefits
Support on improving policy and regulatory framework and associated technical assistance and capacity improvements for relevant departments and institutions	events threatens crop productivity, food security, and livelihoods of smallholder farm households. Introduction of adapted varieties of fodder crops (with appropriate drought and heat tolerance and pest and disease resistance) such as leguminous perennials (alfalfa and sainfoin); in addition to providing needed winter feed, the increased inclusion of these crops in the rotation contribute to more sustainable land management (soil fertility and soil cover benefits). Seed varieties would include those with high productivity and/or improved nutritional value and processing quality, with increased tolerance to climate stresses such as drought and salinity, and resistance to prevalent pests and diseases.	Expected emissions reductions from cropland during project cycle is almost -54,671 tCO2-eq.
Sub-component 2.3: Improved livestock breeding and information management system (US$ 3.3 million)		
Improved breeding services through Artificial Insemination (AI) and improved breed selection practices Support on improving policy and regulatory framework and associated technical assistance and capacity improvements for relevant departments and institutions. Supporting improved information management and data recording systems	Improvements in AI chain using adapted breeds to improve animal productivity and feed conversion and to reduce need for keeping bulls. Strengthening veterinary diagnostic capacity to quickly identify potentially harmful zoonosis and support rapid action in case of disease outbreaks. Rapid action would include early warning of potential disease outbreaks resulting from climate change related events such as extreme heat and/or flooding. Promoting policies that breed improvement through improved knowledge about and availability of dairy breeds suitable to local conditions and adapt to climate-related stresses e.g., drought and heat.	Increasing productivity of smallholder dairy production systems through increased yields per animal rather than through increased herd numbers. Improving animal health practices would improve milk yields, reduce enteric methane or other GHG emissions. Estimated net emissions from livestock is -446,107 tCO2-eq. Promoting GHG mitigation (through improved livestock production) and food safety while undertaking all the initiatives under the project.

Greenhouse Gas Emission Assessment

5. The World Bank's 2012 Environment Strategy requires GHG emissions accounting for investment project financing to effectively manage and reduce emissions. To assess a project's net carbon balance, ex-ante assessment is conducted using the Ex-Ante Carbon-balance Tool (EX-ACT) developed by FAO is utilized. The assessment compared the gross results of scenarios with project (WP) and without project (WoP) over a 20-year period, including 5 years of project implementation and 15 years of capitalization. The RACDP supports various activities that can be measured using the GHG accounting tool (details in Ex-ACT working file).

Dairy Cluster

6. In a WoP scenario, dairy producers would need to keep 30% more heads to compensate for lower productivity and maintain consumption levels. Both WoP and WP scenarios consider natural livestock inventory growth (2.8% per year). Mitigation of greenhouse gases is assumed to be achieved through improved feeding practices (20%), increased use of specific agents and dietary additives (20%), and improved breeding (5%). Emissions will come from energy inputs for operation, such as electricity to operate milk collecting and processing facilities (estimated 315 MWh/year). In the WP

scenario, beneficiaries will grow fodder using climate-smart agriculture technologies on an estimated 2,000 ha of land, which contributes to carbon sequestration.

Horticulture cluster

7. Based on the available project budget to support this cluster, it was estimated that about 121 ha of intensive orchards would be established by the project, including drip irrigation systems. The drip irrigation system would reverse the land degradation caused by soil drainage due to inefficient irrigation techniques used before. However, intensification is associated with an increased application of N-,P-,K-fertilizers, which are reflected in the Inputs section of the Ex-ACT. The facilities built for cold storing and primary processing of horticulture production would spend about 90 MWh/year of electricity for operation.

8. Considering the abovementioned, the amount of total net carbon balance estimated at 27,579 tCO2-eq of mitigated emissions (which means that carbon sequestration outweighs emissions within the project) per year at full development or 551,579 tCO2-eq during the whole project lifetime. Details of the results are presented in Table A3.2.

Table A3.2. GHG analysis results, Ex-ACT tool

DETAILED RESULTS

Project name	RACDP						
Continent	Central Asia	**Project duration (in years)**		**Total area (ha)**	2,121	**Global warming potential**	
Country	Kyrgyzstan	Implementation Phase	5	Mineral soil	2,121	CO_2	1
Climate	Warm Temperate	Capitalization Phase	15	Organic soil	0	CH_4	28
Moisture	Dry	Total Duration of Accounting	20	Waterbodies	0	N_2O	265

GROSS FLUXES

In tCO2-e over the whole period analysis

PROJECT COMPONENTS		WITHOUT	WITH	BALANCE
Land use changes	Deforestation	0	0	0
	Afforestation	0	0	0
	Other land-use	0	0	0
Cropland	Annual	11,962	-40,206	-52,168
	Perennial	-3,678	-6,180	-2,503
	Flooded rice	0	0	0
Grasslands & Livestock	Grasslands	0	0	0
	Livestock	2,114,119	1,668,012	-446,107
	Forest mngt.	0	0	0
	Inland wetlands	0	0	0
	Coastal wetlands	0	0	0
	Fisheries and aquaculture	0	0	0
	Inputs & Invest.	1,856	4,638	2,783
Total emissions, tCO2-e		**2,124,259**	**1,626,264**	**-497,995**
Total emissions, tCO2-e/ha		**1,001.5**	**766.7**	**-234.8**
Total emissions, tCO2-e/ha/yr		**50.1**	**38.3**	**-11.7**

SHARE PER GHG OF THE BALANCE

In tCO2-e over the whole period analysis

CO2 BIOMASS	CO2 SOIL	N_2O	CH_4	ALL NON-AFOLU EMISSIONS*
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	-47,553	-1,176	-3,439	
433	-2,932	-3	0	
0	0	0	0	
0	0	0	0	
		-55,461	-390,646	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	0
	0	298		2,484
433	**-50,485**	**-56,342**	**-394,085**	**2,484**
0.2	**-23.8**	**-26.6**	**-185.8**	**1.2**
0.0	**-1.2**	**-1.3**	**-9.3**	**0.1**

AVERAGE ANNUAL EMISSIONS

Tier 2 Annual emissions

In tCO2-e/yr

WITHOUT	WITH	BALANCE
0	0	0
0	0	0
0	0	0
598	-2,010	-2,608
-184	-309	-125
0	0	0
0	0	0
105,706	83,401	-22,305
0	0	0
0	0	0
0	0	0
0	0	0
93	232	139
106,213	**81,313**	**-24,900**

Uncertainty level	tCO2-e/yr	Percent
WITHOUT	106,213	33%
WITH	81,313	34%
BALANCE	-24,900	35%

+ = Source / - = Sink

Results presented here include GHG fluxes on mineral and organic soils
See further down for detailed results on organic soils

* Includes fisheries, acquaculture and inputs & investments that are not included in the AFOLU definition.

9. The estimated shadow price of carbon that will evolve from year to year according to the World Bank Shadow Price of Carbon Guidance Note, the ERR and the ENPV were calculated. Considering the estimated shadow price of carbon that will evolve from year to year according to the World Bank Shadow Price of Carbon Guidance Note, 2017 (CPI adjusted prices, US$ 2022), the overall project EIRR and the ENPV were re-calculated. The results of scenarios with low carbon price (starting from US$50 and evolving over years), high carbon price (starting from US$99 and evolving over year) and without carbon are presented in the Table A3.3. below.

Table A3.3. Project Economic Indicators with Carbon Externalities

Indicator	Without carbon benefits scenario (Base case)	Low carbon price scenario	High carbon price scenario
ENPV (US$ million)	47.8	66.5	85.1
ERR	24.9%	36.5%	56.4%

ANNEX 4: OP10/Financial Intermediary Financing (FIF) Compliance Note

COUNTRY: Kyrgyz Republic
Resilient Agri-food Clusters Development Project

1. This OP10.0 FIF compliance note is prepared for a credit line in the amount of US$21.2 million under Component 1 of the Resilient Agri-food Cluster Development Project (RACDP).

I. General Project Overview

Project Summary

2. The proposed project would address the key constraints to improvements in productivity while adopting climate-smart and modern technologies that can increase competitiveness of agri-food value chains in the Kyrgyz Republic. The Kyrgyz Republic is one of the most vulnerable countries to climate change impacts in the ECA region. In addition, a significant portion of the country's population, especially in the rural areas, is exposed to direct effects of natural hazards. Most rural households are heavily dependent on agriculture-based livelihoods that are strongly exposed to environmental and climate vulnerabilities. The Kyrgyz Republic is classified as the most seismically active territory in Central Asia (96.7 percent of the population live under high seismic risk) and it is also exposed to frequent flooding (annually, about 80,000 people are affected with about US$60 million lost in potential GDP), landslides and mudflows. The agriculture sector remains under-invested for adopting climate-smart technologies and practices that can build resilience of the population to climate change impacts and strengthen adaptive capacity. The productive partnership approach is therefore focused on promoting climate smart technologies and practices for both producers, processors, and other value chain participants.

3. The proposed project would establish productive partnerships consisting of producers and processors engaged in production and value addition in dairy and horticulture clusters. The productive partnerships would cover multiple producer groups in and across one value chain – including farmers, input suppliers, collectors, processors, traders, and exporters. The productive partnerships would be formed around specific market opportunities and would be managed by a lead processor, producer organization or cooperative. The productive partnerships would be provided with financial support, training and capacity building, and improved services. The proposed investments for the productive partnerships would prioritize climate-resilient and energy-efficiency considerations in production and processing operations within each cluster. Investments for productive partnerships would include on-farm application of production improvement with climate resilient technologies, modern and more efficient, resilience-improving farm equipment, climate resilient crop varieties or livestock breeds (such as drought-tolerant and heat-resistant seeds and breeds), post-harvest operations, and value chain relevant facilities (e.g., storage, washing, grading, packing, pre-cooling, cold storage).

4. The project will provide sub-loans to productive partnerships through three Windows: (i) sub-loans to the lead aggregator in the value chain, (ii) sub-loans to individual producers and/or farmers groups aiming to become suppliers to the lead aggregator, and (iii) sub-loans to private seed and animal breeding farms which would supply the partnerships and other interested producers of crop and livestock products with high quality, resilience-improving seeds and livestock breeding materials. In addition to the financing, the project will also provide training and capacity building of beneficiaries including farmers and processing enterprises, PFIs, and other participants in the targeted agri-food clusters. The training of the agri-food clusters would include business development to enable producers and processors' groups to become effective value-chain actors and credible partners for increasing their potential as partners for the credit line. The project would also provide training to the departments of the MoWRAPI to enable them to provide improved services to the dairy and horticulture cluster participants. In addition to training, the project would provide institutional strengthening support for improving the seed system in the county through establishing seed farms for production and distribution of quality,

climate-resilient, and market-oriented seed varieties for various crops. The project would also support farm-level animal productivity through improved breeds of dairy animals and related animal health and husbandry services.

Project Objectives

5. The proposed Project Development Objective (PDO) is *to increase productivity and climate resilience of selected agri-food clusters and in case of an eligible crisis or emergency, respond promptly and effectively to it*.

Flow of Funds

6. The funds will be channeled through the MoF, the Borrower's representative, to implement the credit line under Component 1. The MoF and each participating financial institution (PFI) will sign a Subsidiary Loan Agreement to implement the project's credit line. A Credit Line Manual (CLM) will specify the detailed criteria, terms, and conditions for the implementation of the credit line. The PFIs will receive the credit line proceeds from the MoF under the Subsidiary Loan Agreement and on-lend them to eligible beneficiaries for implementing eligible subprojects in accordance with the CLM, acceptable to the World Bank, and their banking considerations.

7. The CLMU will act as the PIU under the MoF to carry out the implementation of Components 1 and 3 and will provide the necessary support to the PFIs. Over the past 20 years, the CLMU has accumulated extensive experience in implementing World Bank projects in the Kyrgyz Republic, including 5 successful agricultural projects using agribusiness financial instruments such as investment lending, structured finance, and revolving funds. The CLMU has a strong capacity to support the financial management functions required for the project, including budget planning, accounting, financial reporting, external audits, cash flow, and internal controls. The CLMU has consistently received a "satisfactory" rating and received unqualified external audit reports for all its projects.

Additional Information

8. **Direct and indirect beneficiaries**. The total number of direct and indirect beneficiaries will be based on exact number of loans provided to the producers and productive partnerships for each value chain. However, an estimated number of direct beneficiaries is expected to be about 8,000 and indirect beneficiaries about 20,000. Direct beneficiaries would include individual farmers/producers, producer groups, small and medium processors, and other value chain stakeholders participating in the agri-food clusters. Other beneficiaries include staff of the veterinary laboratories, trained artificial inseminators, and staff of government institutions involved in livestock breeding and seed production systems. Indirect beneficiaries would include farming communities, household members of loan and training recipients, and other value chain stakeholders and rural communities who may not be direct loan recipients.

9. **Approach**. The project focuses on promoting climate resilience within production and processing within the dairy and horticulture clusters. The cluster participants are expected to adopt technologies and practices that directly contribute to addressing change impacts on the landscapes (crop and livestock) to systematically address the synergies and tradeoffs between productivity (quality and volumes), and climate resilience (adoption of technologies and practices). This is expected to contribute to the country’s food and nutrition security. The project supported investments to the productive partnerships would include providing loans for improved technologies for production and processing as well as practices to better management of natural resources like land, soil, and water.

10. The government intends to expand the availability of finance for the agriculture sector, especially for micro-agri-enterprises and in the rural areas of the country. In particular, the 2021 *agro-industrial complex development* program is intended to promote agri-food clusters across the country to improve farmers' access to innovation, resource-saving and climate resilient practices, and digital technologies to enhance productivity and processing systems. This would include:

- *Strengthening producer organizations and value chain coordination* to enhance the capacity of farmers, particularly smallholders for competing in high-value markets and access urban, regional, and global markets.
- *Promoting technology adoption and innovation* to improve productivity through the increased adoption of new and climate-smart technologies, such as improved seed varieties and livestock breeds.
- *Enhancing market access and finance* to link farmers to markets and help increase their incomes levels through improving their business planning and negotiation capacities as well as ability to meet market standards.
- *Reducing risk and vulnerability* through safety nets for farmers, better management of national food imports, protection against catastrophic losses, and measures to reduce the risk of major livestock disease outbreaks.
- *Facilitating rural non-farm income* by improving the rural investment climate, upgrading skills of rural residents, and expanding rural infrastructure.

II. Coordination between the Bank and IFC

11. The International Finance Corporation (IFC), a member of the World Bank Group, has been operating in the Kyrgyz Republic since 1993. IFC is the largest global development institution focused on the private sector in emerging markets. It works with businesses of all sizes to create jobs, improve infrastructure, and boost economic growth. IFC's investments in the Kyrgyz Republic have focused on a range of sectors, including financial services, infrastructure, and manufacturing. IFC has also provided advisory services to the Kyrgyz government on a range of policy and regulatory reforms. These reforms have helped to create a more favorable environment for businesses to operate in.

12. The World Bank and IFC are collaborating on renewable energy, education, digital financial services and business environment improvement in the Kyrgyz Republic. In the renewable energy sector, the World Bank is providing financing for the construction of a new solar power plant, and IFC is providing investment and advisory services to private developers of renewable energy projects. To improve quality of education, the Bank is providing financing for the construction of new schools and for teacher training programs, and IFC is providing investment and advisory services to private providers of education services. To advance digital financial services and business environment, the World Bank and IFC are providing advisory services jointly or in coordination. IFC is not expected to provide credit lines for similar investments in productive partnerships in the agriculture sector in the nearest future. However, where possible, collaboration between World Bank and IFC could be explored in future.

III. Policy Framework for Participating Financial Institutions (PFIs)

Macroeconomic environment

13. Economic growth of the Kyrgyz Republic was strong at over five percent for the past ten years, except in 2020 when the growth slowed due to the COVID-19 global pandemic. While the pandemic hit Kyrgyzstan's economy especially hard in the first half of 2020 and inflicted considerable hardship, the recession was moderated by strong and timely containment and support measures. These included a forceful public health response and the deployment of a set of fiscal, monetary, and financial measures, made possible by substantial buffers owing to prudent macro-economic policies in preceding years, and thanks also to sizable international support. Inflation continued to gradually decline in 2020, but higher increases in food prices kept overall inflation in the low double digits.

14. The Kyrgyz Republic saw an upward trend in inflation rate since 2020 mainly due to the COVID-19 pandemic, Russia's invasion of Ukraine, and resulting decreases in remittances and significant depreciation of the Kyrgyz Som. The rate of inflation in 2020 to 2022, were 7.5 percent, 14.5 percent, and 14.7 percent respectively. However, since 2023, inflation has been on a downward trend. The inflation was 7.3 percent between December 2022 and 2023 as reported by the National Bank of the Kyrgyz Republic (NBKR). The IMF projection is for the inflation so stabilize around 5 percent during

2025 -2026, and 4 percent in the medium term (this aligns with the World Bank's projection for 2024 of 4 percent at constant market prices.[24] The GDP growth for 2023 is expected to moderate to 3.5 percent as gold production contracts and agriculture and the services sector experience a slowdown.

15. The Kyrgyz government is taking steps to address inflation, such as raising interest rates. However, it is likely to take some time for these measures to take effect. As a result, inflation is expected to remain elevated in the Kyrgyz Republic in the near term.

Financial sector framework

16. The following laws and regulations govern the operation of PFIs in the Kyrgyz Republic:

- Law on the Financial Market and Financial Organizations of the Kyrgyz Republic: This law provides the general framework for the regulation of the financial sector in the Kyrgyz Republic, including PFIs.
- Regulation on Licensing and Regulation of Financial Intermediary Lenders: This establishes the specific requirements for PFIs to obtain and maintain a license from the NBKR.
- Regulation on the Prudential Requirements for Financial Intermediary Lenders: This regulation sets out the capital adequacy, liquidity, and other prudential requirements for PFIs.
- Regulation on the Consumer Protection of Financial Services: This regulation establishes the consumer protection requirements for all financial institutions, including PFIs.

17. As of September 2023, the Kyrgyz financial sector is bank-dominated with 23 commercial banks operation through 320 branches as of September 2023. The NBKR reported an increase of 19.7 percent in the volume of credit portfolio of clients from the banking sector, amounting to KGS 244.3 billion (at the end of 2022 – KGS 204 billion). Loans for agriculture amounted to KGS 42.5 billion.[25] The NBKR is the primary regulator of financial institutions/intermediaries (FIs) in the Kyrgyz Republic. The NBKR is responsible for licensing and supervising FIs, and for ensuring that they comply with all applicable laws and regulations. The Kyrgyz Republic has also adopted several international standards and best practices for the regulation of FIs. The policy framework for FIs in the Kyrgyz Republic is designed to promote financial stability, consumer protection, transparency, and sound risk management.

18. As a result of COVID-19 impacts, the quality of bank portfolios weakened as manifested in rising non-performing loan ratios (13.1 per cent in October 2022 versus 8.1 per cent in January 2020), however, it has been improving since. However, through the COVID-19 impacts, the banking sector in the Kyrgyz Republic has remained relatively resilient, well-capitalized and liquid post-COVID-19 crisis. Table A4.1. below provides the state of banking sector indices at 2020 through September 2023. The liquid asset to short-term liability ratio has remained within the range of 60–70 percent in the past two years, well above the minimum regulatory requirement of 45 percent.

19. Non-bank financial institutions are relatively small but play a significant role in MSME finance. Non-bank financial institutions include microfinance organizations and credit unions and account for just 8 percent of financial sector assets. Nevertheless, the microfinance sector plays a vital role in the Kyrgyz Republic, especially in rural and remote areas, where the availability of collateral is limited. Non-bank financial institutions had a total of 350,692 borrowers in 2018, compared to 471,526 bank borrowers.[26]

[24] World Bank 2023. Macro Poverty Outlook for Kyrgyz Republic: April 2023. Washington, D.C.: World Bank Group. https://documentsinternal.worldbank.org/search/34041843

[25] September 2023, National Bank of the Kyrgyz Republic (NBKR) https://www.nbkr.kg/index1.jsp?item=1481&lang=ENG

[26] IMF Financial Access Survey. These figures include consumer loans and mortgages.

Table A4.1. Banking Sector Indicators

	End of 2020	End of 2021	End of 2022	September 2023
Capital adequacy	24.9	22.2	25.6	24.9
Gross ratio of non-performing loans	10.5	11.1	12.8	10.0
Liquidity ratio	64.9	71.3	82.8	79.3
Loan to deposits	95.9	80.3	65.0	67.7
Return on equity	5.5	7.8	43.4	33.5
Return on assets	0.9	1.2	5.9	4.6

Source: NBKR data as of September 30, 2023.

20. Banks and microfinance organizations are regulated and supervised by the NBKR. Banks are governed by the Law on the National Bank of the Kyrgyz Republic, Banks and Banking Activities (2016). Non-bank financial institutions are governed by the Law on Credit Unions (1999) and the Law on Microfinance Organizations (2002), respectively. Oversight by the NBKR has recently transitioned (with the support of the WB, financed by the Swiss State Secretariat for Economic Affairs) from a compliance-based supervisory approach to a more risk-based one.

21. Despite increases in account ownership, 55 percent of the adult population is still not financially included. Financial inclusion is important because much of the economic activity in the Kyrgyz Republic happens informally and outside the financial sector. Financial inclusion might be a first step to becoming formally active. Account ownership at a financial institution or mobile money provider increased among adults from 4 percent in 2011, to 18 percent in 2014, before jumping to above 40 percent since 2017 and as of 2021, at 45 percent.[27] This has been a result of the government's efforts to channel the state's social benefits, pensions, and salaries through bank accounts. This is lower, however, than the median among lower-income countries (58 percent) and the median in the Europe and Central Asia region (65 percent). Digital financial services are growing. The share of adults who made digital payments via e-wallets, cards, and the Internet increased from 14 percent in 2014 to 36 percent in 2017,[28] and has continued to grow. Use of e-wallets increased steeply, from 374,025 in 2016 to 1,209,026 in 2018 and 1,960,000 in 2019.[29]

22. The cost of credit, in terms of net interest margin and collateral requirements, is considered high. The net interest margin is 8.2 percent, compared to the Europe and Central Asia median of 4.6 percent. The high net interest margin is rooted in the banks' high operational costs. There are many relatively small banks that do not have the economies of scale to recover from the high cost of small and micro lending. Regarding borrowers' collateral conditions, as recently as 2017, 80.2 percent of loans were secured with immovable assets. According to the World Bank's Enterprise Survey in 2019, more than 90 percent of loans required collateral, with the average value of collateral needed as high as 244 percent of the total loan amount.[30] The high collateral is caused in part by an underdeveloped secured transaction and credit reporting regime, which would take time to improve. There is currently no stand-alone law on secured transactions that accounts for all encumbered assets (for example, assignment of receivables, transfer or retention of titles, or leases and tax liens). Moreover, the current Credit Reporting Law does not allow the credit bureau to access alternate data sources such as utility and telecommunications companies. In addition, the coverage of the collateral registry and the credit bureau is limited, and there is no automatic connection between the collateral registry, the credit bureau, and the business registry.

[27] WB Global Findex Database.
[28] WB Global Findex Database.
[29] IMF Financial Access Survey and NBKR.
[30] This is significantly higher than the average of 178 percent for the Europe and Central Asia region.

23. The average weighted on-lending interest rates by commercial banks in KGS between 2020 and September 2023 ranged from 16.14 to 17.75 percent while rates for agriculture loans ranged from 16.25 and 17.30 percent for the same period. As of September 2023, interest rates by maturity at 12 months, 1-3 years and more than 3-years were 22.62, 18.52, and 15.31 respectively. Credit volumes in KGS by maturity and interest rates for 2020 through September 2023 are provided in Table A4.2 below.

Table A4.2. Interest rates in KGS

Period	Total in KGS		6 - 12 months		1 - 3 years		more than 3 years	
	volume	*interest rate*	*volume*	*interest rate*	*volume*	*interest rate*	*volume*	*interest rate*
End of 2020	109,010,170.1	16.14	10,234,127.6	21.63	48,187,882.0	17.13	42,688,964.4	13.10
End of 2021	131,033,742.5	16.25	12,431,798.3	21.52	56,873,567.5	17.56	51,292,828.4	13.68
End of 2022	155,994,814.9	17.10	16,178,750.8	21.10	68,784,364.3	18.31	57,535,386.0	14.21
September 2023	192,551,027.4	17.75	21,279,407.3	22.62	86,989,979.5	18.52	68,551,076.0	15.31

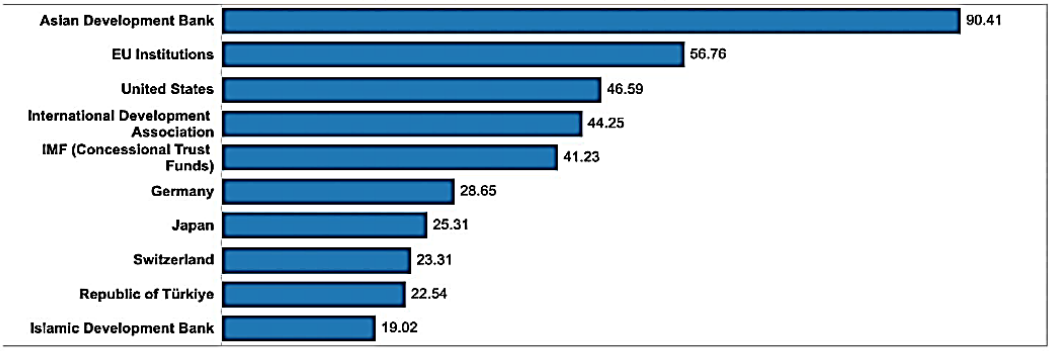
Source: NBKR data as of September 30, 2023

24. Several IFIs are engaged in Kyrgyz Republic including ADB, EU, World Bank, IMF, and Islamic Development Bank. The ADB remains the largest investor (Figure A4.1.) with some US$ 90.41 million averaged over the two years, followed by EU institutions (US$ 50.75 million), United State (US$ 46.59), International Development Association (IDA) (US$ 44.25), Germany (US$ 26.55) and Japan (US$ 25.31). The ADB, IMF and World Bank were considerable financiers during the COVID-19 pandemic, providing macro-fiscal support. Other regional investors include Russia and China through mostly debts instruments to the Kyrgyz Republic. The Eurasian Fund for Stabilization and Development (EFSD) with Russia being the primary investor provides about US$ 8.5 billion as public finance flow to Kyrgyz Republic.[31] Several projects including credit lines for the agriculture sector have been implemented by the CLMU under the MoF since 2002 through various PFIs (see Table A4.3.).

25. There is strong rationale for providing affordable loans for agricultural productivity improvement in the Kyrgyz Republic. Firstly, agriculture plays a significant role in the Kyrgyz Republic's economy, employing a large portion of the population. By providing affordable loans, farmers can invest in modern farming techniques, equipment, and infrastructure, leading to increased agricultural productivity. This, in turn, can contribute to overall economic growth and development. Secondly, promoting climate resilient agricultural production requires rapid adoption of climate-smart technologies and practices which can be directly supported through agriculture loans. Thirdly, transforming the agriculture to directly contribute to the overall economic growth also requires affordable loans to stimulate investments in agriculture to increase productivity, employment opportunities, and economic development in the remote rural areas.

[31] http://www.donors.kg/en/agencies

Figure A4.1. Top 10 donors in 2019-2020 (US$ million)



Source: 2023 Kyrgyz Republic Development Finance Assessment (DFA) version 2.4.gov

Agriculture sector financing

26. The agriculture sector has been estimated to require credit equivalent to 10 percent of its GDP (ranging between US$ 300-800 million) in a given production period. Access to finance for agricultural producers, especially for long-term lending remains limited with only 4 percent of total deposits having maturity periods longer than one year. The share of the agriculture sector in the lending portfolio of commercial banks in the Kyrgyz Republic has fluctuated over time, where agriculture lending (all maturities) stood at 16.7 percent at the end of November 2023 (NBKR).

27. Given the limited access to finance in the sector, the government has developed several programs that offer agricultural subsidies and loans through commercial banks to support businesses and individuals working in the sector. These programs aim to provide state support during the busy spring field work period and cover various sectors such as livestock, crop production, processing development, and agricultural services. However, access to long-term investments remains constrained. The government is implementing programs to provide support, but addressing the challenges of high interest rates and limited access to credit requires broader efforts in strengthening the financial sector and implementing sound macroeconomic policies. The interest rates for financing under the government programs are 6 percent to the final beneficiaries channeled through state-owned banks under the government programs.

28. IFI and donors, including the World Bank, provide limited financing to the agriculture sector. Interest rates range between 4 – 6 percent to the commercial banks and 10 – 13 percent to final beneficiaries under the loans of IFIs, such as ADB and KfW. Interest rates under the World Bank-financed credit lines (indicated in Table A4.3 below) have been commercially structured, with interest rates to the PFIs at 5 percent and 10 percent for livestock beneficiaries and 12 percent for agro-processing enterprises.

Table A4.3. Agriculture credit lines in donor projects

Project Title	Project Period	Amount (US$)	PFIs
Rural Finance-2	March 31, 2002 – June 30, 2005	15,000,000	Ayil Bank KICB Bai Tushum CB Kyrgyzstan Inexim Bank
Agribusiness and Marketing	May 2, 2005 – March 31, 2013	12,975,000	
Agricultural Productivity Assistance Project	July 1, 2012-July 31, 2015	6,850,000	
Integrated Dairy Productivity Project	August 10, 2017 – December 31, 2021	5,000,000	
Additional Financing of Integrated Dairy Productivity Project	December 26, 2021-January 15, 2026	17,000,000	

Source: CLMU/MoF

Directed Credit

29. The main beneficiaries of the credit line are farmers and enterprises in the dairy and horticulture clusters interested in improving the productivity, climate resilience of their farms and the greening of livestock production in the project regions. These enterprises will benefit from facilitation and access to finance, as well as improved market access through capacity building activities in the dairy and horticulture sub-sectors.

30. The credit line would focus on dairy and horticulture producers and processors interested in improving the climate resilient of their farms and in greening livestock production. While the productive partnerships model is still new to the Kyrgyz Republic, the government's 2021 Agro-Industrial Complex program directly supports the clusters development into viable and competitive value chains that is being implemented through the productive partnerships approach in some parts of the country.[32] The productive partnerships approach presents a learning curve for the country's banking sector in terms of risks it may present. However, there is wide recognition that smallholder dairy and horticulture farmers lack access to investment financing due to lack of suitable loan products, funding structure of financial institutions characterized by limited long-term fundings and the "investment choices" of the financial sector institutions which tend to favor lending to larger farms/livestock production businesses, tends to be limited.

31. The increasing provision of long-term funding for the sector, targeting the funding towards smallholders, women farmers, productive alliances, green investments, etc., and ensuring the participating financial institutions are aware of specifics of lending to livestock sector can help alleviate these structural constraints and increase flow of loan funds to the sector livestock farmers. Financial products that are tailored to livestock production cycles and to the needs of these special groups of potential sub-borrowers are in short supply, highlighting the need to further support financial institutions in developing specific loan products/services for this segment and in building the capacity of financial institutions in new lending methodologies. Building on the experience gained under several previous credit lines to the agriculture sector, the credit line component will be compliant with World Bank Guidance for Financial Intermediary Financing and adopt a set of acceptable Credit Line Guidelines.

Interest Rates

32. The interest rate from the MOF to the commercial banks is expected to reflect the cost of IDA financing and the exchange rate risk and it will likely be aligned with that of the other IFIs and other donor organizations. While this may mean that the interest rate to the financial sector in Kyrgyz soms is slightly below the inflation rate for 2024 and possibly 2025, by 2026, the cost of funds to the PFIs is expected to be aligned with inflation and thus positive in real terms. The interest rate from the MOF to the PFIs is expected to be stable during the course of the project implementation and this will be important as the credit line is geared towards long-term investment in climate resilience-improving agricultural production technologies (although a share of the funds would also support complimentary working capital). Interest rates which will be provided within certain range to the final beneficiaries will be agreed in the PFI Agreement. At this moment, the interest rates are set benchmarking a few percentage points below prevailing 3 years loan rates as the loan maturity of up to 5 years will likely be offered. The disruptions to the financial sector will be minimized by opening the credit line to all interested qualified PFIs and ensuring that the PFIs have ability to select and evaluate the potential sub-borrowers.

IV. Eligibility criteria for Participating Financial Institutions (PFIs)

33. The commercial banks and MFIs in the Kyrgyz Republic have extensive experience of working with the World Bank-financed credit lines. The CLMU under the MoF, has developed the necessary capacity and specific skills to administer

[32] Productive Partnerships are being established in Osh and Batken regions under the Regional Economic Development Projects financed by the World Bank.

implementation of credit lines. The PFIs are individually appraised by MoF/CLMU through the due diligence process in compliance with the IDA guidelines and with particular attention given to the overall lending capabilities, and financial and portfolio performance. To qualify as a Participating Financial Institution (PFI), commercial banks would need to complete a due diligence procedure in accordance with a set of operational, financial and management criteria indicated below. It is expected that the PFIs for this proposed project would be selected at the project outset, on the basis of the audited reports for 2023 and other relevant financial and operational information, as per the eligibility criteria.

34. Only sound PFIs that meet the following established criteria will be considered: (a) licensing, (b) compliance with national regulations, (c) operations for at least two years, (d) audited financial statements, (e) sound management and governance practices, (f) management information systems, planning, reporting and internal audits, and (g) standard ratios for capital adequacy, liquidity, equity, and profitability and balanced asset and liability structure and sustained portfolio quality. Further detailed criteria will be described in the Credit Line Manual.

V. Sub-loans

35. The project would provide two types of sub-loans for cluster development: (i) investment loans; and (ii) complementary loans for working capital. The primary aim of the sub-loans would be to promote technologies and practices that strengthen climate resilience in the production, processing, and other value chain operations including, but not limited to, efficient use of land and water resources in production, quality of seeds and planting materials that are climate resilient, product labeling for nutritional and food safety, packaging and storage, and marketing etc. The working capital loans would also enable productive partnerships in accessing the climate-smart technologies including climate-resilient and high yield seeds for fodder and other crops, and other inputs to meet seasonal production targets for spring and winter planting (planting materials, fertilizers, etc.) as well as necessary post-production and processing harvesting activities for smallholders. Investment loans investments would prioritize financing climate-smart equipment and farm machinery, invest in warehouses, greenhouses, and other productive assets.

36. The proposed size of sub-loans for dairy and horticulture value chains as long-term investment loans as well as for the working capital sub-loans will be determined later and indicated in Credit Line Manual, upon agreement with Ministry of Finance and the World Bank. The actual size and maturity of the sub-financings will depend on the type of investment financed, profitability of the investment, cash-flows generated, collateral, and other banking considerations as assessed by the PFI.

37. The eligible sub-borrowers under the credit line (Component 1. Investments for agri-food clusters development) would include individual smallholders (farmers/producers), small producers' groups, small and medium-sized producers' organizations, agribusiness enterprises that are currently engaged in agriculture production and/or processing activities. The member of productive partnerships would include both producers and processors and the investment loans would be provided to the productive partnerships through an aggregator/processor.

38. Sub-loans would be provided under 3 Windows: (i) productive partnerships through the lead aggregator, (ii) individual farmers and/or farmers groups, and (iii) private seed and animal breeding farms. The detailed description of eligibility of the sub-borrowers and investments, as well as the terms and conditions of the sub-loans would be included in the CLM as part of the overall POM. The proposed rates for on-lending to the PFIs would be finalized during the preparation of the CLM. The interest rates shall be proposed by the MOF and CLMU and shall be acceptable to IDA. The interest rates to the final beneficiaries will depend on the banking considerations of the PFIs.

39. The maximum maturity of the investment loans financed under the project will not exceed 5 years or the amortization period of the asset, whichever is shorter. The working capital loans would be for a period not exceeding 36 months. However, the final terms and conditions of the sub-loans will depend on the nature of investments as laid out in the applicants' business plans including, but not limited to, type of investment financed, profitability of the investment, cash-flows generated, collateral, and other banking considerations as assessed by the PFI. The sub-loans will be issued in Kyrgyz Soms (KGS).

40. The interest rates to the PFIs are expected to be agreed in the PFI Agreement. The cost of funds to PFIs will be set based on the cost of IDA financing and a risk margin including an exchange rate risk. The interest rate to borrowers will be described in the Credit Line Manual considering full coverage of the costs of loans such as cost of funds, operating expenses, and regulatory costs including provisioning. The reference rate, its formula, and actual margins charged by PFIs may be revised from time to time, as necessary.

VI. Monitoring

41. The PFI/CLMU will be responsible for monitoring compliance of investment loans with the eligibility criteria and the PFI compliance to the on-lending terms. Regular visits to the productive partnerships and sites for investments (equipment and other assets) implemented by the beneficiaries would be conducted by the PFI/CLMU team. The PFIs would be required to submit regular progress reports and data to the CLMU which will be shared with MoF and MoWRAPI. Based on the agreed procedure, onsite visits to the investment loans sites are carried out not later than (6) months from the disbursement of the loans to the final beneficiary. In addition, beneficiary surveys and independent impact evaluations for the project would also include the credit line activities under component 1.

42. The CLMU would ensure collection quarterly reports of the PFIs, in compliance with the provisions of the subsidiary loan agreement.

43. The environmental and social compliance of investment loans would be monitored as part of the regular report. The PFIs would be required to include appropriate capacity within their teams to ensure adequate capacity for monitoring compliance to the World Bank's Environmental and Social Framework (ESF) is maintained through the project implementation period.

VII. SUSTAINABILITY, BENEFITS AND RISKS

44. **Arrangements after the project closing**. The credit line funds will continue revolve based on the decision by the Cabinet of Ministers. Interest payments on the subsidiary loans and principal amounts repaid will be used as decided by the Cabinet of Ministers. After the project closing, MoF will monitor, through the relevant department, the repayment of the Credit Line based on the decision by the Cabinet of Ministers.

45. **Sustainability of the Operation**. The technical sustainability of the credit line will be ensured through the provision of relevant training and hands-on technical assistance to the PFIs. The PFIs will be trained in the applicability of the new financial products, assessing the suitability and effectiveness of these new products, and on mitigation of the related risks. The sustainability of the funding that the PFIs will be receiving will be ensured by applying the extensive experience and knowledge of CLMU to ensure liaison with and support to the PFIs, efficient and technically sound review of the sub-loan applications and good quality monitoring of the credit line implementation, including site visits and satisfactory application of safeguards. The sustainability of the demonstrations will be ensured by requiring that the financial and commercial

viability assessment of the business proposals are assessed by the PFIs, to ensure that only viable business proposals are approved and receive the loans and matching grants under the project.

46. **The benefits** will accrue to PFIs in form of an expanded portfolio in the rural/agricultural market niche, expanded menu of lending products (focusing on small-scale sub-borrower and productive alliance needs), increased capacity for assessing rural/agriculture loans, increased knowledge of suitable and effective financial instruments, and broadened client base. The benefits to sub-borrowers will accrue in the form of improved productivity and profitability because of increased resilience to climate change. The benefits to small farmers, agribusinesses and productive partnerships will be in the form of improved access to finance, improved productivity, resulting from the investments, better access to markets and profitability, and improved income generating opportunities. The improved access to knowledge and new CSA technologies are expected increase the on-farm resilience against adverse climate events, which will allow preserving yields and reduction in harvest losses. For the government, the project will bring an opportunity to learn about private sector-led livestock sector development, ensuring financial and commercial viability of the investment made in the sector.

47. **Risks.** The following potential risks are identified:

(1) **Risk**: Given the (still) on-going post-pandemic recovery efforts, there is a risk associated with a possible lack of interest/slow-down in lending.
Mitigation measures: The World Bank team will engage in dialogue with the government counterparts on possible measures to strengthen the creditworthiness of potential beneficiaries through appropriate mobilization and awareness raising measures. It is also expected that the other activities of the project – such as the training and capacity building of productive partnerships, smallholders, and other cluster participants – will facilitate access to market of the dairy and horticulture producers, thus enabling them to make on-farm investments.

(2) **Risk**: Related to the above, the slow economic recovery post-pandemic may contribute to lower repayment by sub-borrowers, resulting in sub-par loan portfolio quality.
Mitigation measures: This risk will have to be closely monitored to ensure that any possible issues are identified early, and the appropriate remedial measures can be taken timely. Overall, the agriculture and food sector has performed relatively well to date as reported by the ongoing MSME project and its Additional Financing. The World Bank team will continue its dialogue with the government counterparts to detect and respond to potential and new external shocks that may impact borrowers, especially smallholders, and increase the risk of non-repayments.

(3) **Risk**: Unwillingness of PFIs to lend to the new proposed groups of beneficiaries, in particular smallholder farmers and productive alliance members.
Mitigation measures: Several financial institutions have experience in the agriculture sector lending. Technical assistance to the PFIs will be provided as and when needed to improve their understanding of the sector and requirements for the productive partnerships and smallholders, and climate-smart and green technologies. Where needed, additional technical assistance through training, cross-country knowledge exchange and global experience of financial access for smallholders could be provided.

ANNEX 5: Fiduciary Arrangements for Financial Management and Procurement

COUNTRY: Kyrgyz Republic
Resilient Agri-food Clusters Development Project

Financial Management

1. **Implementing Entities.** Financial Management (FM) including the flow of funds, budgeting, accounting, reporting, internal controls, and external audit, would be implemented by the two project implementing agencies, the CLMU and ABCC. An FM assessment was carried out to determine the FM implementation risk and FM arrangements at both implementing agencies, including accounting, reporting, planning, budgeting, and internal controls, and staffing. The FM arrangements were assessed to be overall satisfactory to the Bank. The inherent risk of the Project after applying risk mitigation measures is rated as Moderate; the Control Risk and the overall Residual FM Risk are also considered to be ***Moderate***.

2. **Budgeting and Planning.** The CLMU and ABCC have, in general, acceptable budgeting and planning capacity to carry out the Project. The final procurement plan that is to be discussed and agreed with the CLMU and ABCC Directors, and approved by the World Bank would be based on the annual budget of the project. All changes to the procurement plan would be reviewed by the Directors and approved by the World Bank. The Directors, the FM specialists, and the procurement specialists would be involved in the preparation of the annual budget for their respective components. The budget would form the basis for allocating funds to project activities. The budgets would be prepared according to the IFR format (disbursement categories, components and activities, account codes, and broken down by quarters).

3. **Accounting and Reporting.** Cash basis of accounting would be applied for the project's accounting. Both implementing agencies would maintain their current accounting systems. Project-management-oriented Interim unaudited Financial Reports (IFRs) would be prepared under the project. The CLMU would produce a full set of IFRs (using inter alia information submitted by the ABCC) every calendar quarter throughout the life of the project. The CLMU would be responsible for their submission to the Bank. The agreed format of IFRs would include (i) Project Sources and Uses of Funds, (ii) Uses of Funds by Project Activities, (iii) Project Balance Sheet, (iv) DA Statement, (v) Revolving Fund Statement, and (vi) Withdrawal Schedule. IFRs would be produced by the accounting software. These financial reports would be submitted to the Bank within 45 days of the end of each calendar quarter. The annual audited project's financial statements and audit report together with the management letter would be provided to the Bank within six months of the end of each fiscal year as well as at the closing of the IDPIP by the CLMU.

4. **Internal Controls**. The CLMU's and ABCC's internal controls systems were assessed to be capable of providing timely information and reporting on the project. The FM chapter of the POM is well prepared and fully document accounting and financial reporting policies and procedures of existing projects such as internal control procedures, including authorization of expenditures and approval of the payments, bank reconciliations, verification of expenditures eligibility by the Financial Managers; description of financial documents flow/circulation; indication of eligible cash transactions, budgeting procedures, formal reconciliation procedures of project records with Client Connection and XDR/USD reconciliation, safeguards for assets, etc. Similar internal control systems would be maintained for the purpose of the Project. Expenditures incurred by the CLMU and ABCC would be authorized by the Directors of the implementing agencies for their respective components and verified for eligibility and accuracy by the financial managers. Similar POM would be prepared by the CLMU with ABCC's assistance to reflect specific activities of the project, including Chart of Accounts, Audit TOR, frequency of submission, format of IFRs, and so forth.

5. **Staffing.** The CLMU and ABCC have experienced FM staff, consisting of Financial Managers responsible for overall FM arrangements of all projects implemented by the respective agencies. Both Financial managers have many years of experience working on WB-financed projects. FM Managers would be in charge of the overall FM arrangements of the RACDP as well. The Financial Manager of the CLMU would be responsible for preparation of the quarterly IFRs and their submission to the Bank. There are also experienced disbursement specialists at the CLMU and an experienced accountant at the ABCC working for different projects, such arrangement is adequate, and no additional staff is required at the beginning of the project. At a later stage, an additional accountant could be hired by either implementing agency depending on further workload.

6. **External Audit.** The project audit would be conducted (i) by independent private auditors acceptable to the Bank, on the TOR acceptable to the Bank, and selected by the CLMU; and (ii) according to the ISA issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants. The TOR would include (i) audits of financial statements, (ii) assessments of the accounting system, and (iii) a review of the internal control mechanisms. The audited financial statements would be disclosed to the public in a manner acceptable to the Bank. Following the Bank's formal receipt of these statements from the borrower, the Bank makes them available to the public in accordance with the World Bank Policy on Access to Information.

7. **Disbursements.** Disbursements from the Credit and the Grant Accounts would follow the transaction-based method, i.e., traditional Bank procedures including advances to designated accounts, direct payments, Special Commitments, and reimbursement (with full documentation and against Statements of Expenditures - SOEs). Two designated accounts would be opened by the CLMU in a commercial bank acceptable to the World Bank, one for Credit resources, and one for Grant resources. For payments above the minimum application size, as will be specified in the DFIL, the CLMU may submit withdrawal applications to the World Bank for payments to suppliers/contactors/consultants directly from the Credit Account or Grant Account, as applicable. Disbursement arrangements will be detailed in the DFIL. The ABCC would open special accounts for the project in the same commercial bank. The ABCC would apply from time to time to CLMU to get advances from the DA to ABCC's special account(s). The ABCC would use the account(s) only for project eligible payments and report about expenditures from time to time to the CLMU. Details of cash flow arrangements would be described in FM part of the POM.

Procurement

8. **Applicable Procurement Framework**. All procurement of contracts will be conducted through the procedures as specified in the World Bank's Procurement Regulations for IPF Borrowers – Procurement in Investment Project Financing Goods, Works, Non-Consulting and Consulting Services, dated September 2023. The Guidelines on Preventing and Combating Fraud and Corruption in projects financed by IBRD loans and IDA credits and Grants, dated October 15, 2006, and revised January 2011 and as of July 1, 2016, shall apply to this project. The procurement and contract management processes will be tracked through the Systematic Tracking of Exchange in Procurement (STEP) system.

9. **Country Procurement Environment**. The Ministry of Finance of the Kyrgyz Republic has introduced several measures to improve transparency of procurement processes at government entities. One such measure was the adoption of the new Public Procurement Law (PPL) in 2022, which introduced key procurement principles and included a list of permitted procurement methods and their practical application procedures. To address transparency issues, PPL introduced tools for contract administration, three instances of complaint management procedure, and gives civil society the opportunity to participate in the tender procedures. Currently, all government procuring entities are required to use zakupki.gov.kg platform to announce and process their procurement packages. However, due to frequent changes in PPL, there may be a need to use direct contracting as a non-competitive procurement method.

10. **Institutional and Implementation Arrangements**. The project, including procurement, will be implemented by CLMU and ABCC with the assistance of technical consultants and staff of other relevant units of the implementing agencies. A qualified procurement specialist will be assigned for handling day-to-day procurement activities in both CLMU and ABCC. The technical staff of the relevant units of the Implementing Agencies will be responsible for working with external consultants and monitoring their work. In addition, they will be responsible for accepting and approving outputs prepared by selected consultants.

11. **Procurement Risks Analysis**. A procurement capacity assessment was performed by the World Bank using the Procurement Risk Assessment and Management System. Based on the assessment and taking into account the overall procurement environment in the country, the overall project risk for procurement is assessed as ***Substantial***.

Table A5.1. Procurement Risks

- **Procurement planning.** An increase in gas/oil prices and fuel will affect the price of the end product and may increase cost estimates.
- **Procurement process.** Project beneficiaries have limited capacity to prepare detailed designs and technical specifications for defined investments. The possibility of attempts to influence government officials responsible for procurement decisions increases the risk of accountability of procurement decisions.
- **Potential procurement delays.** Experience suggests that procurement delays should be expected due to the lack of procurement capacity and limitations of the markets; in addition, local currency depreciation may result in the unwillingness of potential bidders to submit bids/quotations in the local currency.
- **Potential contract implementation delays.** Current difficulties in all aspects of logistical services, including transportation of goods, directly affect goods delivery from the Commonwealth of Independent States and other European zone countries.
- **Overall procurement environment.** Overall, there is an unstable procurement environment, frequent changes in PPL, and a high level of corruption, as measured by Transparency International.

12. To mitigate the risks, the following actions are identified.

Table A5.2. Preliminary Risk Mitigation Measures

- All procurement activities will be carried out following World Bank Procurement Procedures, including the related prior- or ex-post reviews. The World Bank good governance and anticorruption safeguards, particularly the transparency and disclosure provisions will be promoted and enforced.
- With the support from additional consultants, the PIU will be responsible for the preparation of bidding documents, the World Bank will provide intensive implementation support.
- Realistic procurement planning, up-to-date cost estimate, and scheduling, including timely preparation of the technical specifications or TOR with the World Bank's close supervision and monitoring, particularly from the country office, will be required. Early engagement with the market and business outreach will be required for critical packages.
- The POM should have clear deadlines and timelines for each step in the procurement processes for both consultants selection and goods/works/services procurement to avoid unnecessary delays during the implementation.
- USD/EUR currency will be used for bid submission in problematic procurement packages following national market approach, while the payment would be in local currency.
- More emphasis on and training in appropriate contract management is required, supplemented by regular physical inspections during the World Bank's supervision missions. The delivery terms will be carefully reviewed with the aim to avoid transportation through conflict-affected zones and seek for alternative routes.
- Application of the World Bank's Anti-Corruption Guidelines and close supervision by the World Bank staff will be ensured. Disclosure and publication of beneficiary ownership information.
- World Bank will provide intensive implementation support to ensure verification of the qualifications of the winning bidders prior to contract award.

13. **Summary of PPSD**. As required by the Procurement Regulations, the PPSD is developed, based on which a PP is prepared setting out the selection methods to be followed by the recipient during the Project implementation when procuring goods, works, and non-consulting and consulting services, financed by the World Bank. The procurement approaches for key packages have been determined in the PPSD as described in the following paragraphs.

14. **Procurement approach for key goods, works, and non-consulting services contracts**. Key goods packages include: i) Agricultural machinery, equipment and goods for seed and breeding farms, as well as dairy and horticulture farms; ii) Equipment and goods for the MoWRAPI and relevant department and iii) Lab and computer equipment for laboratories. These packages will be procurement through request for bids, open market international/national approach. The key non-consultancy package on Artificial insemination services of 20,000 cows and breeding registration will be procured through the request for bids an open international market approach.

15. **Procurement approach for key consultancy contracts**. Key consultancy package "Mobilization and training of farmers on improved livestock practices (dairy cluster)" will be procured through Cost and Quality Based Selection method following open international market approach using rated criteria. Project audit will be procured through Least cost selection method following open international market approach.

16. **Key conclusions from the conducted market analysis**. The market offers the possibility of satisfactory competition, which could be achieved by open competitive approach to the market attracting international and national contractors/suppliers/consultants with wide experience in the respective field to achieve the best fit for purpose and value for money in procurement.

17. Considering the size and complexity of components, lack of clarity about the potential interest of the market, and the need to combine procurement packages to reach economies of scale while minimizing the need for supervision, two envelope procurement approach with post-qualification will be used for main packages for civil works, if applicable. This will help engage the market and mitigate the price pressure during the evaluation.

18. The market can meet the procurement needs of the project. The Government agrees that additional efforts will be required in terms of continuous consultations with the industry, a careful approach to developing procurement documentation, and deliberate efforts to widely advertise tenders to ensure appropriate levels of participation by both local and international vendors.

19. **Training and operating costs**. The Project will finance the operating costs for the ABCC and CLMU. When required, the ABCC and CLMU personnel will be selected based on experience, qualifications, and capability to carry out the assignment. Qualifications of the key ABCC and CLMU personnel will be checked by the Bank in order to establish that these personnel have qualifications acceptable to the Association as per requirements of the Financial Agreement. The selection will be carried out through the comparison of the relevant overall capacity of at least three qualified candidates among those who have expressed interest in the assignment. Detailed selection procedures will be outlined in the POM. The ABCC and CLMU will develop a detailed training plan and prepare an annual operational budget for the World Bank team's review and clearance. Operating costs and training will be financed according to the annual budget approved by the World Bank.

20. **Record keeping**. All records pertaining to award of tenders, including bid notification, register pertaining to sale and receipt of bids, bid opening minutes, and bid evaluation reports and all correspondence pertaining to bid evaluation, communication sent to/with the World Bank in the process, bid securities, and approval of invitation/evaluation of bids,

contracts, contract amendments and other procurement/contract management documents will be retained by the respective agencies and uploaded in the STEP tool.

21. **Disclosure of procurement information**. The following documents shall be disclosed: (a) PP and updates; (b) an invitation for bids for goods and works for all contracts; (c) request for expression of interest for selection/hiring of consulting services; and (d) contract awards for goods, works, and non-consulting and consulting services. The following details shall also be published on the United Nations Development Business online and the World Bank's external website: (a) an invitation for bids for procurement of goods and works following open international market approaches, (b) request for expression of interest for selection of consulting services following open international market approaches, and (c) contract award details of all procurement of goods and works and selection of consultants.

22. **Fiduciary oversight by the World Bank and procurement supervision**. The World Bank shall prior review contracts according to the prior review thresholds set out in the PPSD/PP. All contracts not covered under prior review by the World Bank shall be subject to post review during the implementation support missions and/or special post review missions, including missions by consultants hired by the World Bank. Two half-yearly missions are envisaged for procurement support and supervision of the Project. During implementation, the accredited procurement specialist (APS) will join the regular World Bank implementation support missions. The frequency of procurement supervision will be twice a year.

23. **Use of National Procurement Procedures.** In accordance with paragraph 5.3 of the Procurement Regulations, when approaching the national market PIU/IA may use the procedures set out in the PPL. The provisions of the PPL are partially consistent with the World Bank Procurement Regulations Section V – Para 5.4 National Procurement Procedures subject to conditions specified in the PPSD and Procurement Plan. To promote transparency, efficiency, and value for money under the country public procurement system, the PPL provides for e-procurement system. The e-procurement system is assessed by the World Bank and the project may use it for procurement of simple goods and small works.

24. **Table: Summary Procurement Plan**

Contract Title, Description and Category	Estimated Cost US$ and Risk Rating	Bank Oversight	Procurement Approach/Competition: National International Open Limited Direct Sole Source	Selection Methods: Pre/Post qualification SPD (RFP/RFB) Competitive Dialogue Framework Agreement E-Reverse auction QCBS/QBS etc. Negotiation BAFO	Evaluation Method: Rated criteria (VfM) Lowest evaluated cost
Goods					
Procurement of services on Artificial insemination services of 20,000 cows and breeding registration	800 000	Post	Open international	Requests for Bids (RFB NPP)	Lowest evaluated cost
Equipment and goods for milk collection points under dairy cluster (cooling tanks, milk quality measuring equipment, stainless steel containers, milking machines) and for artificial insemination points (Dewar vessels, special vehicle for transportation of liquid nitrogen for the Kattatala station of the nitrogen plant	600 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Equipment and goods for the MoWRAPI (computer and other equipment, including for digitalization program)	900 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost

Contract Title, Description and Category	Estimated Cost US$ and Risk Rating	Bank Oversight	Procurement Approach/Competition: National International Open Limited Direct Sole Source	Selection Methods: Pre/Post qualification SPD (RFP/RFB) Competitive Dialogue Framework Agreement E-Reverse auction QCBS/QBS etc. Negotiation BAFO	Evaluation Method: Rated criteria (VfM) Lowest evaluated cost
Goods and equipment for demonstration farms in Jalal-Abad, Naryn and Chui oblasts (dairy and horticulture cluster)	570 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Agricultural machinery, equipment and goods for seed farms of Research Institute for agriculture, seed testing stations and public seed farms	2 475 000	Prior	Open international/national	Requests for Bids (RFB)	Lowest evaluated cost
Laboratory and other equipment for laboratories of Research Institute for agriculture and departments of MoWRAPI (rayon centers of Department of crop expertise)	1 000 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Laboratory equipment and laboratory furniture for Jalal-Abad and Chui zonal veterinary laboratories (ZVL)	700 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Goods and equipment for breeding farms, including Sokuluk breeding farm	750 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Procurement of Vehicls for regional sub-divisions of the of MoWRAPI	1 150 000	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Computer equipment for ABCC and Jalal-Abad office, server for ABCC	7 500	Post	Open national	Requests for Bids (RFB NPP)	Lowest evaluated cost
Consulting services					
Consulting company for mobilization training of farmers of both agri-clusters (dairy and horticulture)	820 000	Post	Open national	QCBS (Firm)	Rated criteria
Technical assistance for strengthening the legal and regulatory framework, policies and standards for seed development	20 000	Post	Open national	IC (Ind)	Rated criteria
Technical assistance to strengthen and update animal breeding policies and regulations	20 000	Post	Open national	IC (Ind)	Rated criteria
Consultant-technologist for dairy production	30 000	Post	Open national	IC (Ind)	Rated Criteria
Consultant-technologist for horticulture	40 000	Post	Open national	IC (Ind)	Rated Criteria
Development of software and digital tools under the digitalization program of MoWRAPI	350 000	Post	Open national	CQS (Firm)	Rated criteria
Audit of the Project (CMLU budget)	25 000	Post	Open international	LCS (Firm)	Rated criteria
Project Impact Assessment	30 000	Post	Open national	CQS (Firm)	Rated criteria
Detailed design for construction and repairs (architectural and constructure supervision)	120 000	Post	Open national	CQS (Firm)	Rated criteria
Technical supervision for construction	50 000	Post	Open national	CQS (Firm)	Rated criteria
Works					
Construction and renovation works for rayon centers of Department of Crop Expertise and Research Institute of Agriculture (buildings and its subdivisions)	700 000	Post	Open national	RFB	Lowest evaluated cost

Contract Title, Description and Category	Estimated Cost US$ and Risk Rating	Bank Oversight	Procurement Approach/Competition: National International Open Limited Direct Sole Source	Selection Methods: Pre/Post qualification SPD (RFP/RFB) Competitive Dialogue Framework Agreement E-Reverse auction QCBS/QBS etc. Negotiation BAFO	Evaluation Method: Rated criteria (VfM) Lowest evaluated cost
Construction and repair works (breeding farms, including Sokuluk SBF)	700 000	Post	Open national	RFB	Lowest evaluated cost
Trainings					
Capacity building for the Ministry of Agriculture and relevant departments	50 000	Post	Open national	Trainings	TBD

ANNEX 6: Economic and Financial Analysis

COUNTRY: Kyrgyz Republic
Resilient Agri-food Clusters Development Project

1. The project aims to improve productivity and climate resilience in the dairy and horticulture sectors of the Kyrgyz agri-food industry. This industry is currently fragmented and underutilized in terms of investment opportunities. To address this, the project will focus on supporting smallholders, their organizations, processors, and other value chain participants (associations, unions, cooperatives, and self-help groups). The project will help these stakeholders increase their production quality and volume, as well as their organizational capacity. Additionally, the project will promote the adoption of climate smart technologies and practices to enhance climate resilience in the chosen agri-food clusters.

Project Benefits

2. **Quantifiable benefits.** The project will focus on dairy and horticulture clusters and aims to achieve several benefits, including increased productivity and production in horticulture and dairy through improved practices and technologies. This includes improved seed/planting material production, access to training and extension services, and provision of drip irrigation systems for horticulture. For dairy, the project will focus on improved breeds through artificial insemination, access to training and extension services, and improved fodder production. Other expected benefits include reduced post-harvest losses, increased producer prices and benefits, expanded market opportunities, additional employment, increased incomes, increased fiscal revenues, and reduced greenhouse gas emissions through improved practices and technologies.

3. **Unquantifiable benefits.** The project would also bring unquantifiable benefits, such as capacity building and training for institutional partners. This would lead to the strengthening and sustainability of local and central administrations related to dairy and horticulture clusters. Additionally, it would improve coordination with different actors, including donors, and develop synergies between different interventions to enhance central and local planning capacities. The project would create more job opportunities for the rural population in the project area. This includes new economic entities, hired labor, increased household labor requirements for on-farm and off-farm activities, and project-supported works.

4. The unquantifiable benefits are difficult to estimate due to lack of efficient and reliable data. Therefore, the analysis is based on quantifiable revenues generated by participating dairy and horticulture cluster participants and direct social and environmental benefits (carbon sequestration).

General Assumptions Used in the Analysis

5. The parameters for the models have been derived from a variety of sources, including interviews with farmers and entrepreneurs, information from ongoing World Bank projects in the country, and estimates from the design team. The design team collected data on labor and input requirements, capital costs, prevailing wages, yields, farm gate and market prices, and input and transport costs. The team took a conservative approach in making assumptions for inputs and outputs and considered potential risks.

6. **Exchange rate.** The exchange rate used in the financial and economic analysis is fixed at US$1= KGS 87.4[33], with a strong assumption that future inflation in input prices will be outweighed by increase in output prices.

[33] The National Bank of Kyrgyzstan, https://www.nbkr.kg/index.jsp?lang=ENG, accessed November 2023.

7. **Prices.** Prices for commodities/inputs reflect annual average and those paid/received by farmers/entrepreneurs and imply potential risks.

8. **Interest rates.** The on-lending rates to final beneficiaries under the RACDP are expected to be close to the market rate for loans over 3 years.

9. **Lending Terms**. The length of the long-term loans for smallholders are expected to be repaid in equal instalments over an up to a five-year period, depending on the investment. The long-term loans were assumed to have a one-year grace period. The enterprises might have a repayment period of seven years with a grace period of three years. Interest on the entire amount outstanding would be paid during the grace period.

10. The models show **incremental revenues and costs** generated by investments financed by the project. In each case, the results of the investments translate into additional demands for livestock produce from primary producers and processors as well as new permanent and casual jobs.

11. The models compare two scenario – **"With project" (WP)** and **"Without project" (WoP)**.

12. **Discount rates.** The analysis differentiates financial and social (economic) discount rates. The financial discount rate (FDR) of 13.0 percent (which is the weighted averaged deposit rate in the country[34]) is used in this analysis to assess the viability and robustness of investments, which is the current Opportunity Cost of Capital (OCC) to a beneficiary. The selection criterion for the IRR is to accept all projects for which the IRR is above the opportunity cost of capital, i.e., 13.0 percent. Using the IRR as the measure, the models' sensitivity to the changes in parameters can be assessed by varying the cost of investments, production costs and revenues. The economic or social discount rate (SDR) of 6.0 percent[35] is applied for the economic analysis, which is a Social Opportunity Cost (SOC).

13. **The shadow exchange rate (SER)** has been calculated at US$1 = KGS 94.7. Standard conversion factor of 0.89 has been applied to inputs and outputs when converting financial prices into economic prices.

14. In the financial analysis, such indicators as **IRR, NPV and Incremental annual net benefits per US$1 invested** have been used.

15. Under availability of training sessions, extension services, technology support and better input services, it is assumed that the farmers can adopt improved and climate-smart technologies and practices, undertaking improved dairy and horticulture production, and thereby enhancing productions at farm level.

16. Although gender wage gaps exist, on average, the proxy labor is valued at KGS 1,000 both for male and female labor for the sake of the analysis.

Financial Analysis

17. The financial analysis demonstrates the application of the value chain approach and presents findings for the dairy and horticulture value chains. It serves as an example of how the approach can be implemented in the RACDP. However,

[34] The National Bank of Kyrgyzstan, https://www.nbkr.kg/index.jsp?lang=ENG, accessed November 2023.
[35] Globally introduced social discount rate in accordance with the latest World Bank requirements. The social discount rate used for the economic analysis is based on World Bank's estimations, proposed by a standardized methodology. See Discounting Costs and Benefits in Economic Analysis of World Bank Projects, OPSPQ. May 9, 2016.

it is important to note that the financial analysis is not the sole criteria for supporting enterprises, sub-sectors, or activities. It should be assessed alongside other eligibility criteria of the RACDP. The size and number of value chain elements may vary.

18. To ensure a balanced approach, project management must consider various factors such as potential value chains, food safety, animal health, social needs, land management, and environmental concerns. By thoroughly examining limits and opportunities, the project can make informed decisions and responses for prospective value chains, considering the needs of beneficiaries and the overall project goals.

19. Traditional farm and enterprise models are useful but not sufficient tools for measuring the project's objective of mobilizing investments to accelerate economic development. The indicative models used in this analysis (presented below) are aiming to demonstrate how the project and beneficiaries would apply the VC approach to assess opportunities for and constraints to economic development.

20. Nine indicative models were developed during the design phase to showcase the financial viability of potential investments. These models demonstrate the benefits and rate of return that can be achieved through improved support services, financing, training, and advisory services. They served as the foundation for the dairy and horticulture value chain models. The analysis illustrates the connections between primary producers and rural enterprises in the value chain, which could be supported by the RACDP. Additionally, the value chain models estimate the average incremental net benefits per US$1 of investment, which is used to calculate the overall incremental benefit stream of the project.

Dairy Value Chain Model

21. A typical Dairy VCM describes the interrelationships between the milk producers and anchor dairy processor in the dairy value chain. It is assumed that improved access to finance and enhanced public livestock support services would enable the primary producers to invest in improved technologies, including high breeds, artificial insemination (AI), animal feed and nutrition, husbandry practices thus leading to a rise in milk production and productivity for satisfying the demand for milk and milk products of the anchor dairy processor.

22. ***Milk Production.*** The viability of the above investments would depend on the assurance of a stable production of quality and safe milk by farmers. To satisfy the demand in milk of the anchor dairy processor with a capacity of 500 tons/year the following estimated number of households would be involved in the VC. It is assumed that 36 small dairy farms (and rural households) with about 5 milking cows each would invest in imported high-breed cows to steadily replace the current herd of local cows, while other 70 small dairy farms will go for the artificial insemination of the same sized herd. Another large farm (so called "business farmers") would increase their herds from 30 to 40 cows (purchasing 10 pure breed cows), improve their husbandry practice and increase milk productivity. It is expected that all project supported dairy farms would produce milk of better quality and they would receive a premium price for the supplied milk paid by the dairy processors.

23. With respect to the small dairy farms' investment represented by smallholders, it is assumed that the farms would use their own resources to finance equipment, construction/renovation of a shed, quality feed and veterinary services. This would allow increasing milk productivity for a small farm with local breeds from current 6 l/day to 8.5 l/day and for a small farm with pure breeds from current 6.5 l/day to 12 l/day and significantly increase production of milk available for sale.

24. ***Milk Collection and Milk Processing.*** Milk collection is done through mobile milk collecting cars, which are outdated and do not meet the standards for the milk to exported, however the project financing will be used for the

purchase of cooling tanks and measuring equipment. It is anticipated that at least two milk collection centers would supply the milk processing with milk. The investment in milk processing would lead to incremental annual net benefits derived from sales of dairy products (different types of cheese and butter) of a required quality. The results of separate farm and enterprise models in a typical Dairy VCM are presented in Table A6.1. below. All of the analyzed models are financially viable with IRRs ranging from 25.7 percent to 64.9 percent, while NPVs range from US$4,213 to US$219,686. The incremental annual net benefits per US$1 of investment range between US$ 0.24 and US$ 1.29, which proves their financial viability.

Table A6.1. Summary of financial analysis of separate farm and enterprise models in Dairy VCM

Farm Models	Estimated Investment Costs (US$)			Annual Net Benefits at Full Development (US$)			Incremental annual net benefits per 1US$ of investment (US$)	IRR (%)	NPV (US$)
	Loan	Beneficiary Contribution	Total	Without Project	With Project - Full Development	Incremental			
Farm 1 (5 cows - 2 imported)	9,517	2,379	11,896	2,925	7,592	4,667	0.39	51.1%	5,595
Farm 2 (5 cows - all AI)	0	4,344	4,344	3,324	4,375	1,051	0.24	47.4%	7,169
Farm 3 (30 to 40 cows)	33,867	8,467	42,334	20,856	50,513	29,657	0.70	33.5%	53,419
Milk Collection (2t/day)	16,000	4,000	20,000	0	5,318	5,318	0.27	25.7%	4,214
Milk Collection/Processing	46,896	11,724	58,620	457,194	532,579	75,385	1.29	64.9%	219,686

25. ***Summary of Dairy Value Chain Analysis.*** The illustrative value chain model shows NPV of US$1.4 million and IRR of 49.7 percent. In addition, the investment would lead to the creation of about additional 12 full-time qualified jobs at the enterprise and 33 person/years of hired labor at farm level. Table A6.2. provides the expected results for this model.

Table A6.2. Summary of Dairy VC analysis

Indicator	Dairy
Total Number of Direct Beneficiaries	152
of whom:	
- Farmers	107
- On-farm hired labour	33
- Labourers	12
Total Incremental Investments (000'US$)	853
of which:	
Incremental Annual Benefits at Full Development (000'US$)	558
VCM NPV (000'US$)	981
VCM IRR	49.7%
Weighted Annual Incremental Net Benefits per US$ Investment (US$) at Full Development	**0.41**

Horticulture Value Chain Model

26. A typical horticulture VCM describes the interrelationships between the fruits and vegetables producers and cold storage and processing facilities in the horticulture value chain. It is assumed that improved access to finance would enable the primary producers to invest in improved technologies, including drip irrigation, seedlings of high-yielding apple and pear varieties; metal structures for fencing; equipment for storage and cooling; packaging systems; shading systems, etc., thus leading to a rise in milk production and productivity for satisfying the demand for milk and milk products of the anchor dairy processor.

27. ***Production.*** The viability of the above investments would depend on the assurance of a stable production of quality horticultural production by farmers. To satisfy the demand of the cold storage with a capacity of 1,000 tons/year and primary processing facility with a capacity of 650 tons/year the following estimated number of households would be involved in the VC. It is assumed that 50 small apricot producer and 30 apple producers with 1ha of land would invest in establishing an intensive orchard. The average cost of establishment of such orchards varies between US$20,000-25,000.

It was assumed that farmers would establish these orchards from scratch, however partial targeted smaller investments, e.g., only drip irrigation system, are also possible.

28. ***Cold storage and Primary processing models.*** In the described theoretical VC, producers lose or sell 30 percent of the production at farm gate without transporting it. The farmers nearby would be able to store their production in the cold storage for 5-6 months after harvesting and enjoy the seasonal prices, which are usually 1.5 times higher. The primary processing plant with sorting, grading, and packaging lines is mainly focused on fruits and vegetables and offers the supplying farmers with a 15 percent price premium, which currently stays as a margin of intermediaries. Besides a price premium, farmers would manage to reduce the post-harvest losses from 20 Percent to 10 percent.

29. The results of separate farm and enterprise models in Horticulture VCM are presented in Table A6.3. below. All of the analyzed models are financially viable with IRRs ranging from 17.4 percent to 49.3 percent, while NPVs range from US$ 3,223 to US$ 838,175. The incremental annual net benefits per US$1 of investment range between US$ 0.16 and US$ 0.42, which proves their financial viability.

Table A6.3. Summary of financial analysis of separate farm and enterprise models in Horticulture VCM

Farm Models	Estimated Investment Costs (US$)			Annual Net Benefits at Full Development (US$)			Incremental annual net benefits per 1US$ of investment (US$)	IRR (%)	NPV (US$)
	Loan	Beneficiary Contribution	Total	Without Project	With Project - Full Development	Incremental			
Farm 1 (1ha int. apricot orchard)	19,812	4,953	24,765	0	4,231	4,231	0.17	20.0%	5,319
Farm 2 (1 ha int. apple orchard)	18,201	4,550	22,751	0	3,736	3,736	0.16	17.4%	3,223
Cold storage (1000t)	217,483	54,371	271,854	0	62,794	62,794	0.23	36.6%	327,878
Primary processing (650t)	177,208	44,302	221,510	0	93,023	93,023	0.42	49.3%	838,175

30. ***Summary of Horticulture Value Chain Analysis.*** The illustrative value chain model shows NPV of US$ 1.97 million and IRR of 30.5 percent. In addition, the investment would lead to creating about additional 11 full-time qualified jobs at the enterprise and 9 person/years of hired labor at farm level. Table A6.4. summarizes the expected results for this model.

Table A6.4. Summary of Horticulture VC analysis

Indicator	Horticulture
Total Number of Direct Beneficiaries	101
of whom:	
- Farmers	82
- On-farm hired labour	9
- Labourers	11
Total Incremental Investments (000'US$)	2414
of which:	
Incremental Annual Benefits at Full Development (000'US$)	669
VCM NPV (000'US$)	1976
VCM IRR	30.5%
Weighted Annual Incremental Net Benefits per US$ Investment (US$) at Full Development	**0.39**

Economic Analysis

Base case scenario: overall project EIRR = 24.9 percent, ENPV = US$47.8 million

31. Due to the demand driven nature of the project, representative value chain models are used to estimate potential returns to US$ 1 of economic investments. The potential range of opportunities for economic advancement in these two value chains (clusters) varied greatly throughout the country, and it is anticipated that farmers and rural entrepreneurs would encourage diversity to accelerate economic advancement. The project would support farmers and entrepreneurs to identify those opportunities, thus generating investments beyond the indicative value chain models included in the

analysis. Financial prices of locally traded outputs and inputs are converted into economic prices by deducting direct subsidies, taxes and duties and applying conversion factors. Economic prices for imported inputs and outputs and/or traded goods are calculated at their border parity prices. The economic cost of the project is estimated by removing price contingencies and all taxes and duties from the financial cost using conversion factors. The analysis identifies the quantifiable benefits that relate directly to the activities undertaken following implementation of the project components, or that can be justifiably attributed to the project's implementation. The illustrative models described above have been used for calculating the overall benefit stream of the value chain support, based on economic prices.

32. **Adoption rate**. Based on similar projects' experience in the country, it was assumed conservatively that at least 80 percent of the investments would achieve the estimated returns, i.e., an 80 percent cumulative adoption rate was applied to the models. Considering the above examples as reasonable assumptions of the VCs likely to be implemented, an estimated average incremental annual net benefit per 1 US$ of investments is used. An average indicator for the **incremental annual net benefits per US$ 1 of investments equals to US$ 0.40 on average**. The incremental net benefits were calculated by multiplying this indicator with the size of estimated investments to value chains development but considering the gradual increase of such benefits over a period of nine years to reach the full development stage.

33. **The period of economic analysis is 20 years** to account for the phasing and gestation period of the proposed interventions. A conservative scenario is presented in the analysis, and it is indicative and demonstrates the scope of profitability originated from the conditions prevailing at the time of the preparation.

34. **Overall estimated economic rate of return.** Given the above benefit and cost streams, the base case economic internal rate of return (EIRR) is estimated at 24.9 percent. The base case economic net present value (ENPV) of the project's net benefit stream, discounted at 6 percent is US$47.8 million in economic terms.

35. **Sensitivity Analysis.** Economic returns of the base case scenario were tested against changes in benefits and costs and for various lags in the realization of benefits. In relative terms, the ERR is equally sensitive to changes in costs and in benefits. In absolute terms, these changes do not have a significant impact on the ERR, and the economic viability is not threatened neither by the 20 percent decline in benefits nor by a 20 percent increase in costs, since the ERR in both cases remains well above the discount rate. A one-year delay in Project benefits reduces the ERR to 20.2 percent, with which it remains economically viable. The results are presented in Table A6.5 below.

Table A6.5. Sensitivity Analysis

Sensitivity Analysis (20-year period)	Base case	Costs Increase			Increase of Benefits		Decrease of Benefits			Delay of Benefits	
		+10%	+20%	+50%	+10%	+20%	-10%	-20%	- 30%	1 year	2 years
EIRR	**24.9%**	22.5%	20.5%	15.9%	27.4%	29.9%	22.3%	19.6%	16.9%	20.2%	17.1%
ENPV (Million US$)	**47.8**	45.1	42.5	34.6	55.2	62.6	40.4	32.9	25.5	40.8	34.3