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Report No: PAD2546

INTERNATIONAL DEVELOPMENT ASSOCIATION
PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED CREDIT
IN THE AMOUNT OF SDR 17.2 MILLION
(US\$25 MILLION EQUIVALENT)
TO THE
LAO PEOPLE'S DEMOCRATIC REPUBLIC
FOR AN
AGRICULTURE COMPETITIVENESS PROJECT

April 5, 2018

Agriculture Global Practice
East Asia And Pacific Region

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CURRENCY EQUIVALENTS
(Exchange Rate Effective January 31, 2018)

Currency Unit = Lao Kip (LAK)

LAK 8,305 = US\$1

US\$1.45712 = SDR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACP	Agriculture Competitiveness Project
ADB	Asian Development Bank
AFD	French Agency for Development
ARAP	Abbreviated Resettlement Action Plan
AVCF	Agricultural Value Chain Facility
AWD	Alternate Wetting and Drying
AWP	Annual Work Plan
CPF	Country Partnership Framework
CQS	Selection based on the Consultants' Qualifications
CRPF	Compensation and Resettlement Policy Framework
CSA	Climate Risk Screening Assessment
CSQA	Construction Supervision and Quality Assurance
CU5	Children Under Five
DA	Designated Account
DAFO	District Agricultural and Forestry Office
DALDM	Department of Agricultural Land Management
DICO	District Industry and Commerce Office
DOA	Department of Agriculture
DOI	Department of Irrigation
DONRE	District Office of Natural Resources and Environment
DOPF	Department of Planning and Finance
DTEAP	Department of Technical Extension and Agro-processing
ECOP	Environmental Codes of Practice
EFA	Economic and Financial Analysis
EGDP	Ethnic Group Development Plan
EGEF	Ethnic Groups Engagement Framework
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
EMRIP	Enhancing Milled Rice Production Project
EPP	Emergency Preparedness Plan
ERM	Emergency Response Manual
ESMF	Environmental and Social Management Framework

EU	European Union
EX-ACT	Ex-Ante Carbon Balance Tool
FAO	Food and Agriculture Organization (of the United Nations)
FD	Full Development
FHH	Female-Headed Household
FIRR	Financial Internal Rate of Return
FM	Financial Management
FPG	Farmer Production Group
FPIC	Free, Prior, and Informed Consultations
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GOL	Government of Lao PDR
GRS	Grievance Redress Service
IC	Individual Consultant
ICR	Implementation Completion and Results Report
IEE	Initial Environmental Examination
IFAD	International Fund for Agricultural Development
IFR	Interim Financial Report
IPF	Investment Project Financing
IPM	Integrated Pest Management
ISM	Implementation Support Mission
KDP	Khammouane Development Project
LUI	Land Use Intensity
LUFSIP	Lao Upland Food Security Improvement Project
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Forestry
MIS	Management Information System
MOF	Ministry of Finance
MOIC	Ministry of Industry and Commerce
MRC	Mekong River Commission
NPV	Net Present Value
O&M	Operation and Maintenance
NPMO	National Project Management Office
NPSC	National Project Steering Committee
NSEDP	National Socio-Economic Development Plan
PA	Project Account
PAFO	Provincial Agricultural and Forestry Office
PAP	Project-affected Person
PCR	Physical Cultural Resources
PDO	Project Development Objective
PIA	Project Implementing Agency
PICO	Provincial Industry and Commerce Office
PMD	Project Management Division
PMP	Pest Management Plan
POE	Panel of Experts
POM	Project Operational Manual
PONRE	Provincial Office of Natural Resources and Environment

PP	Productive Partnership
PPA	Project Preparation Advance
PPSC	Provincial Project Steering Committee
PPSD	Project Procurement Strategy for Development
QCBS	Quality- and Cost-Based Selection
RAP	Resettlement Action Plan
REOI	Request for Expression of Interest
RFB	Request for Bid
RFQ	Request for Quotation
RIAFRD	Research Institute of Agriculture, Forestry and Rural Development
SBCC	Social Behavioral Change Communication
SDG	Sustainable Development Goal
SMEs	Small and Medium Enterprises
SMG	Seed Multiplication Group
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
TOR	Terms of Reference
USDA	United States Department of Agriculture
WFP	World Food Programme
WUA	Water Users Association

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BASIC INFORMATION

Is this a regionally tagged project? No	Country(ies)	Financing Instrument Investment Project Financing
<input type="checkbox"/> Situations of Urgent Need of Assistance or Capacity Constraints <input type="checkbox"/> Financial Intermediaries <input type="checkbox"/> Series of Projects		
Approval Date 26-Apr-2018	Closing Date 28-Jun-2024	Environmental Assessment Category B - Partial Assessment
Bank/IFC Collaboration No		

Proposed Development Objective(s)

The Project Development Objective (PDO) is to increase the competitiveness of selected agricultural value chains in the project areas.

Components

Component Name	Cost (US\$, millions)
A. Improved Agricultural Efficiency and Sustainability	18.20
B. Enhanced Agricultural Commercialization	7.20
C. Project Management	2.90
D. Contingent Emergency Response	0.00
Refund of Preparation Advance	1.00



Organizations

Borrower : Lao People's Democratic Republic
 Implementing Agency : Department of Planning and Finance

PROJECT FINANCING DATA (US\$, Millions)

<input checked="" type="checkbox"/> Counterpart Funding	<input type="checkbox"/> IBRD	<input checked="" type="checkbox"/> IDA Credit	<input type="checkbox"/> IDA Grant	<input type="checkbox"/> Trust Funds	<input type="checkbox"/> Parallel Financing
Total Project Cost: 29.30	Total Financing: 29.30		Financing Gap: 0.00		
	Of Which Bank Financing (IBRD/IDA): 25.00				

Financing (in US\$, millions)

Financing Source	Amount
Borrowing Agency	0.50
IDA-62050	25.00
Local Sources of Borrowing Country	3.80
Total	29.30

Expected Disbursements (in US\$, millions)

Fiscal Year	2018	2019	2020	2021	2022	2023	2024
Annual	0.10	2.00	3.00	7.00	7.00	5.00	0.90
Cumulative	0.10	2.10	5.10	12.10	19.10	24.10	25.00



INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture

Contributing Practice Areas

Climate Change

Environment & Natural Resources

Finance, Competitiveness and Innovation

Governance

Climate Change and Disaster Screening

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

Gender Tag

Does the project plan to undertake any of the following?

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

Yes

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

Yes

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

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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



8. Stakeholders	● Low
9. Other	
10. Overall	● Substantial

COMPLIANCE

Policy

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

[] Yes [✓] No

Does the project require any waivers of Bank policies?

[] Yes [✓] No

Safeguard Policies Triggered by the Project

Yes No

Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04		✓
Forests OP/BP 4.36		✓
Pest Management OP 4.09	✓	
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10	✓	
Involuntary Resettlement OP/BP 4.12	✓	
Safety of Dams OP/BP 4.37	✓	
Projects on International Waterways OP/BP 7.50	✓	
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description

Institutional Arrangements (Section I.A, Schedule 2): The Recipient shall maintain, and cause to be maintained, throughout the period of implementation of the Project, the following structures, all with functions, composition, staffing and resources acceptable to the Association: (1) the National Project Steering Committee; (2) the National Project Management Office in MAF; (3) the Provincial Project Steering Committees; and (4) project implementation teams in the PAFOs.

Sections and Description



Project Operational Manual (Section I.B, Schedule 2): The Recipient shall ensure that the Project is carried out in accordance with the arrangements and procedures set out in the Project Operational Manual.

Sections and Description

Annual Works Plans and Budgets (Section I.C, Schedule 2): The Recipient shall furnish to the Association, no later than one (01) month before the beginning of each Fiscal Year, an annual work plan and budget for the Project for the following Fiscal Year, in a manner and substance satisfactory to the Association, and thereafter implement the activities under the Project during the relevant Fiscal Year in accordance with such plan and budget.

Sections and Description

Safeguards (Section I.D, Schedule 2): The Recipient shall ensure the Project is implemented in accordance with the requirements of the ESMF, CRPF, EGEF and the other Safeguard Assessments and Plans.

Sections and Description

Matching Grants (Section I.E, Schedule 2): The Recipient shall ensure that Matching Grants are provided for financing Sub-projects under Parts A.1(b), A.2(b) and B.1(b) of the Project in accordance with the eligibility criteria and approval and administration arrangements set out in the Project Operational Manual, and the terms and conditions of Matching Grant Agreements specified in the Financing Agreement.

Sections and Description

Contingent Emergency Response (Section I.F, Schedule 2 of Financing Agreement): Obligation of the Recipient to adopt a satisfactory Emergency Response Manual for Component D of the Project and, in the event of an Eligible Crisis or Emergency, ensure that the activities under said component are carried out in accordance with such plan and all relevant safeguard requirements.

Conditions

Type

Disbursement

Description

Contingent Emergency Response (Section I.F, Schedule 2 of Financing Agreement): Obligation of the Recipient to adopt a satisfactory Emergency Response Manual for Component D of the Project and, in the event of an Eligible Crisis or Emergency, ensure that the activities under said component are carried out in accordance with such plan and all relevant safeguard requirements.



PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
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LAO PEOPLE'S DEMOCRATIC REPUBLIC
AGRICULTURE COMPETITIVENESS PROJECT

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I. STRATEGIC CONTEXT

A. Country Context

1. **Over the past two decades, the Lao People's Democratic Republic (Lao PDR) has experienced rapid, yet not highly inclusive economic growth.** Gross domestic product (GDP) growth has typically exceeded seven percent per year in the last two decades and, in 2015, this lower-middle-income country had a per capita GDP of US\$1,740. While Lao PDR's population and livelihood dependence remain predominantly rural and agrarian, the bulk of recent economic growth has stemmed from the more intensive utilization of the country's natural resources, including those for mining, forestry, and hydroelectric power. Despite their output growth, job creation in those sectors has been modest and disparities continue to be widespread. Because of this, the poverty reduction elasticity of Lao PDR's growth has been relatively low. For every percent of GDP growth, poverty in Lao PDR has declined only by 0.4 percent compared to 1.2 percent in Cambodia and 1.0 percent in Vietnam.

2. **While Lao PDR has been meeting its Sustainable Development Goals (SDGs) targets in relation to poverty reduction, large segments of the population remain vulnerable and progress in relation to many non-monetary dimensions of welfare has been very uneven.** Between 2002/03 and 2012/13, absolute poverty fell from 34 to 23 percent, although a sizable proportion of the population remains vulnerable to slipping back into poverty due to frequent shocks and the absence of effective risk mitigation measures. Climate change is putting greater pressure on government and the capabilities of communities to manage disaster risks and build more resilient livelihoods. Extreme poverty remains more persistent in mountainous areas, but the absolute number of poor has remained largest in the lowland rural areas. Economic growth and rising income has not translated into major gains in nutritional outcomes. Between 2001 and 2012, the proportion of stunted under-five-year-olds only declined from 48 percent to 44 percent. The country has achieved a national surplus in its staple rice production, yet 27 percent of young children are underweight. Progress in physical connectivity, access to improved water and sanitation, and access to social services has been uneven across the country. Important gender gaps remain, especially in relation to literacy and economic opportunity.

3. **Malnutrition in Lao PDR remains the highest in Southeast Asia, hardly declining with time.** Though the highest malnutrition incidence is found in the far north and south of the country, in the central part of the country, the stunting averages 38 percent, twice as high as the 20 percent threshold considered in East Asia and Pacific as a moderate rate of stunting. Although the country has achieved a national surplus in its staple rice production, nearly half of the Lao children are chronically malnourished (stunting or height for age), affecting 385,000 or 44 percent of children under the age of five (CU5). Stunting remains the biggest malnutritional challenge, as data from the Lao Social Indicator Survey (2011–2012) indicate that 6 percent of CU5 suffer from wasting (weight for height, an indicator for acute malnutrition) and 27 percent are underweight (weight for age, a composite indicator of both chronic and acute malnutrition). Micronutrient deficiencies, indicative of insufficient access to diverse foods, are substantial, including Vitamin A and iron (up to 59 percent of children under two years are reported to be anemic).

4. **Among the countries of the Greater Mekong Subregion, Lao PDR faces a distinctive set of development challenges.** The country has a small population (6.5 million in 2013) with its population density being the second lowest in the East Asia and Pacific region, after Mongolia, with less than 30 persons per km². While some urban growth has occurred, some 70 percent of the population remains in



rural areas. These demographics, combined with the country being landlocked and its (mountainous) topography, create enormous challenges for the cost-effective delivery of public services, for creating efficient logistical services, and for integrating (and competing) in international markets. Domestic purchasing power is a fraction of what exists in the other countries of the subregion. Neither manufacturing nor services have provided many opportunities for highly remunerative employment.

5. **Lao PDR is highly vulnerable and exposed to climate disasters.** Most frequent disasters include floods and storms and, to a lesser degree, droughts. Climate change is adding to the vulnerability by changing weather patterns and resulting in more frequent and severe events. Already rainfall has become more volatile and temperature has been increasing by around 0.1°C per decade since the second half of the last century. Projections include further increases in temperature and increased intensity and frequency of extreme events, including higher rainfall and flooding risks during the wet season—which will affect agricultural land along the Mekong River and tributaries—and longer dry seasons accompanied by more severe water shortages.

6. **Lao PDR will need to more sustainably and efficiently manage its ample natural resources, while unlocking the potential of its non-resource-intensive sectors to create broad-based opportunities.** More selective investments in natural resources can bring about higher and more sustainable economic and social returns. Of these, agriculture and nature- and culture-based tourism have considerable further potentials for inclusive growth. While Lao PDR cannot aim to compete for volume market share with the regional agricultural commodity giants, it has considerable and largely untapped potential to profitably supply niche and expanding markets for high-quality, consumer-safe, and environmentally sustainable foods and agricultural materials.

B. Sectoral and Institutional Context

7. **Agriculture remains the primary source of livelihood for the majority of Lao PDR's population, although prevailing levels of labor productivity are low.** There are currently around 2 million adults engaged in agriculture, representing about 64 percent of the workforce. This pattern of employment is among the most agrarian in the world. Evidence indicates a high level of underemployment in the sector. The most recent agricultural census found that only 11 percent of farmers work 9 to 12 months on the family farm, while 45 percent work between 3 and 6 months. This, together with the prevailing cropping pattern, helps explain the statistical low productivity of Lao PDR's agricultural workforce. In 2014, these workers generated a value added per hectare of US\$578, compared with US\$994 in Thailand and US\$1,338 in Vietnam.

8. **While women in Lao PDR are major contributors to the agricultural sector¹, until recently their contributions have remained largely invisible and undervalued.** The agriculture sector employs 83 percent of women in Lao PDR against 73 percent of men (2017, World Bank data). In general, men are considered to be the household head (i.e. over 90 percent headed by men²) and they represent their families at village meetings and are the ones involved in most social and income-generating activities. In

¹ "They do most of the farm work (i.e., planting, weeding and harvesting crops), tend livestock, and also spend long hours performing off-farm and household chores like collecting firewood, preparing meals and caring for children. Traditionally, men plough, make bunds and prepare seedbeds. Women, on the other hand, do more than half of the transplanting of rice, weeding, harvesting, threshing and post-harvest operations." FAO: National Gender Profile of Agricultural Households, 2010.

² Female-headed households (FHHs) have less access to agricultural land and productive assets, information, extension services and training, labor, credit, and market compared to male-headed households.



contrast, women are viewed as more generally tasked with housework, child care, and engaged in lower-skilled jobs. This view obscures the enormous role women farmers playing in household and subsistence farming in Lao PDR and at the same time restricts them from participating in activities that help improve their farming, marketing, business development, nutrition, and income earning potential. Crucially, the undermined role of women also reduces the efficiency of agricultural production at all levels including household, value chain, and the entire agriculture sector. According to the latest Country Gender Assessment, women are being underserved by agricultural extension agents.³ Moreover, some of the constraints that women face in the sector are linked to their higher level of illiteracy, as literacy among women in Lao PDR is significantly lower than among men (the national average is that 70 percent of women are literate against 85 percent for men, and the gap is higher among the rural population).⁴

9. **Lao PDR agriculture has underperformed, both in relation to its potential and its neighboring countries with similar conditions.** Agricultural growth exceeded 5 percent per year in the 1990s, but declined thereafter and has been erratic over the past decade. Between 2000 and 2014, agricultural growth averaged only 3.4 percent per year, compared with 4.1 percent and 3.7 percent for Cambodia and Vietnam, respectively. Most of the limited growth has come from an expansion in the land under cultivation rather than through productivity improvements. Most of the 650,000 farming households are engaged in subsistence cultivation, with (in 2010/11) only 30 percent of farm households reporting to produce primarily for sale. More than 1 million ha has been given over to land concessions and yet, such units have not noticeably contributed to sectoral growth or improved employment or productivity.

10. **Lao PDR agriculture remains structurally narrow, although there are emerging commercial opportunities, both domestic and for export.** Rice accounts for some 72 percent of cultivated area, with much of the remaining diversification representing household livelihood coping strategies rather than commercial endeavors. Increased domestic (and tourist) demand for fresh fruits and vegetables is being serviced primarily by imports from China, Thailand, and Vietnam. Improving nutritional outcomes will require more affordable and regular access to such foods. In recent years, maize production has increased in response to the increased demand for animal feed ingredients, both in Thailand and Vietnam. There has been growing interest in Lao PDR's high-quality coffee from European countries, and the production and consumption of animal products have also increased responding to the rising domestic demand. A gradual shift from rice production would contribute to multiple objectives—including improved nutrition, farm incomes, and livelihood resilience—yet the Government is cautious in embracing a more aggressive policy of agricultural diversification as food security is still viewed largely through a rice sufficiency lens.

11. **There are growing markets for high-quality rice in China and Vietnam, maize in Thailand, and 'clean and safe' vegetables in fast-growing urban centers in Lao PDR.** These demands for high-quality products provide ample market opportunities for Lao PDR's 'clean and green products'. However, Lao PDR's agriculture sector is facing serious challenges in meeting this market demand. For instance, since 2014, Chinese buyers have sought some 20,000 tons of high-quality rice annually from Lao PDR, yet exports have generally only met about a quarter of this demand. The poor quality of agricultural products

³ World Bank (2012) Country Gender assessment Lao PDR.

⁴ World Bank (2012) Country Gender assessment Lao PDR. The assessment also noted shifting from subsistence-based to market-oriented household economies can be particularly difficult for women in non-Lao-Tai ethnic groups whose cultural roles, limited Lao language and technical skills, often leave them unprepared to engage with the market.



at farming and low efficiency at the postharvest processing stage has compromised Lao PDR's ability to respond to the market specifications in these markets.

12. **A wide range of sector-specific issues affect farm productivity and profitability.** At the farm level, low productivity reflects low availability of high-quality seeds, declining soil fertility, limited access to irrigation and drainage services, and unsecure land tenure. The reach and effectiveness of farm advisory services is limited. Collective action is also limited because there are very few farmers' organizations providing technical or commercial services to farmers. Agricultural value chains are highly fragmented with large numbers of (poorly capitalized) intermediaries and processors and few larger players using modern infrastructure and equipment. Advances in increasing the quantity of output have generally not been matched with gains in quality management, because of limited direct sourcing by agribusinesses from farmers, inadequate postharvest management, underinvestment in value chains and public market infrastructure, and inadequacies in the 'soft' infrastructure for food quality (i.e., product standards, raw material traceability systems, consumer food safety awareness and advocacy, and so on).

13. **To compete and meet the demands of international markets and high-quality emerging domestic markets, Lao PDR's agriculture needs to position itself as a green and clean producer based on the foundation of good agricultural practices (GAP).** Traditional farming systems in Lao PDR have featured very limited use of synthetic fertilizers and agrochemicals, while intensive farming systems in neighboring countries have tended to involve excessive use of such inputs, resulting in water and air pollution, as well as consumer food safety concerns. Lao PDR could effectively compete, albeit on a modest scale, in the regional markets for higher-quality food and agricultural raw materials on the basis of increased adoption of improved seed varieties, widespread application of GAP, and upgrades in postharvest and processing infrastructure and practices. This competitiveness would be based upon improved (product) quality, farm and value chain productivity, and the sustainable use of natural resources.

14. **To effectively develop agricultural value chains, it is necessary to address the four most important developmental issues at the same time,** including (a) promoting adoption of GAP among small farmers to improve the quality of farm produce and further reduce production costs; (b) linking farmers to agribusinesses to improve marketing; (c) stimulating agribusinesses to shift from the currently poor processing and postharvest equipment and facilities to more modern and environment-friendly technologies to improve the product value and reduce postharvest losses; and (d) improving the enabling environment to reduce the costs of doing business in the agriculture sector. These issues are interrelated and need appropriate public interventions to accelerate the process. It is important to note that the present lending from commercial banks to agribusinesses is very limited.⁵ This is partially because most agro-enterprises are weak and cannot afford market rates. However, more importantly it is due to the low demand that resulted from the low-level commercialization of the agriculture sector. Currently, most agribusinesses only possess out-of-date equipment, resulting in high losses in both value and volume during processing and postharvest stages. In addition, the high costs of imported inputs (i.e., fertilizers and machinery) due to government policies, the lack of quality assurance, and the absence of capacity to

⁵ According to the Bank of Lao PDR Statistic Report (2017), the share of commercial bank credits to agribusiness dropped significantly from 11 percent in 2013 to 8 percent in 2016, and credit growth in the agriculture sector dropped from 14 percent in 2014 to 2 percent in 2016.



certify sanitary and phytosanitary standards are also major constraints that affect agricultural competitiveness and export to foreign markets.

15. There is high potential for the Lao agriculture sector to contribute to economic growth and reduction of malnutrition if its development model is nutrition-sensitive and gender-inclusive.

Addressing malnutrition requires multi-sectoral interventions to affect food access, care practices, and health and sanitation environment. At present, the Lao food plate is principally based on rice, particularly, glutinous rice (81 percent of total daily food consumption). There is a need for Lao PDR's agriculture sector to transform toward higher diversification and commercialization to improve rural incomes and people's access to diverse food and healthy food basket—one of the key factors for good nutrition and health. Available statistics showed that in Lao PDR, when income grows, it has a significant impact on reduction in CU5 stunting.⁶ There is also a relationship between nutrition and women empowerment. Where there are improvements in women's empowerment (including increased access to income generating activities), together with family incomes and better access to clean/safe food, women would be able to earn more income for their families and improve nutritional family needs better, especially when they are provided with additional information and nutritional knowledge through awareness raising and social behavioral change communications to ensure healthy and sustainable care and dietary practices.

16. The present and future trends of the weather and climate conditions reconfirm the need for Lao agriculture to transit to climate-smart agriculture to mitigate the risks and be more sustainable.

The Climate Risk Screening Assessment (CSA) attaches moderate to high risk of climate variability, stemming from increased precipitation and droughts, to both agriculture and water sectors. The recently completed CSA Climate Profile (2017) for Lao PDR highlights the vulnerability of agriculture to climate variability as follows: (a) an increase in floods is expected to have implications on the agricultural lands along the Mekong River and its tributaries; (b) an increase in temperatures along with a decrease of rainfall during the dry season would likely lead to longer and severe droughts; (c) rising temperatures will likely increase the incidence and range of pests and, when combined with decreased rainfall and increased demand for water, higher temperatures will also present new challenges related to water availability for agriculture in an already water-stressed scenario; and (d) climate change would also potentially threaten and lead to a loss in agriculture production (rice in particular) affecting the economy of the country and food security. The September 2017 Intended Nationally Determined Contribution submitted by Lao PDR to the U.N. Framework Convention on Climate Change clearly identifies resilience and adaptation actions covering appropriate resilient agricultural farming system practices and technologies to address climate change impacts and developing and improving crops diversification and resilience especially in the risk, flood, and drought areas.

17. The Government of Lao PDR (GOL) has recognized the above-mentioned needs and is trying to address them.

The Government's agricultural public spending recently has been increased to about one percent of GDP, on par with the neighboring East Asia and Pacific countries. The Ministry of Agriculture and Forestry (MAF) is also paying increased attention to addressing both productivity and quality issues at the farming level through promoting and adopting GAP and improving efficiency at the postharvest processing stage to improve the country's value chain capability to supply quality agricultural products, especially rice, maize, and horticulture. The Government's 8th National Socio-Economic Development

⁶ In 2014, each incremental increase in income was positively associated with a reduction in CU5 stunting, decreasing by 10 percentage points per wealth quintile: stunting in the poorest quintile averaged 61, second 50, middle 42, fourth 32, and richest 20.



Plan (NSED) for 2016–2020 has also explicitly emphasized the role of green and clean agriculture production. The objective of food security is also officially complemented by the objective of nutritional security, for which the supply of more diverse, nutrient-balanced, and safe food is considered a new priority, and the private sector—especially small and medium enterprises (SMEs)—is seen as an important partner.

C. Higher Level Objectives to which the Project Contributes

18. **The project will support the GOL’s 8th NSED for 2016–2020.** The 8th NSED introduces policies intended to put Lao PDR on a path to reduce poverty and promote shared prosperity in a sustainable manner, based on green growth principles. The NSED prioritizes a stronger non-resource sector growth with a focus on agro-processing, tourism, and SMEs to achieve the SDGs. It aims to reorient development from its environmentally high-impact growth path and support a pattern of growth consistent with a national brand of ‘Green, Clean, and Beautiful Lao PDR’.

19. **The project will also contribute to the implementation of strategic national agricultural nutritional plans.** The MAF’s Agriculture Development Strategy to 2025 and Vision to 2030 anticipates accelerated patterns of agricultural diversification and smallholder commercialization. The Strategic Action Plan for Development of the Rice Sector, prepared by the MAF, Ministry of Industry and Commerce (MOIC), and Ministry of Science and Technology, identifies actions along the whole value chain to meet food security and other development targets. The 2016–2025 National Nutrition Strategy and 2016–2020 Action Plan emphasize the importance of diverse and healthy diets and promote a multi-sectoral approach to reduce malnutrition, combining the efforts of the MAF, the Ministry of Health, and the Ministry of Education.

20. **The project is consistent with the World Bank Group’s Country Partnership Framework (CPF) for Lao PDR 2017–2021⁷ and the World Bank Group’s twin goals.** For example, the project will support inclusive growth (Objective 1.2, Focus Area 1) by assisting Lao PDR to develop clean and higher-value agricultural products, based upon smallholder production enterprises and SMEs, to take advantage of rapidly growing regional markets. The project will also invest in people (Objective 2.1, Focus Area 2) by supporting nutrition-specific and sensitive activities in the project areas. In addition, the project will promote climate-smart agriculture and deliver climate co-benefits, therefore contributing to the CPF Objective 3.2, Focus Area 3: Protecting the Environment. With regard to the ‘twin goals’ of ending extreme poverty and boosting shared prosperity through economic growth among the bottom two quintiles, the project will target the second largest poverty group in the five project provinces, which accounts for 28 percent of all poor in the country. By bringing higher incomes for those farmers, the project will further leverage poverty reduction and boost shared prosperity among the bottom 40 percent.

21. **The project will contribute to the achievement of many SDGs.** In addition to contributing to poverty reduction (SDG 1), the project will help end hunger, achieve food security and improve nutrition, and promote sustainable agriculture (SDG 2); achieve greater gender equality and empower women and girls (SDG 5); ensure availability and sustainable water management and sanitation (SDG 6); promote sustainable and inclusive economic growth, employment, and decent work (SDG 8); ensure sustainable

⁷ Report No. 110813-LA. The CPF draws on the findings of the 2017 World Bank Group Systematic Country Diagnostic, which placed the increase in agricultural productivity to support incomes among the list of four top development priorities for Lao PDR.



consumption and production patterns (SDG 12); and take urgent actions to combat climate change and its impacts (SDG 13).

22. **The project will complement the past and ongoing World Bank-financed projects supporting the agriculture sector.** It builds on the two recently completed World Bank-financed agricultural projects, the Lao Upland Food Security Improvement Project (LUFSIP) and Khammouane Development Project (KDP). The LUFSIP, closed in December 2014, helped improve food security of farming households in the upland areas by implementing improved rice-based farming systems. The KDP, closed in March 2016, helped improve irrigation infrastructure, promote improved agricultural technologies, and support poor communities and more entrepreneurial farmers in Khammouane Province. The ongoing project ‘Access to Finance for Small and Medium Enterprise’ is offering long-term credit for SMEs through commercial banks.⁸ This Agriculture Competitiveness Project (ACP) is one step further to get more competitive value chains and intends to lay the ground to build stronger alliances between agribusinesses and producer organizations in future operations.

23. **The project will also contribute to donor coordination.** It will form links with the Climate Friendly Agribusiness Value Chain Sector Project of the Asian Development Bank (ADB) to support the implementation of the MAF’s Agricultural Development Strategy to 2025 and Vision to 2030 and enable closer working relations with other active agricultural donors such as the French Agency for Development (AFD), the Food and Agriculture Organization (FAO) of the United Nations, the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP), the European Union (EU), and the United States Department of Agriculture (USDA) on the agricultural productivity, commercialization, and nutrition agendas.

II. PROJECT DEVELOPMENT OBJECTIVES

A. Project Development Objective (PDO)

24. The PDO is to increase the competitiveness of selected agricultural value chains in the project areas.

B. Project Beneficiaries

25. **To achieve the highest impacts toward the World Bank Group’s twin goals in Lao PDR, the project will target households participating in rice, maize, and horticulture value chains in Khammouane, Bolikhamxay, Xayabouly, Vientiane Province, and Vientiane Capital.** Many of those households are poor. The targeted project provinces also account for a disproportionately high share of all stunted children in Lao PDR, 30 percent, due to their higher population density. This targeting is well positioned to further leverage agriculture for poverty reduction and boost shared prosperity in Lao PDR, which contributed some 44 percent of total poverty reduction between 2002/03 and 2012/13. By supporting agro-enterprises, the project will also assist to deliver jobs beyond the primary agriculture, helping to accelerate the currently slow nonfarm job creation.⁹

⁸ Disbursement of the credit line has been limited due to the low uptake rate.

⁹ In the private sector, only 160,000 nonagricultural wage jobs were created in Lao PDR between 2003 and 2013, out of the total newly created 500,000 jobs (farm and nonfarm combined).



26. **The direct project beneficiaries include about 28,000 farm households (more than 140,000 people) working on around 30,000 ha of farm area in 224 selected villages of 15 selected major agricultural districts of the above five project provinces.** This is 12 percent of all farm households in the project provinces and 4 percent of farm households in the country.¹⁰ The majority of the targeted farmers have access to some irrigation, are applying traditional farming technologies (albeit with slightly improved management practices) and produce marketable surpluses. These farmers have significant potential to improve their yields and product quality, enabling them to substantially increase labor productivity and crop sales. Collective action among these farmers could reduce the transaction costs incurred by them and the agribusinesses to whom they sell. Other direct beneficiaries will include the owners and staff of some 30 agribusiness companies and the staff of the research, extension, technical, and planning institutions belonging to the MAF and MOIC, which will be supported through capacity-building interventions.

27. **Indirect beneficiaries are many.** This will include a range of agricultural value chain service providers, for example, suppliers of agricultural inputs, logistics companies, traders, domestic market retailers (both traditional and modern), exporters, and commercial banks. Domestic consumers will also benefit from the greater availability, affordability, and quality of fresh produce.

C. PDO-Level Results Indicators

28. **The PDO-level results indicators** would be the following:

- (a) Change in agricultural land productivity of targeted farmers supported by the project (percentage)
- (b) Increase in sales of farm produce as a share of production among targeted farmers supported by the project (percentage, breakdown to gender male- and FHHs)
- (c) Increase in rice milling efficiency of rice mills supported by the project (percentage)

III. PROJECT DESCRIPTION

A. Project Components

29. The ACP comprises the following four components: (a) Improved Agricultural Efficiency and Sustainability, (b) Enhanced Agricultural Commercialization, (c) Project Management, and (d) Contingent Emergency Response.

Component A: Improved Agricultural Efficiency and Sustainability (estimated US\$18.2 million, of which IDA would finance around US\$16.3 million)

¹⁰ The 2010/11 Agricultural Census of Lao PDR estimates the total number of farm households in the project provinces to be about 254,700 and in the whole country, 782,800.



30. This component will support (a) the increased adoption of improved varieties and high-quality seeds, (b) the increased application of GAP, (c) the provision of critical productive infrastructure, and (d) the strengthening of public services delivery.

Subcomponent A1: Promoting Adoption of Good Varieties and Quality Seeds (estimated US\$2.5 million, of which IDA would finance around US\$2.3 million)

31. This subcomponent will support activities to promote the adoption of good varieties and quality seeds, including the provision of (a) technical assistance (TA) for the establishment of seed multiplication groups (SMGs) and building their capacity to adopt good varieties and quality seeds (including ones resistant to climate variability such as floods and drought) ; (b) Matching Grants to selected SMGs to carry out Sub-projects (i.e., small works, goods, equipment, and so on) for improving the production and postharvest handling, packaging, and storage of quality seeds; (c) technical and material assistance (i.e., small works, goods, equipment, training, and so on) to build the capacity of Provincial Agricultural and Forestry Offices (PAFOs), District Agricultural and Forestry Offices (DAFOs), MAF technical departments, and research institutions to conduct training for SMGs and to carry out seed quality monitoring and certification; and (d) TA to link SMGs with Farmer Production Groups (FPGs) and agribusinesses in marketing certified seeds.

Subcomponent A2: Promoting Good Agricultural Practices (estimated US\$7.4 million, of which IDA would finance around US\$6.2 million)

32. This subcomponent will support activities to promote GAP¹¹, including the provision of (a) TA for the establishment of FPGs and building their capacity to adopt GAP; (b) Matching Grants to selected FPGs to carry out Sub-projects that implement GAP; (c) TA and material assistance (i.e., small works, goods, equipment, training, and so on) to build the capacity of PAFOs, DAFOs, and MAF technical departments to conduct training for FPGs on GAP and to carry out related extension and certification activities including soil analysis, organic fertilizer production, and organic farming; and (d) TA to link FPGs with agribusinesses in marketing farm produce.

Subcomponent A3: Providing Critical Productive Infrastructure (estimated US\$6.2 million, of which IDA would finance around US\$5.7 million)

33. This subcomponent will support activities to improve critical irrigation infrastructure and water use practices, including (a) rehabilitation of selected irrigation schemes and (b) provision of TA to establish water user groups and to build their capacity to adopt improved water use models. Through improving water use, management, and productivity of existing irrigation schemes, it is expected to enhance their resilience to impacts of climate change.

Subcomponent A4: Strengthening Public Services Delivery (estimated US\$2.1 million, of which IDA would finance US\$2.1 million)

34. This subcomponent supports activities to strengthen agricultural and nutrition service delivery, including the provision of technical and material assistance (i.e., small works, goods, equipment, training,

¹¹ Application of certified seeds, sustainable soil and water management, alternative wet and dry practices in rice farming, crop rotation and diversification to reduce GHG emissions and improve climate resilience and adaptation.



and so on) to (a) improve the overall extension service capacity of the PAFOs, DAFOs, and MAF technical departments to deliver better quality services to farmers to promote GAP adoption and enhance resilience to climate change; (b) develop and implement mapping and demarcation pilots for agricultural land in irrigated areas; and (c) conduct studies on integrated farming systems and diversification for nutrition, and carry out social behavioral change communication (SBCC) activities related to dietary diversity, adequate care practices, and processing and cooking for improved nutrition.

Component B: Enhanced Agricultural Commercialization (estimated US\$7.2 million, of which IDA would finance around US\$4.8 million)

35. This component will support (a) establishing of an Agricultural Value Chain Facility (AVCF), (b) measures to better link farmers to markets, and (c) studies to improve the enabling environment for agro-enterprise and value chain development.

Subcomponent B1: Establishing an Agricultural Value Chain Facility (estimated US\$5.3 million, of which IDA would finance around US\$2.9 million)

36. This subcomponent will support the establishment and operation of an AVCF for the purpose of extending technical and financial services to agribusinesses, including the provision of (a) TA to establish and operate the facility and provide advisory and Subproject implementation support to agribusinesses; and (b) Matching Grants to selected agribusinesses to carry out Subprojects for upgrading their processing and postharvest handling facilities and their management capacities to improve product quality, increase operational efficiency (including improved energy efficiency), reduce physical losses, and link with FPGs to improve marketing of the farm produce.

Subcomponent B2: Linking Farmers to Markets (estimated US\$1.4 million, of which IDA would finance US\$1.4 million)

37. This subcomponent will support activities designed to link farmers to markets, including the provision of TA to (a) strengthen the horizontal links of farmers within FPGs for implementing procurement, marketing, and other collective actions, and the vertical links of FPGs and agribusinesses in productive partnerships to undertake further processing and marketing of the produce; and (b) develop an improved agriculture market information system to provide reliable market information for productive partnerships. Through strengthening the market linkages, it is expected to make farmers more resilient to climate change.

Subcomponent B3: Improving the Enabling Environment (estimated US\$0.5 million, of which IDA would finance US\$0.5 million)

38. This subcomponent will support activities by MAF technical departments, MOIC and other relevant agencies to improve the enabling legal, policy and institutional environment for supporting agribusiness investment and agricultural trade policies, including the development of improved sanitary and phytosanitary standards, rice standards and rice export policies, and improved import and export legislation focusing on agriculture inputs and farm machinery.

Component C: Project Management (estimated US\$2.9 million, of which IDA would finance US\$2.9 million)



39. The component will support (a) project management and (b) monitoring and evaluation (M&E).

Subcomponent C1: Project Management (estimated US\$2.4 million, of which IDA would finance US\$2.4 million)

40. This subcomponent will support the day-to-day implementation, coordination, and management of project activities including planning and execution, financial management (FM), procurement, internal and external audits, and environmental and social safeguards management.

Subcomponent C2: Monitoring and Evaluation (estimated US\$0.5 million, of which IDA would finance US\$0.5 million)

41. This subcomponent will support the day-to-day monitoring, reporting, and evaluation of project activities.

Component D: Contingent Emergency Response (US\$0 million)

42. This component with a provisional allocation of zero dollars is included under the project in accordance with OP10.00, paragraphs 12 and 13, for projects in situations of urgent need of assistance or capacity constraints. This will allow for rapid allocation of project proceeds in the event of the Government declaring that a crisis or emergency has occurred and the World Bank Group agreeing with such determination. This component would finance public and private sector expenditures on a positive list of goods and/or specific works, goods, services, and emergency operation costs required for emergency recovery. An Emergency Response Manual (ERM) will apply to this component, detailing FM, procurement, safeguards, and any other necessary implementation arrangements.

B. Project Cost and Financing

43. **Lending instrument.** The proposed project would have a total cost of US\$29.3 million and would be supported by the World Bank through an Investment Project Financing (IPF) in the form of an IDA Credit for US\$25.0 million equivalent.

44. **Project costs and financing.** Table 1 presents the total costs and indicated IDA financing for the project. In addition to the proposed IDA Credit, the Government would provide an estimated US\$0.5 million in counterpart financing for the project, while farmers, farmer groups, and agribusiness entities would provide an estimated US\$3.8 million associated with their matching grants.

Table 1. Project Cost and Financing (US\$, millions)

Project Components	Project Cost	IDA Financing	% IDA Financing
A. Improved Agricultural Efficiency and Sustainability	18.2	16.3	89
B. Enhanced Agricultural Commercialization	7.2	4.8	67
C. Project Management	2.9	2.9	100
D. Contingent Emergency Response	0.0	0.0	0.0
Refund of Project Preparation Advance (PPA ^a)	1.0	1.0	100
Total	29.3	25.0	85

Note: a. The undisbursed amount of PPA will be re-allocated to Component C after the PPA is closed.



C. Lessons Learned and Reflected in the Project Design

45. **Value chain and cluster approach.** Lessons from many World Bank-financed agricultural projects have shown that the possibility of more transformative impacts is increased where technological adoption, infrastructure upgrades, and improved commercial relationships are pursued in tandem, through selected, geographically clustered, value chains—with the targeting of value chains being based upon their growth or improvement potential. Agricultural value chains in Lao PDR are largely unstructured in which individual stakeholders are unable to resolve multiple problems alone. Direct interventions can help improve productivity, build social capital, and reduce transaction costs. Such technical and facilitative interventions are necessary yet not sufficient. Experience has shown that these investments are effective only when minimum conditions are met in physical infrastructure and enabling conditions for market-driven agriculture. Such lessons have informed multiple elements of the design of this project, including the commodity and locational targeting, the attention to both hard and soft infrastructure, and the inclusion of measures to address enabling of agribusiness.

46. **Small farmer-agribusiness links.** Global experience has highlighted the transformative potential of organizing farmers and enabling them to build regular and sustained commercial relationships with upstream and downstream agro-enterprises. Many World Bank-financed projects have supported the development of contract farming, productive alliances, or similar relationships. The keys to success include the coherence and effective management of farmer organizations, the overall competitiveness of the company partner, and having strong technical and/or market factors or incentives for farmer organizations and companies to want to closely collaborate. This calls for both a selective and a realistic time horizon when promoting more complex relationships between farmer organizations and agribusiness companies. Newly formed groups without any history of collective action will tend to be poor partners for companies. For new or weak farmer organizations, support should first begin with developing core management skills and effective governance arrangements and undertaking a few basic functions. Incremental steps in collective action (i.e., ‘partnerships among farmers’) should precede efforts to directly link them with specific downstream buyers. The circumstances in Lao PDR call for this incremental and cautious approach to farmer-agribusiness links, with the interventions in this project expected to provide the foundations for broader links of this type in the longer term.

47. **Supporting SME agribusiness.** In low- and middle-income countries, SME agribusinesses typically face multiple constraints in growing their companies and competing at home and abroad. These tend to include limited access to long-term (and often) working capital; limited technical, commercial, and supply chain management skills; and difficulties maneuvering through complex and, sometimes, inconsistent regulatory regimes. These and other issues apply in Lao PDR. For both supply and demand reasons, several existing SME credit lines have had limited disbursements. The project will provide matching grants to support SME capacity upgrades, enabling the firms to access both the equipment and the advisory services they need to improve their operations and competitiveness. Experience and successful lessons from the previous project in Lao PDR, Enhancing Milled Rice Production Project¹² (EMRIP), have been used to inform the design of the program, including having an independent (nongovernment) entity manage the

¹² The project was financed by the Europe Commission–Food Facility Program with additional funding from Helvetas and SNV (*Stichting Nederlandse Vrijwilligers* - a nonprofit international development organization established in Netherlands).



scheme; a rigorous, transparent, and competitive selection process; and the grant proportion set to ensure strong commitment on the part of the enterprises.

48. **Improving public agricultural service delivery.** Lessons learned from past extension projects in Lao PDR showed that the top-down approach was ineffective because the contacts between the government extension workers and farmers were only made on an irregular basis; the technologies being promoted were not always appropriate to local conditions and were not always in accordance with the needs of farmers; the advice given to farmers was highly generalized and not always useful; there was a lack of ownership and poor motivation among provincial and district extension staff; and there was inadequate coordination between different sectors. While the Government has a policy of giving district offices the responsibility for managing extension activities in response to farmers' needs, to put this policy into practice, capability at the district level needs to be built. The experience in Lao PDR showed that participatory planning at the village level, with village authorities playing a coordinating role, was key to success. In addition, training should also be designed to solve real problems faced by farmers and involve the practice of skills under real conditions. Last but not least, incentives and transportation should be provided for field staff to improve motivation and efficiency. These lessons learned have been incorporated into the ACP's project design.

49. **Lessons learned from the previous World Bank-funded agricultural projects in Lao PDR.** The proposed ACP builds on the two recently completed agricultural projects in Lao PDR financed by the World Bank, the LUFSP and the KDP. One of the key lessons from the LUFSP was that when promoting farmer adoption of improved seeds, it is important to address the market demand for increased surplus of agricultural products. The main lesson from the KDP was that the strong involvement and commitment of beneficiaries in all aspects of an activity, from planning to implementation and monitoring, is necessary to engender a sense of ownership among key stakeholders and ensure buy-in, efficient implementation, and sustainability. The KDP also demonstrated that matching grants for farmers could be effectively managed by the PAFO. These lessons learned have been used to inform the design of the ACP.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

50. **The Department of Planning and Finance (DOPF)** of the MAF will be the key project implementing agency (PIA). The DOPF will be responsible for (a) managing and coordinating the overall project implementation; (b) providing guidance and support to the project provinces in project implementation and management according to their mandates; (c) developing and maintaining a sound project FM system; (d) handling selection of international consultants and other procurement packages, which need to be handled at the central level; and (e) monitoring the quality of project implementation, safeguards compliance, and impact evaluation for reporting to the MAF and IDA.

51. **The National Project Management Office (NPMO)** will be established at the DOPF. The NPMO will be responsible for overall project coordination and management, including FM, procurement, M&E, and reporting. The NPMO will be also responsible for implementation of activities related to policy and legal issues. The Project Management Division (PMD) under the NPMO will provide day-to-day support to the NPMO on FM, procurement, and safeguards implementation and compliance.



52. The PAFO will be responsible for project implementation in the provinces, including (a) preparing project plans and reports; (b) handling procurement activities which are decentralized to the province; (c) maintaining a sound FM system for the project, satisfactory to IDA; (d) monitoring the quality of project implementation and safeguards compliance; and (e) coordinating with the Provincial Industry and Commerce Office (PICO), selected districts, and villages to carry out planned activities. PICO and technical departments of the MAF and MOIC will provide the necessary technical support to the PAFO when required.

53. In addition, a National Project Steering Committee¹³ (NPSC) and a Provincial Project Steering Committee (PPSC) will be established at the central level and provincial levels, respectively. The NPSC will be chaired by a vice minister of the MAF and include representatives from MOIC and other ministries and provinces involved in the implementation of the project. The NPSC will be responsible for approving the overall annual work plans (AWPs) and budgets, reviewing the project implementation progress, and providing guidance to the PIAs to resolve implementation bottlenecks. The PPSC will be chaired by the governor or vice governor and include representatives from the respective PAFOs and other provincial offices and agencies involved in the implementation of the project, including representatives of MAF, as observers, as needed. The PPSC will be responsible for approving the provincial level AWPs and budgets for input into the overall AWPs and budgets. Technical departments of the MAF and MOIC will be also mobilized to support project implementation in accordance to their mandates. Detailed institutional and implementation arrangements are presented in Annex 2.

Table 2. Implementation Arrangements for Each Component

Component/Subcomponent	Primary Responsibility	Supporting Agencies
A. Improved Agricultural Efficiency and Sustainability A1. Promoting Adoption of Good Varieties and Quality Seeds A2. Promoting Good Agricultural Practices A3. Providing Critical Productive Infrastructure A4. Strengthening Public Services Delivery	DOPF/PAFOs	MAF technical departments
B. Enhanced Agricultural Commercialization B1. Establishing an Agriculture Value Chain Facility B2. Linking Farmers to Markets B3. Improving the Enabling Environment	DOPF/PAFOs/PICOs	MAF and MOIC technical departments
C. Project Management C1. Project Management C2. Monitoring and Evaluation	DOPF/PAFOs	MAF and MOIC technical departments

Note: The primary responsible agencies are responsible for making decisions for project implementation; the supporting agencies will provide technical advice and collaborate when necessary but will not possess any approval powers for project implementation.

B. Results Monitoring and Evaluation

54. The intended results, results indicators, and arrangements for results monitoring are specified in the Results Framework and Monitoring. The project will develop a dedicated M&E system for tracking project inputs, activities, outputs, and impacts across all components in all project districts. The overall M&E system will be implemented by the NPMO under the DOPF. However, MOIC and provincial- and

¹³ To be established based on the existing National Food Security Committee.



district-level agencies will play a role in providing inputs to the management information system (MIS) on a web-based platform, which will be developed early during project implementation.

55. At least one M&E consultant (or staff) would be recruited and appointed in each PIA. In the DOPF, an international consultant would be recruited to carry out impact evaluation. The project would also recruit a technical consulting firm to assist the DOPF in developing and managing the project M&E system, consolidating information from the components, and preparing the quarterly M&E reports.

C. Sustainability

56. At the national level, the project would support implementation of the Government's 8th NSEDP for 2016–2020, which seeks to achieve sustainable economic growth and reduce poverty, including improved food and nutritional insecurity. At the sectoral level, the project would contribute to implementation of the MAF's Agriculture Development Strategy to 2025 and Vision to 2030, which calls for increased commercialization and diversification, the latter being important for a more resilient sector. As such, the project has received high attention and support from the Government, concerned ministries, and local stakeholders. The project would offer good models for scaling up by the public and private sectors, which could be replicated in other areas in the country. Lessons from project implementation would contribute to implementation and improvements of the Government's existing and future programs.

57. Rice, maize, and horticulture are among the most important crops in Lao PDR agriculture, accounting for more than 80 percent of total cropped area and involving some 70 percent rural households. Each subsector, however, has challenges of sustainability. Rice farming has low profitability because of low yields, high costs of water pumping, and poor postharvest practices and processing technology which result in high physical or quality losses. The continued viability of maize farming is threatened by declining soil fertility in the highland areas where the crop is most commonly grown. Vegetable production, especially in peri-urban areas, has been more profitable, yet the competitiveness of local production in relation to imports has been hurt by the underdeveloped state of farm and supply chain infrastructure and the absence of consistent quality standards. With the adoption of the value chain development approach through using proven existing technologies and solutions locally available in the country and/or in the region to improve production practices and postharvest capacity and quality, the project will help improve the quality of marketed agricultural produce in the project area, increase farm labor productivity, and expand areas under sustainable farming practices. As such, the project's outcomes are expected to be sustainable as they would help bring higher incomes to producers and agribusinesses and at the same time enhance the competitiveness of the targeted value chains in the long term. More competitive SME agribusinesses will be more bankable clients for Lao PDR's commercial banks in the future.

58. Lao PDR is highly vulnerable and exposed to climate disasters and climate change is adding to the vulnerability. By promoting appropriate resilient agricultural farming system practices and technologies (i.e., adoption of good varieties and quality seeds and GAP together with rehabilitation of existing irrigation systems, training and capacity building for improved water management, and linking small farmers to markets), the project will directly contribute to reduction of GHG emissions in the agriculture sector and enhance its resilience and adaption to climate change impacts. Also, by promoting a gradual shift from dominant paddy production systems to diversified cropping systems (i.e., crop rotation and crop diversification), the project not only will reduce risks from mono-crop failures but also strengthen



farmers' resilience and adaption to different climate conditions, especially in the risk, flood, and drought areas. These outcomes are expected to be sustainable, especially in the context of increased vulnerability of natural disasters and climate change in Lao PDR.

59. Finally, the improved public services delivery, especially at the provincial and district levels, will help address the current inadequacies in the Government's agricultural extension system and improve its operational effectiveness and efficiency. These impacts will go beyond the project area and last long after the project closes as it is expected that it will be institutionalized and scaled up in the Government and donor's future programs.

D. Role of Partners

60. To enhance sustainability, the project will coordinate and collaborate with various partners to support implementation of the government programs. The active collaboration has already begun with ADB during the project preparation because it is preparing a project with a similar design to that of the ACP. ADB's Climate Friendly Agribusiness Value Chain Sector Project seeks to strengthen rice and horticultural value chains in five southern provinces of Lao PDR. Both the ADB and World Bank-funded projects would thus support the implementation of the Government's Strategic Action Plan for Development of the Rice Sector, which is the part of the MAF's Agricultural Development Strategy to 2025 and Vision to 2030. During project preparation, the two project teams have coordinated in design aspects for farm support and for matching grants to ensure consistency. Active collaboration and cross-project lessons learning will continue during implementation.

61. Close collaboration will also continue with other partners and other World Bank-financed projects. The project will work with the FAO and USDA to support the development of the horticultural sector. With the AFD, FAO, IFAD, WFP, the EU Delegation, and others, the engagement will focus on climate-smart agriculture and nutrition, learning the best practices from the partners and using the existing materials and programs tested in Lao PDR for the ACP. The project will also collaborate with the IDA-financed Lao PDR Health Governance and Nutrition Development Project, the Poverty Reduction Fund, and the Reducing Rural Vulnerability and Malnutrition Project to use a common Nutrition SBCC Strategy and Action Plan and tools to ensure consistency in messaging and approach and build on and maximize each other's delivery platforms.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

62. **Overall project risk rating is Substantial.**

B. Overall Risk Rating Explanation

63. **Political and governance.** Lao PDR has made some progress in strengthening governance, but there are still weaknesses related to accountability, control of corruption, and regulatory quality. An Anti-Corruption Law was passed in 2012, including the National Anti-Corruption Action Plan to 2020. The State Inspection Authority has been empowered to prevent and counter corruption. Nonetheless, impacts have been limited and governance mechanisms remain weak. Governance-related risks will be mitigated



under the proposed project through strengthened support for implementation of the government's Anti-Corruption Action Plan as well as improved systems of accountability, procurement and financial management, monitoring and evaluation and transparency. Political commitment for the project is strong and stated in national and sectoral policies.

64. **Macroeconomic.** The country's macroeconomic situation is challenging, with high fiscal and current account deficits and debt levels, keeping the macroeconomic risk high. Increased public spending in an effort to address the country's infrastructure gap and public investment participation in the power sector coupled with revenue shortfall has kept the fiscal deficit and public debt high. These risks are partly mitigated by the Government's announced fiscal consolidation through stronger revenue collection and continued control over spending. In addition, the ongoing reforms to strengthen public financial management and the approval of the public debt management law will help strengthen the Ministry of Finance (MOF)'s role and capacity to improve public finance and debt management.

65. **Sector strategies and policies.** The Agricultural Development Strategy to 2025 and Vision to Year 2030 adopted by MAF in 2015 sets the vision of the agriculture sector: "Ensuring food security, producing comparative and competitive potential agricultural commodities, developing clean, safe and sustainable agriculture and shifting gradually to the modernization of a resilient and productive agriculture economy, linking with rural development contributing to the national economic basis." MAF is committed to developing agricultural commercialization and strategic value chains, and market supporting policies to improve food security and enhance non-natural resource economic growth. There are risks, however, that market prices and exports would be regulated at times of natural disasters and/or production shocks. To mitigate these risks, the project will support the capacity building of MAF in agricultural policy and market analyses to identify alternatives to market interventions.

66. **Technical design.** The main design risks are three-fold: (a) the technical aspects of the proposed interventions are complex and, therefore, it will take time to develop and operationalize; (b) the small and medium private sector agribusinesses are weak resulting from facing many constraints and/or are unwilling to participate and lead the process of value chains development; and (c) the public sector agencies are not strong enough to adopt the new approaches in agricultural extension and improving public services delivery and fail to engage. To mitigate these risks, the project will engage TA, develop guidelines and procedures, and provide capacity building to MAF technical departments and project provinces to understand the concepts and practices of good agriculture practices, value chain approaches, and matching grant operations. During project implementation, the project will continue carrying out consultations with the potential private sector partners to maintain their interests in participating.

67. **Institutional Capacity for Implementation and Sustainability.** The MAF has solid experience working with donor-funded projects, including the World Bank. MAF systems (fiduciary, safeguards, and M&E) are in place and at central level the teams have the capacity to implement the project. However, a major part of the work, including all physical works, will be conducted at local levels where lower capacity can be found. Management of the matching grants requires knowledge and experience to ensure transparency, fairness, and avoid conflicts of interest. To mitigate these risks, the project is aimed at developing local level capacities to implement the project and, at the same time, strength the sector's performance in the long term. The project will recruit and engage technical assistance to assist MAF in implementing and managing the project, providing training and technical assistance to local implementing agencies.



68. **Fiduciary.** The risks in FM and procurement are substantial due to the limited capacity at both the central and provincial levels, in addition to the inadequate internal control environment. These risks could cause serious delays in implementation. The governance risks are associated with the management of the project's matching grants. To mitigate these risks, the project would (a) recruit an independent professional firm to manage the AVCF; (b) recruit additional procurement and FM consultants for both the central and provincial levels; (c) adopt computerized systems for procurement, accounting, and reporting; and (d) support to strengthen internal and external control through training and capacity development and internal inspection and external audits.

69. **The overall risk rating for this project is Substantial** based on the anticipated difficulties in project implementation, which are mainly related to inadequate capacities of the PIAs at both the central and provincial levels. The current public extension networks are not effective due to limited human resources and funding and inadequate equipment and facilities. In addition, over the past decades, the public agricultural extension has mostly focused on rice so they may have limited understanding and knowledge of alternative production systems and associated farm management and marketing challenges and opportunities. To mitigate these risks, the project design has included Subcomponent A4 to strengthen public services delivery and international TA under all components to strengthen the capacity of project management and coordination.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

70. **Project benefits.** Increased production of crops and enhanced business efficiency of processors, and trading intermediaries within three value chains representing paddy, horticulture, and maize contribute to generating the project's direct benefits. The incremental annual production of crops at full development is estimated to be 52,284 tons of paddy (a 43 percent increase from the base), 357 tons of open field vegetables (+5 percent), 6,800 tons of maize (+38 percent), 174 tons of seed paddy (+25 percent), and 5,965 tons of greenhouse vegetables (+50 percent). Agribusinesses will develop additional annual processing capacity of 14,400 tons for rice milling (20 mills), 3,240 tons for vegetables (6 greenhouses), 11,520 tons for maize (6 dryers), and 10,886 tons for seed paddy (72 processors).

71. **Financial analysis.** All farm models generate positive incremental net revenues and incremental returns to labor. The financial internal rate of return (FIRR) of all agribusinesses are above the financial discount rate over the project benefit horizon of 20 years. The rice milling facilities earn an undiscounted annual net income of US\$925,000 with FIRR of 12 percent, greenhouses earn US\$97,600 with over 50 percent FIRR, maize dryers earn US\$68,522 with 22 percent FIRR, and seed paddy sorters earn US\$1.3 million with 24 percent FIRR. The undiscounted annual incremental net financial benefits at full project development are estimated at US\$19.5 million or LAK 161,535 million. The FIRR of the project is 31 percent with a net present value (NPV) of US\$56 million with 12 percent discount rate for a period of 20 years.

72. **Economic analysis.** The economic analysis, with appropriate adjustments to financial prices, shows an economic internal rate of return (EIRR) of 26 percent for the project. The economic NPV for the project, using a social discount rate of 12 percent, is US\$32.5 million or LAK 268,940 million for a 20-year period without counting the GHG benefits. The project constitutes gross GHG emissions of 5,677,720



tCO₂eq for 20 years, and a net carbon sink (reduction in GHG emissions) of -9,808,041 tCO₂eq. The project provides a net carbon sink of -490,402 tCO₂eq per year, equivalent to -16.9 tCO₂eq per ha per year. The main carbon sink of -9,510,048 tCO₂eq is primarily from improved practices of alternate wet and dry periods on flooded rice system. With GHG benefits at the lower bound of the 'social value of carbon', the EIRR is estimated at 69 percent and the economic NPV is US\$151.5 million, and at the higher bound of value, the EIRR is 109 percent and the economic NPV is US\$270.1 million. The sensitivity analysis shows that the project's economic benefits are resilient to cost escalations of 10 percent and 20 percent, benefits reduction of 10 percent and 20 percent, and delays in realizing benefits of one-year and two-year periods, with the EIRR remaining above 12 percent and the economic NPV above US\$10 million.

B. Technical

73. **Supporting GAP.** One of the key interventions of the project is to build technical capacity of the sector at all levels (i.e., ministry, provincial, district, and farmer groups) to facilitate technology transfer of GAP to farmers in the project areas. These technological packages have been well proven, either within Lao PDR by local research and extension agencies, or in other countries, and are readily available for scaling up. During the project preparation, the MAF has closely collaborated with the FAO and the World Bank technical specialists to incorporate lessons learned from the past into the project design, especially in decentralization of extension services from the ministry's departments to provinces and districts. During project implementation, the MAF seeks to continue procuring TA from the FAO to help them with managing technical aspects of implementation. As such, the implementation of technical components is expected to go smoothly without significant challenges.

74. **Support to SMEs.** Technical modalities for supporting rice mills under the EMRIP have been well established and proven. Under the EMRIP, the project provided small grants to millers to improve milling facilities and management skills needed to produce and profit from milling good quality rice and, at the same time, supported them to establish fair trading relations with smallholder farmers and built their capacity to provide and/or organize quality inputs, advisory services, and market information to farmers. The modalities for supporting SMEs under the EMRIP have been assessed to be successful not only by the Government but also by agribusinesses and farmers. The ACP will build on that experience and scale it up.

75. **GHG accounting.** The project is expected to contribute to reduction of GHG emissions through the adoption of GAP, including improved land and water management practices for rice and horticultural crops. GHG accounting for the project is conducted at the appraisal stage using the Ex-Ante Carbon Balance Tool (EX-ACT) developed by the FAO. The results showed that over the project duration of 20 years, the project constitutes gross GHG emissions 5,677,720 tCO₂eq, and a net carbon sink of -9,808,041 tCO₂eq. The project provides a carbon sink of -490,402 tCO₂eq per year, equivalent to -16.9 tCO₂eq per ha per year (see Annex 5).

76. **Climate co-benefits.** Most of the project activities either directly or partially contribute to climate risk mitigation and/or adaptation. More details are presented in Annex 5.

- **Mitigation co-benefits.**¹⁴ Activities contributing to GHG reduction are mainly from investments under Component A to support and promote improved agronomic practices,

¹⁴ Calculation of the project mitigation and adaption co-benefits was carried out independently by the World Bank Climate Change Assessment Group at the appraisal stage and it was updated at the Board approval stage.



including improved land preparation practices, water and nutrient management, fertilizer and chemical use, and rehabilitation of irrigation to reduce pumping times. Subcomponent B1 also contributes to reduction in GHG emissions through supporting agribusinesses in upgrading their processing and postharvest handling facilities to reduce physical losses and improve energy and operational efficiency.

- **Adaptation co-benefits.** Activities contributing to adaption co-benefits are mainly from investments under Component A, especially in seed production for various crops to make agriculture more resilient to climate variability (i.e., floods and drought). Co-benefits would also result from investments for GAP and its adoption and improved irrigation to support crop rotation and diversification to enhance crop resilience. Investments relating to building capacity in institutions to provide improved extension services to farmers will help farmers be more resilient to climate change. Under Component B, activities to link farmers to market will also improve their climate resilience. Under Component C, implementation support and project management are also partially linked to GAP adoption.

C. Financial Management

77. **An assessment of the project's FM concluded that the main FM risks include the weak capacity and lack of experience of the PIAs.** More specifically, all the PIAs currently lack sufficiently qualified staff, systems, procedures, and experience in implementing World Bank-financed projects. This will likely increase risks of noncompliance, delays in submitting financial and audit reports, unsatisfactory accounting records, and misuse of funds. The overall FM risk, before and after the implementation of the proposed mitigation measures, is considered to be Substantial.

78. **Risk mitigation measures include the following:** (a) assigning Government staff with adequate qualifications and experience in each PIA to support project FM and build capacity. One experienced staff has been assigned to work on project FM during project preparation and will stay on to support project work during the project implementation; (b) recruiting national consultants to support FM work of the project (i.e., three at the MAF NPMO: one head of the unit overseeing the overall FM work and capacity building and two accountants supporting FM work; and one accountant at each PAFO assisting FM work at the provincial level). It is expected that the national consultant recruited under the PPA will stay to support the project; (c) having in place an acceptable FM chapter in the Project Operational Manual (POM), including a robust system for monitoring of the use of matching grants; (d) providing training for FM/accounting staff on disbursement and FM requirements and processes; and (e) engaging qualified auditors with terms of reference (TOR) acceptable to the World Bank to audit project expenditures on an annual basis until the project closes.

D. Procurement

79. **For contracts financed in whole or in part by the IDA Credit, procurement will be carried out in accordance with 'The World Bank Procurement Regulations for IPF Borrowers: Procurement in Investment Project Financing'** (hereinafter referred to as 'Procurement Regulations'), dated July 1, 2016, revised November 2017. Procurement under national procurement procedures, as agreed with the World Bank, will be carried out in accordance with national regulations, including Procurement Decree No. 03, dated January 9, 2004, and Implementation Rule and Regulations (IRR) No. 0063 issued by the MOF on



March 12, 2004, and No.0861/MOF, dated May 5, 2009 (amended version); Procurement Manual, dated May 2009, and conditions for use of such procedures will be stipulated in the Procurement Plan. Under the proposed project, the World Bank's planning and tracking system, Systematic Tracking of Exchanges in Procurement (STEP), will be used to prepare, clear, and update Procurement Plans and conduct all procurement transactions for the project.

80. The PIAs of the project include (a) the DOPF under the MAF, which has the responsibility to carry out procurement activities at the central level and (b) the PAFOs of five project provinces that will have the responsibility to carry out the procurement activities being decentralized to the respective provinces.

81. **A procurement risk and capacity assessment of the PIAs identified the following key procurement risks to project implementation:** (a) limited knowledge and experience of the PIAs' staff including the MAF-DOPF with World Bank's Procurement Regulations that could lead to procurement delays or noncompliance; (b) lengthy internal procurement reviewing process that may cause delays; and (c) governance risks. The procurement risk under the project therefore is rated Substantial. A Project Procurement Strategy for Development (PPSD) prepared by MAF-DOPF shows similar risks. Based on the PPSD, the DOPF prepared a first 18-month Procurement Plan. Both the PPSD and Procurement Plan have been reviewed and agreed by the World Bank. The detailed procurement risks together with the mitigation measures, procurement arrangements, initial Procurement Plan, and a summary of the PPSD are included in Annex 2.

E. Social (including Safeguards)

82. **Two World Bank social safeguards policies (Involuntary Resettlement - OP/BP 4.12 and Indigenous Peoples - OP/BP 4.10) are triggered under this project.** The project will have a positive impact on local communities, including ethnic groups, by improving their access to sustainable farming systems and support, thereby improving their livelihoods and incomes. A social assessment and Free, Prior, and Informed Consultation (FPIC) conducted during the project preparation confirmed that potential impacts associated with the project-financed infrastructure on local communities and their livelihoods are expected to be insignificant, temporary, and manageable.

83. **Involuntary Resettlement (OP/BP 4.12).** A Compensation and Resettlement Policy Framework (CRPF) for the project was prepared by the MAF in compliance with World Bank OP/BP 4.12. The CRPF provides the principles and process to be followed for detailed impact assessment and FPIC with project-affected persons (PAPs). The CRPF guides preparation, review, and clearance of Abbreviated Resettlement Action Plans (ARAPs) or Resettlement Action Plans (RAPs), when required, based on the outcomes of the impact assessment for infrastructure subprojects. No land acquisition is needed in the first year of project implementation. The final CRPF was disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access.

84. **Indigenous Peoples (OP/BP 4.10).** The project provinces are home to some ethnic minority groups, including Hmong, Khmu, Makong, and Katang, who are defined as indigenous people under the World Bank policy on Indigenous Peoples (OP/BP 4.10). Activities supported under the project are expected to have a positive impact on ethnic groups. An Ethnic Groups Engagement Framework (EGEF) for the project was prepared by the MAF in accordance with the World Bank's OP/BP 4.10. The EGEF sets procedures for screening, FPIC to establish broad community support, and excludes negative impacts on local ethnic minorities. It also includes the participatory and consultative process to enable local ethnic



communities to fully participate in the project and benefit from the project investment in a culturally sensitive manner. The framework guides preparation and clearance for the Ethnic Groups Development Plan (EGDP), when required, before project investments and civil works start in the communities where populations of EGs have been identified. The final EGEF was disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access.

85. **Gender.** A qualitative gender analysis was carried out during project preparation as part of the social assessment. Village consultations in the project provinces confirmed the gender gaps identified in the literature review and sector analysis. In particular, women face greater constraints in accessing agricultural resources (i.e. land, productive assets, labor, and credit) than men, while predominantly being responsible for large parts of family and subsistence farming such as transplanting, weeding, harvesting and threshing. While the view is that men are responsible for farming and social activities and that women are primarily responsible for housework and child care; women share more than half the burden of agriculture production and more so in post-harvesting activities. Yet they have significantly less access to agricultural assets and services (including agricultural extension and training for adoption of improved agricultural technologies).

86. In addition, women also face social constraints preventing them from effectively engaging in social and economic activities far from their houses (i.e., community planning meetings, extension training, marketing, and being formal members of social and economic organizations). Men have assumed the dominant role in water user associations formed to operate and maintain new irrigation facilities, even though the cash needed to pay water user fees often comes from the trading and other productive activities of women in the community.¹⁵ Both men and women lack knowledge of nutrition, but because of women's role at the household level, their lack of knowledge constrains reducing malnutrition for their children (including during pregnancy). This influences the very high prevalence rate of 44 percent of moderate to server stunting in Lao PDR (UNICEF 2017). The high level of adolescent pregnancies (64, adolescent fertility rate (births per 1,000 women ages 15-19. World Bank data 2015) and the pressure on mothers to contribute to the household economy at the expense of breast feeding are also contributing to malnutrition and stunting among the future labor force.

87. The above-identified gender gaps were used to inform the project design and interventions, which aim to provide more social and economic opportunities to women in enhancing their recognized participation in agricultural production decisions, and their increased ability to access markets and information. Giving women farmers access to training, knowledge, and agricultural inputs will enable them to increase their voice in household agricultural production and increase income, and providing the space for women farmers organizations will increase their potential in accessing markets and productive cooperation. The project set targets for engaging and monitoring of women's participation in all project components, especially in improving women's access to markets (i.e., increase in sales from FHHs), access to agricultural assets and services, access and adoption of improved agricultural technologies, participation in farmer organizations (i.e., farmer production groups, water user associations), and access to information and nutritional training. More details are presented in section VII (Results Framework and Monitoring) and in Annex 7.

¹⁵ Wocan (2012), Scoping Study on Women's leadership in the Agriculture Sector in Lao PDR.



88. **Nutrition.** A nutrition review was carried out during project preparation. Findings showed that nearly half of Lao children are chronically malnourished (stunting or height for age) and nearly one in every five CU5 in the project areas do not meet optimal dietary intake. All malnutrition figures remain considerably high, even among well-off urban elites (on average around 40–50 percent). Micronutrient deficiencies, indicative of insufficient access to diverse foods, are substantial, including Vitamin A and iron. The findings also revealed that malnutrition is related to the lack of knowledge, access to safe water and sanitation, and adequate care practices and that there are links between women’s empowerment and malnutrition reduction. To address malnutrition, multi-sectoral interventions are required to improve food access, care practices, and health and sanitation environment. From that, the ACP has been designed to support activities which improve access to diverse food through agricultural diversification; support nutritional SBCCs, especially for adolescent girls and young adult women and local change agents on identification of available edible resources, dietary diversity, adequate care practices, and processing/cooking for improved nutrition; and promote greater machinery use to reduce women’s burden and time in farming. More details are presented in Annex 4.

89. **Citizen engagement.** As part of the project design, a consultative process was carried out to get inputs from government; nongovernmental organizations, including civil society and community organizations; academic and research institutions; and communities. During the social assessment, focus group discussions were held—with both socioeconomic groups (poor and better-off farmers, and small, medium and large agribusinesses) so that relevant data collected could be differentiated. Further differentiation based on gender was also conducted during the focus groups. The consultative process will continue to be a key feature during project implementation, reaching out to stakeholders and citizens at large through targeted communication tools, consultative processes such as workshops and focus group discussions, and feedback mechanism to build ownership of project interventions and enhance sustainability of outcomes. The details of citizen engagement are presented in the POM. Monitoring and evaluation includes specific indicators to monitor continued citizen engagement for further guidance in adopting better citizen engagement practices in subsequent project years.

F. Environment (including Safeguards)

90. **The project triggers four environmental safeguard policies, Environmental Assessment (OP 4.01), Pest Management (OP 4.09), Physical Cultural Resources (OP 4.11), Safety of Dams (OP 4.37), and one legal policy, Projects on International Waterways (OP 7.50).**

91. **The project is assigned an Environment Category B.** The project’s overall environmental impacts are assessed to be positive. Negative impacts are assessed to be limited, localized, manageable, and reversible and can be avoided or minimized through proper design and application of mitigation measures. The main environmental issues associated with the project include the following: (a) improper use and management of chemicals, pesticides, and insecticides in agriculture; (b) civil works impacts (i.e., increased localized level of dust, noise, disturbance to traffic and community, safety risks, water pollution risks, soil erosion risks, and so on) during infrastructure upgrades or new construction (i.e., rehabilitation of small-scale irrigation canal systems, upgrading/construction of processing facilities, warehouses, and so on); (c) ineffective management and improper treatment of agricultural wastes and by-products; and (d) safety issues related to construction workers.

92. **Environmental Assessment (OP 4.01) and Environmental and Social Management Framework (ESMF).** An ESMF was prepared by the MAF to guide the project in screening, assessing, and mitigating



project environmental and social impacts in compliance with the World Bank safeguards policies and the Government's laws. The framework provides guidelines for (a) safeguard screening, including a negative/non-eligible list of subprojects which will be excluded from the menu of eligible subprojects; (b) impact assessment and development of mitigation measures, including the Environmental Codes of Practice (ECOP) for small-scale construction and rehabilitation works; (c) possible land acquisition and RAPs; (d) safeguard implementation, monitoring, and reporting arrangements; (e) institutional strengthening and capacity-building programs for the PIAs; (f) a grievance redress mechanism; and (g) budget. The ESMF also includes an annex on the simplified Pest Management Plan (PMP) to be adopted by the project in compliance with the Bank's OP 4.09 and a 'chance finds' clause for Physical Cultural Resources (PCR) to be included in the ECOP and civil work contracts. The final ESMF was disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access.

93. **Natural Habitats (OP 4.04) and Forests (OP 4.36).** These policies are not triggered. Since the project will only finance rehabilitation of existing infrastructure schemes in existing farming areas, and the construction of infrastructure in the natural habitats and protected forest is prohibited, it is not expected to result in direct impacts on critical natural habitats and forest. The ESMF provides the red list of natural habitats and protected forest areas to be screened with the non-eligible activities in annex 1 of the ESMF.

94. **Pest Management (OP 4.09).** This policy is triggered. The project will not procure agrochemicals, pesticides, and herbicides. In contrast, the project is designed to promote the reduction in chemical and pesticide use by promoting sustainable farming practices. A simplified PMP was prepared with a non-eligible list. It is consistent with the Regulation on the Control of Pesticides in Lao PDR (2014) and guidelines on integrated pest management (IPM) provided by the FAO. The PMP is included in annex 3 of the ESMF.

95. **Physical Cultural Resources (OP 4.11).** This policy is triggered as a precaution. A 'chance finds' procedure was developed and included in the ECOP and construction contracts as preventive measures.

96. **Safety of Dams (OP 4.37).** This policy is triggered and it will be reconfirmed during project implementation after the screening of the proposed infrastructure subprojects. Among many small infrastructure subprojects, five irrigation subprojects rely on water supply from reservoirs. In the ESMF, a Term of Reference of Panel of Experts (POE) was prepared. During project implementation, the POE will (a) inspect and evaluate the safety status of the existing dam, its appurtenances, and its performance history; (b) review and evaluate the owner's operation and maintenance (O&M) procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety. The results of the dam inspection and findings and recommendations as well as the plan for implementing the dam safety recommendations for remedial work- or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety will be reviewed by the World Bank. The MAF will ensure that the plan for implementing the dam safety recommendations agreed with the World Bank is implemented.

97. **Projects on International Waterways (OP 7.50).** This policy is triggered. The project involves the rehabilitation of irrigation systems located in tributaries which are part of the Mekong River basin. At the request of the GOL, the World Bank sent a notification letter on behalf of the GOL on December 14, 2017, informing riparian countries including China, Myanmar, Thailand, Cambodia, and Vietnam of the proposed



project. On February 22, 2018, China issued its no objection letter to the proposed project while there have been no responses by the other riparian countries to the notification letters so far. In the World Bank's assessment, the proposed investments would not adversely affect the flow, quantity, and quality of the Mekong River's waters.

G. World Bank Grievance Redress

98. Communities and individuals who believe that they are adversely affected by the Bank-supported project may submit complaints to existing project-level grievance redress 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 Inspection Panel which determines whether harm occurred, or could occur, as a result of the Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, please visit: <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY : Lao People's Democratic Republic
Agriculture Competitiveness Project

Project Development Objectives

The Project Development Objective (PDO) is to increase the competitiveness of selected agricultural value chains in the project areas.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Change in agricultural land productivity of targeted farmers supported by the project		Percentage	0.00	20.00	Two times (at Mid-Term Review and by Completion)	Survey/Impact evaluation	National Project Management Office at MAF, with the inputs from PAFOs and Impact Evaluation Team
<i>Description:</i> Measured as a change in real agricultural value-added per hectare estimated as a nominal agricultural value-added adjusted by the inflation rate and weighted by farmland areas allocated to various crops supported by the project.							
Name: Increase in sales of farm produce as a share of production among targeted farmers supported by the project		Percentage	0.00	25.00	Annual	Regular surveys by PAFOs and DAFOs	National Project Management Office at MAF, with the input from PAFOs



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Increase in sales from female-headed households supported by the project		Percentage	0.00	25.00	Annual	Regular surveys by PAFOs and DAFOs	National Project Management Office at MAF, with the input from PAFOs

Description: Measured as the volume of output sold in percent of total production volume of targeted products among project beneficiaries

Name: Increase in rice milling efficiency of rice mills supported by the project		Percentage	0.00	7.00	Annual	Regular monitoring by Agricultural Value Chain Facility (AVCF) Unit	National Project Management Office at MAF, with the inputs from AVCF Unit
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Description: Milling efficiency measures a percentage of milled rice coming out of paddy in the rice mills supported by the project.

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Farmers reached with agricultural assets or services	✓	Number	0.00	25000.00	Annual	Regular monitoring by DAFOs with support of PAFOs.	National Project Management Office at MAF, with



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
						Services under the project include training in seed, GAP, organic, other farming practices, nutritional activities, and other services. Assets under the project include upgraded irrigation infrastructure and facilities and equipment provided to farmer organizations through matching grants.	inputs from PAFOs
Farmers reached with agricultural assets or services - Female	✓	Number	0.00	10000.00	Annual	Regular monitoring by DAFOs and PAFOs, reconfirmed by Survey/Impact Evaluation	National Project Management Office at MAF, with inputs from PAFOs
Description:							
Name: Farmers adopting improved agricultural technology	✓	Number	0.00	12500.00	Annual	Regular monitoring by DAFOs and PAFOs, reconfirmed by Survey/Impact Evaluation Improved agricultural technology means	National Project Management Office at MAF, with inputs from PAFOs and Impact Evaluation Team



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
						technologies such as good agricultural practices, organic farming, conservation practices, water-saving technologies, and other technologies supported by the project.	
Farmers adopting improved agricultural technology - Female	✓	Number	0.00	5000.00	Annual	Regular monitoring by DAFOs and PAFOs, reconfirmed by Survey/Impact Evaluation	National Project Management Office at MAF, with inputs from PAFOs and Impact Evaluation Team
Farmers adopting improved agricultural technology - male	✓	Number	0.00	7500.00	Annual	Regular monitoring by DAFOs and PAFOs, reconfirmed by Survey/Impact Evaluation	National Project Management Office at MAF, with inputs from PAFOs and Impact Evaluation Team
Description:							
Name: Targeted farmers who are members of the		Number	0.00	20000.00	Annual	Regular monitoring by DAFOs with support of	National Project Management Office at MAF, with the



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
farmer groups						PAFOs	input from PAFOs
Female farmer members of the farmer groups		Number	0.00	7000.00	Annual	Regular monitoring by DAFOs with support of PAFOs	National Project Management Office at MAF, with the input from PAFOs
Description: Farmers supported by the project who are members of the farmer groups							
Name: Area provided with new/improved irrigation or drainage services	✓	Hectare(Ha)	0.00	15000.00	Annual	Only Area provided with improved irrigation or drainage services will be monitored. Regular monitoring by DAFOs with support of PAFOs and DOI	National Project Management Office at MAF, with the input from PAFOs
Description: This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).							
Name: Targeted farmers satisfied with services provided by the project		Percentage	0.00	70.00	Two times (at Mid-Term Review and by Completion)	Survey/Impact Evaluation	National Project Management Office at MAF, with the input from PAFOs and Impact



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
							Evaluation Team
Targeted women farmers satisfied with services provided by the project		Percentage	0.00	70.00			
<p>Description: Services provided by the project include, among others, trainings, matching grants for farmer organizations, linking farmers with agribusinesses. This is also the Citizens Engagement Indicator.</p>							
Name: Targeted agribusinesses who established productive partnerships with farmers in the project areas		Number	0.00	25.00	Annual	Regular monitoring by Agricultural Value Chain Facility (AVCF) Unit	National Project Management Office at MAF, with the input from AVCF Unit
<p>Description: Number of agribusinesses established contract farming arrangements with farmers in the project areas.</p>							
Name: Increase in proportion of raw materials sourced by targeted agribusinesses directly from farmers in the project area		Percentage	0.00	30.00	Annual	Regular monitoring by Agricultural Value Chain Facility (AVCF) Unit	National Project Management Office at MAF, with the input from AVCF Unit
<p>Description: Measured as a change associated with the project activities and reported as a weighted average for paddy, horticulture products, and maize.</p>							



Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Minimum Dietary Diversity Score for women benefitting of nutrition education under the Project		Percentage	0.00	10.00	Two times (at Mid-Term Review and by Completion)	Survey/Impact Evaluation	National Project Management Office at MAF, with the input from Impact Evaluation Team
Women receiving nutritional training and awareness raising in the project areas		Number	0.00	7000.00	Annual	Regular monitoring by DAFOs and PAFOs	National Project Management Office at MAF, with the inputs from PAFOs
<p>Description: This indicator measures a change in the percentage of women in the project areas of 15-49 years old who consume at least five out of ten defined food groups.</p>							
Name: Policy documents on legislation or regulations for fertilizers, agricultural machinery, and rice export strategy submitted to MAF and MOIC		Number	0.00	3.00	Annual	Regular monitoring	National Project Management Office at MAF
<p>Description: Policy documents to be prepared by the project, with the input from consultants</p>							



Target Values

Project Development Objective Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Change in agricultural land productivity of targeted farmers supported by the project	0.00	0.00		10.00			20.00	20.00
Increase in sales of farm produce as a share of production among targeted farmers supported by the project	0.00	0.00	5.00	10.00	17.00	20.00	25.00	25.00
Increase in sales from female-headed households supported by the project	0.00	0.00	5.00	10.00	17.00	20.00	25.00	25.00
Increase in rice milling efficiency of rice mills supported by the project	0.00	0.00	2.00	3.00	4.00	5.00	7.00	7.00

Intermediate Results Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
Farmers reached with agricultural assets or services	0.00	3000.00	7000.00	10000.00	15000.00	20000.00	25000.00		25000.00
Farmers reached with agricultural assets or services - Female	0.00	0.00	3000.00	5000.00	7000.00	9000.00	10000.00		10000.00
Farmers adopting improved	0.00	0.00	2000.00	5000.00	7000.00	10000.00	12500.00		12500.00



Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
agricultural technology									
Farmers adopting improved agricultural technology - Female	0.00	0.00	700.00	1200.00	3000.00	4000.00	5000.00		5000.00
Farmers adopting improved agricultural technology - male	0.00	0.00	1300.00	3800.00	4000.00	6000.00	7500.00		7500.00
Targeted farmers who are members of the farmer groups	0.00	3000.00	7000.00	10000.00	12000.00	15000.00	20000.00		20000.00
Female farmer members of the farmer groups	0.00	0.00	1000.00	2000.00	4000.00	5000.00	6000.00	7000.00	7000.00
Area provided with new/improved irrigation or drainage services	0.00	0.00	4000.00	7000.00	10000.00	12000.00	15000.00		15000.00
Targeted farmers satisfied with services provided by the project	0.00	0.00		45.00			70.00		70.00
Targeted women farmers satisfied with services provided by the project	0.00	0.00		45.00			70.00		70.00
Targeted agribusinesses who established productive partnerships with farmers in the project areas	0.00	0.00	5.00	10.00	15.00	22.00	25.00		25.00
Increase in proportion of raw	0.00	0.00	7.00	15.00	20.00	25.00	30.00		30.00



Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
materials sourced by targeted agribusinesses directly from farmers in the project area									
Minimum Dietary Diversity Score for women benefitting of nutrition education under the Project	0.00			5.00			10.00		10.00
Women receiving nutritional training and awareness raising in the project areas	0.00	0.00	1000.00	2000.00	4000.00	5000.00	6000.00	7000.00	7000.00
Policy documents on legislation or regulations for fertilizers, agricultural machinery, and rice export strategy submitted to MAF and MOIC	0.00	0.00	0.00	1.00	2.00	3.00	3.00		3.00

ANNEX 1: DETAILED PROJECT DESCRIPTION

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

1. The project comprises the following four components: (a) Improved Agricultural Efficiency and Sustainability, (b) Enhanced Agricultural Commercialization, (c) Project Management, and (d) Contingent Emergency Response.

Component A: Improved Agricultural Efficiency and Sustainability (estimated US\$18.2 million, of which IDA would finance around US\$16.3 million)

2. One of the key challenges in improving agricultural competitiveness is the ability of smallholder farmers to adjust resource use efficiently in response to market opportunities. This requires greater emphasis on GAPs, including the adoption of good quality seeds and sustainable use of soil and water resources at both farm and communal levels. Another important aspect is the institutional capacity to monitor chemical use at the farm level and to certify the farm produce quality. These are the key steps in enhancing food safety and agricultural quality to meet the increased requirement of a competitive market resulting from the greater trade integration.

3. This component will support (a) the increased adoption of improved varieties and high-quality seeds, (b) the increased application of GAP, (c) the provision of critical productive infrastructure, and (d) the strengthening of public services delivery. The project will have a single matching grant mechanism for producer organizations, with two windows for SMGs and FPGs, as described under the subcomponents.

Subcomponent A1: Promoting Adoption of Good Varieties and Quality Seeds (estimated US\$2.5 million, of which IDA would finance around US\$2.3 million)

4. This subcomponent will support activities to promote the adoption of good varieties and quality seeds. The subcomponent aims to increase the availability and utilization of improved varieties and high-quality seeds mainly in rice¹⁶ (including ones resistant to climate variability such as floods and drought) in the project areas. This subcomponent will focus on the following:

- (a) TA for the establishment of SMGs and building their capacity to adopt good varieties and quality seeds. The project will provide training and other support to some 65 rice SMGs to produce and supply certified seeds to some 220 rice FPGs who would adopt GAP over 30,000 ha (under Subcomponent A2). Some vegetable SMG pilots will also be carried out. Awareness raising and information campaigns will be part of the training program to promote adoption of certified seeds;
- (b) Provision of Matching Grants to selected SMGs to carry out Sub-projects for improving the production and postharvest handling, packaging, and storage of quality seeds;

¹⁶ At present, most rice farmers in Lao PDR keep their paddy after harvest to use as the main source of seeds for the next planting seasons. This practice needs to be changed as it causes low yield and low quality of farm produce. For maize and vegetables, most farmers use imported seeds or those produced from local research stations. The quality of those seeds is acceptable.



- (c) Technical and material assistance (i.e., small works, goods, equipment, training, and so on) to build the capacity of PAFOs, DAFOs, MAF technical departments, and research institutions, including the Research Institute of Agriculture, Forestry and Rural Development (RIAFRD), Department of Technical Extension and Agro-processing (DTEAP), and Department of Agriculture (DOA) to conduct training for SMGs and to carry out seed quality monitoring and certification; and
- (d) TA to link SMGs with FPGs (who are supported under Subcomponent A2) and agribusinesses (that are supported under Subcomponent B1) in marketing certified seeds.

Subcomponent A2: Promoting Good Agricultural Practices (estimated US\$7.4 million, of which IDA would finance around US\$6.2 million)

5. This subcomponent will support activities to promote GAP which aims to promote the use of certified seeds, sustainable soil and water management, IPM, alternative wet and dry practices in rice farming, and crop rotation and diversification to reduce GHG emissions and improve climate resilience and adaptation. In addition, the project will also support the improvement of (individual) on-farm infrastructure and (collective) postharvest systems consistent with the principles of GAP, thereby contributing to increased farm income, improved product quality, and smaller (or positive) environmental footprints. These are important steps to improve competitiveness of the agricultural value chains. This subcomponent will focus on the following:

- (a) TA for the establishment of FPGs and building their capacity to adopt GAP. The project will provide training and other support to some 220 rice FPGs, 70 maize FPGs, and 50 vegetable FPGs who would adopt GAP over 30,000 ha. Awareness raising and information campaigns will be part of the training program to promote adoption of GAP;
- (b) Provision of Matching Grants to selected FPGs to carry out Sub-projects that implement GAP to improve quality and ensure effective postharvest handling, packaging, and storage of farm produce;
- (c) Technical and material assistance (i.e., small works, goods, equipment, training, and so on) to build the capacity of PAFOs, DAFOs, MAF technical departments, and research institutions, including the DTEAP, DOA, and Department of Agricultural Land Management (DALDM), to conduct training for FPGs on GAP and to carry out related extension and certification activities including soil analysis, organic fertilizer production, and organic farming where there are demand and niche markets. Nutrition-sensitive activities at the household level are also included as part of the GAP package promoted by the project, including supporting clean production and increasing the year-round availability of nutrient-rich food produced locally such as fruits and vegetables, promoting agricultural diversification by shifting some paddy land to fruits and vegetables and encouraging inter and mixed cropping, and encouraging the use of machinery and technologies to reduce women's time and work burden in farming to allow them better balance work and household responsibilities.
- (d) TA to link FPGs with agribusinesses (that are supported under Subcomponent B1) in marketing farm produce.

Operational steps of matching grants for SMGs and FPGs

6. There will be a single matching grant mechanism for producer organizations, with two windows: one for SMGs and the other for FPGs. The PAFO will select, approve, and disburse matching grants for producer organizations in their respective province. The following are the key steps:

- (a) The PAFO (and DAFOs) will launch a marketing and communication campaign at the village level to call for interest from farmers to participate in the project. Interested farmers will express their interest to the PAFO or DAFO. Priority is given to FHHs.
- (b) The PAFO (and DAFOs) will assist the interested farmers to form SMGs and FPGs¹⁷ and facilitate the registration of farmer groups at the district level. To help ensure that women benefit and groups represent the gender disaggregated employment levels in the sector, the project will set a quota that at least 35 percent of group members will be women. A management committee will be established and an operating bank account for each farmer group will be opened. Each management committee will also have a quota of minimum 30 percent female members.
- (c) The PAFO will provide training to the established farmer groups (i.e., technical and management skill training).
- (d) The PAFO will assist farmer groups to prepare an investment plan¹⁸ including a procurement plan (for civil works, goods, equipment, consulting services, and so on) and contract farming plan with an agribusiness. Regulations and manuals for operation and maintenance of the joint assets will also be prepared and agreed by the group members.
- (e) When the investment plan is approved, the PAFO will disburse a maximum of 90 percent of the approved investment plan (i.e., US\$14,500).
- (f) The PAFO will assess farmers' adoption of the required techniques against the agreed criteria.
- (g) If more than 50 percent of the farmers in the group adopted the required techniques, the PAFO will certify the adoption for the group and disburse the remaining 10 percent (i.e., US\$1,500) of the approved investment plan.

Matching grants funding rules

- (a) The matching grant ratio will be a maximum of 80 percent of the approved investment plan and will not exceed US\$16,000 per grant per group.¹⁹ The investment plan would show the activities to be financed by the matching grants and the amount and sources of the farmer group's contribution (i.e., equivalent to 20 percent of the total).

¹⁷ If groups exist, PAFO/DAFO helps to strengthen them. On average, there are around 20 members per vegetable group and 50 per rice and maize groups.

¹⁸ The investment plan will be a simple table of investment items, costs, and so on. The investment plan should specify the mechanism/tranche of payments in line with the technical adoption rate.

¹⁹ For exceptional cases which require more than US\$16,000 per grant per group, the PAFO should consult with and seek endorsement from the MAF DOPF and the World Bank before approval.



- (b) Eligible expenditures under the approved investment plan include: (i) for SMGs: purchase of certified R1/R2 seeds from RIAFRD and its centers (to produce certified R3 seed) and necessary individual/collective equipment, facilities, and small works to support the production and postharvest handling, packaging, and storage of quality seeds. The farmer contribution would include operating production costs including, but not limited to, land preparation, farm inputs, pumping, electricity, labor, and so on; and (ii) for FPGs: purchase of certified R3 seeds and necessary individual/collective equipment, facilities, and small works to support GAP production, processing, packaging, and storage of farm produce. The farmer contribution would include operating production costs including, but not limited to, land preparation, farm inputs, pumping, electricity, labor, and so on.
- (c) Implementation of activities would need to comply with the World Bank environmental and social safeguard policies and should not include activities which are prohibited under the ESMF.

7. **Eligibility criteria.** To be eligible for support, farmers in the project areas must be (a) organized in groups, either SMGs or FPGs (or both), (b) committed to adopting the technology packages which they have been trained for by the project, (c) committed to linking with FPGs and/or ABs to market their seeds and with ABs to market their farm produce, and (d) able to make their contribution (i.e., 20 percent of the investment plan cost). Groups must have at least 35 percent female members.

8. **Technical assistance.** MAF technical departments and research institutions as well as international and local consultants recruited by the DOPF and PAFOs will be available to assist PAFOs to provide training and guidance to farmer groups.

9. **Matching grants cycles.** Farmers can express their interest to participate in the project whenever they are ready to participate. Within one month after they express their interest, the PAFO and DAFO would come over to assist interested farmers to form SMGs/FPGs and carry out the registration at the district level (see the operational steps above). After each farming cycle (i.e., 4–6 months), the groups will be guided to conduct self-assessment of adoption of the required techniques to monitor the progress and provide the basis for the last tranche disbursement.

10. **Monitoring.** The DAFO will visit each farmer group in their district at least once a year. The PAFO will prepare and submit a semiannual progress report to the DOPF, including data on the achievements toward the objectives and indicators for all SMGs/FPGs in their province. The DOPF will organize a workshop annually to discuss the monitoring reports and project progress and provide a platform for stakeholder participation.

Subcomponent A3: Providing Critical Productive Infrastructure (estimated US\$6.2 million, of which IDA would finance around US\$5.7 million)

11. This subcomponent will support activities to improve critical irrigation infrastructure and water use practices. The subcomponent aims at improving farm productivity and resilience through support to the rehabilitation of selected irrigation schemes, including technical design, construction, improving water use, water management, and water productivity. This subcomponent will focus on the following:



- (a) Rehabilitation of selected public irrigation schemes. About 70 proposed small-scale irrigation schemes²⁰ will be technically, environmentally, and socially screened to select appropriate schemes to be financed by the project to complement the seed and GAP subcomponents (A1 and A2). The project will strengthen the capacity of the Department of Irrigation (DOI) and recruit technical consultants to support the PAFOs in screening, designing, and supervision of the selected subprojects; and
- (b) Provision of TA to establish water user groups/associations and to build their capacity to adopt improved water use models, aiming at reducing operating costs and improving water use, water management, and water productivity of existing irrigation schemes. At least 30 percent of WUA committee members must be female. It is expected that this will enhance their resilience to impacts of climate change.

Subcomponent A4: Strengthening Public Services Delivery (estimated US\$2.1 million, of which IDA would finance US\$2.1 million)

12. This subcomponent will support activities to strengthen agricultural and nutrition service delivery. The subcomponent will provide TA and material assistance (i.e., small works, goods, equipment, training, and so on) to:

- (a) Improve the overall extension service capacity of PAFOs, DAFOs, and the DTEAP. The project will support PAFOs and DAFOs to shift from a top-down approach to a participatory and demand-driven approach led by the provincial and district levels with active participation of village facilitators and improve their overall extension service capacity to deliver better quality services to farmers to adopt GAP and enhance their resilience to climate change. Special attention will also be made to offer women economic opportunities and technologies which are suitable to their conditions to allow them to benefit from services provided which can enhance their productivity in the areas where they are currently working as well as help introduce them to engage in areas that are currently male dominated (see Annex 7 for activities on how this will be done).
- (b) Support the DTEAP in improving its capacity to work with small farmers to establish SMGs and FPGs;
- (c) Develop and implement mapping and demarcation pilots for agricultural land in irrigated areas (by the DALDM); and
- (d) Conduct studies on integrated farming systems and diversification for nutrition, and carry out SBCC activities related to dietary diversity, adequate care practices, and processing and cooking for improved nutrition (by the DOPF).

Component B: Enhanced Agricultural Commercialization (estimated US\$7.2 million, of which IDA would finance around US\$4.8 million)

13. Agribusinesses' access to commercial loans in Lao PDR currently is limited due to both demand and supply reasons. On the demand side, the demand for commercial loans is low due to the low level of

²⁰ On average, from US\$100,000 to US\$200,000 per scheme.



agricultural commercialization.²¹ On the supply side, commercial banks perceive agricultural loans as high risk so they require a very high level of collaterals. In addition, most local small and medium agribusinesses do not maintain a proper accounting system or register as formal businesses to meet the requirements of commercial banks. Due to the lack of investment capital, most small and medium agribusinesses in Lao PDR currently only possess out-of-date equipment, operate at low standard levels, and incur high losses during the milling and processing stages (i.e., average milling ratios of rice mills in Vietnam and Thailand range from 60 to 65 percent, whereas only 50–55 percent in Lao PDR). In the current context of market failure, the use of public matching grants and TA would be necessary to accelerate the process and help local agribusinesses improve their operational efficiency and product standards more quickly to remain competitive. It is also expected that the success in their improved operations would be a good model to be replicated and multiplied by others outside the project areas.

14. This component will support (a) establishing of an AVCF to provide small matching grants for agribusinesses to enable them to upgrade processing and postharvest handling facilities and their management capacities to improve product quality, increase operational efficiency, and reduce physical losses; (b) strengthening of PPs between agribusinesses and FPGs; and (c) policy studies to improve the enabling environment for agro-enterprise and value chain development.

Subcomponent B1: Establishing an Agriculture Value Chain Facility (estimated US\$5.3 million, of which IDA would finance around US\$2.9 million)

15. This subcomponent will support the establishment and operation of an AVCF²² for the purpose of extending technical and financial services to agribusinesses. The subcomponent aims to improve operational standards and efficiency of agribusinesses operating in rice, maize, and horticulture value chains, thereby increasing their competitiveness to meet the market demand. This subcomponent will focus on the following:

- (a) TA to establish and operate the facility and provide advisory and subproject implementation support to agribusinesses, including preparation of business proposals, business plans, business plan implementation support, and M&E of the results; and
- (b) Provision of Matching Grants to selected agribusinesses to carry out Subprojects for upgrading their processing and postharvest handling facilities and their management capacities to improve product quality, increase operational efficiency (including improved energy efficiency), reduce physical losses, and link with FPGs to improve marketing of the farm produce.

16. **Operational steps of the AVCF.** MAF will recruit an independent consulting agency to manage and operate the AVCF. The following are the key steps:

- (a) The AVCF management team will carry out information dissemination and awareness campaigns to call for interest from agribusinesses and then provide them with training and guidance in developing and submitting a business proposal (5–6 pages). Local consultants recruited by PAFOs

²¹ The credit lines with subsidized interest rates under the World Bank-financed Access to Finance for Small and Medium Enterprise Project (P131201) currently have low disbursements.

²² The AVCF will be complementary to the on-going World Bank-funded Access to Finance for SME Project (P131201).

are also available to assist interested agribusinesses in preparing and submitting their business proposals.

- (b) The MAF will organize an independent committee²³ to evaluate the submitted business proposals and select the ones meeting the required criteria on a ‘first-come first-served’ basis.
- (c) The AVCF management team will assist the selected agribusinesses in developing full business plans, appraise the plans, and recommend to the MAF for their approval.
- (d) Some 30 eligible agribusinesses in rice, maize, and horticulture value chains will be selected to receive matching grants from the project through a transparent and competitive selection process (i.e., quality of business proposals and first-come first-served basis). Agribusinesses are also required to link with FPGs (under Subcomponent A2) to establish voluntary PPs to market the farm produce.
- (e) The AVCF management team will recommend to the DOPF to disburse the matching grants to the agribusiness together and provide technical training and coaching (in cooperation with MAF and MOIC departments) to assist them in implementing the approved business plan.
- (f) The AVCF management team will conduct regular M&E (in cooperation with the PAFOs and PICOs).

Matching grants funding rules

- (a) The matching grant ratio will be 50 percent of the approved business plan and around US\$125,000 per grant.²⁴ The business plan would show the activities to be financed by the matching grants (not more than 50 percent of total cost) and the amount and sources of the agribusiness’ contribution. The agribusiness is not eligible for support in the case of goods, materials, works, advisory services, and staff training that would have taken place in the absence of this operation.
- (b) Eligible expenditures under the approved business plan include new equipment and machinery, training and specialized TA to improve product quality and reduce postharvest losses, and operational and marketing activities to improve PP performance to source raw materials from FPGs and link them to markets (taxes are not exempted). Expenditures that are not eligible for support (negative list) are the day-to-day operating costs, purchases of land, vehicles, and salaries for employees. Foreign exchange losses and interest charges caused by late payment are also not eligible.
- (c) Implementation of activities would need to comply with the World Bank environmental and social safeguard policies and should not include activities which are prohibited under the ESMF.

17. **Eligibility criteria.** To be eligible for support, the agribusiness must (a) have a business that is registered in Lao PDR and operates in the project provinces, (b) be profitable and have a sound financial

²³ Maximum 10 members, including technical experts from MAF and MOIC, subject matter specialists from research institutes, and experts from commercial banks and AVCF management team.

²⁴ For exceptional cases which require more than US\$125,000 per grant per agribusiness, the DOPF should consult with and seek endorsement from the World Bank before approval.

condition as reflected in their financial reports for the last two years, (c) include a sound plan of establishing a PP with FPGs, and (d) demonstrate its technical and managerial capacity adequacy to implement the approved business plan.

18. **Technical assistance.** The AVCF management team will be available to provide training and guidance, as well as answer questions related to submission, evaluation, and approval of business proposals and development of detailed business plans. Local consultants recruited by the PAFO will be available to help agribusinesses in their province (free of charge) in preparing and submitting business proposals and business plans, including matching and facilitating contract farming arrangements with FPGs. The project will ensure that the local consultants recruited by the PAFOs are trained by the AVCF management team before providing TA to agribusinesses.

19. **Matching grants cycles.** Over the lifetime of the project (six years), a number of matching grant cycles will be implemented entailing preparation, implementation, management, and monitoring of approved business plans. Each cycle consists of a preparation phase (requiring 3–6 months) and an implementation phase, including management and monitoring (around 12 to 24 months).

20. The **preparatory phase** comprises the following sequence of steps:

- (a) The PAFO will facilitate and broker potential partnerships between agribusinesses and FPGs in the province (priority given to FPGs supported under Subcomponent A2).
- (b) The AVCF management team will launch a call for proposals inviting the submission of business proposals (5–6 pages) from agribusinesses, which also serves as an initial expression of interest.
- (c) Agribusinesses will prepare and submit business proposals. Local consultants recruited by the PAFO will be available to assist.
- (d) The AVCF management team will conduct screening and short-listing. An Independent Evaluation Committee will be formed by the MAF to evaluate the short-listed business proposals.
- (e) The AVCF management team will invite the agribusinesses, whose business proposals have passed the required score (i.e., 70 points out of 100 points), to prepare detailed business plans (around 10–15 pages) on a first-come first-served basis.
- (f) The AVCF management team will appraise the business plans and recommend them to the MAF Secretariat for approval.
- (g) The DOPF and the agribusiness will sign a matching grant agreement.

21. The **implementation phase** includes the following sequence:

- (a) The AVCF management team will recommend the DOPF to disburse the approved matching grants to the selected agribusiness to implement the approved business plan based on the implementation schedule, as specified in the approved business plan.



- (b) The agribusiness will procure advisory and training services as well as goods and works with assistance and guidance from the AVCF management team.
- (c) The AVCF management team, in cooperation with the PAFO, will conduct monitoring of the activities undertaken and will evaluate the results.

22. **Monitoring.** The PAFO will visit each agribusiness in their province at least once every quarter. The agribusiness will submit a semiannual progress report to the PAFO, including data on the achievements toward the objectives and indicators outlined in the business plan, as well as on financial performance. The PAFO will aggregate the key data for the participating agribusinesses in their province and submit a semiannual M&E report, including progress regarding key performance indicators, project outcomes, and outputs, to the AVCF management team. The AVCF will organize a workshop annually to discuss the monitoring reports and project progress and provide a platform for stakeholder participation.

Subcomponent B2: Linking Farmers to Markets (estimated US\$1.4 million, of which IDA would finance US\$1.4 million)

23. This subcomponent will support activities to link farmers to markets. The subcomponent will complement the activities under Subcomponents A2 and B1. It aims to build capacity and strengthen the FPGs and the PPs between FPGs and agribusinesses and provide them with timely and reliable market information to improve effectiveness of the marketing. Through linking FPGs with agribusinesses into value chains, this subcomponent will help improve marketing of GAP products, which help make farmers more resilient to climate change. In addition, it will also improve opportunities for women, especially those growing high-value cash crops such as fruits and vegetables. The subcomponent will focus on the following:

- (a) TA to strengthen the horizontal links between farmers within FPGs to implement joint procurement, marketing, and other collective actions, and the vertical links between FPGs and agribusinesses in productive partnerships to undertake further processing and marketing of the produce. Training will be provided to FPGs, agribusinesses, and PPs in business development, business skills, and management, with priority given to participation of women. This will be secured through a quota of 35 percent of farmers receiving the training being women; training material being adjusted to literacy levels (face to face, radio and visuals) and not least type of training provided targeting women's production areas; and
- (b) Development of an improved agriculture market information system to provide reliable market information for productive partnerships (led by MOIC). The project would support the recruitment of TA, provision of additional equipment, training and workshops, and incremental operating costs.

Subcomponent B3: Improving the Enabling Environment (estimated US\$0.5 million, of which IDA would finance US\$0.5 million)

24. This subcomponent will support activities to improve the enabling legal, policy, and institutional environment for supporting agribusiness investment and agricultural trade policies. The subcomponent will support TA to conduct studies (including workshops and training) to develop:

- (a) Improved sanitary and phytosanitary standards for better monitoring, evaluation, and reporting;



(b) Rice standards and rice export policies; and

(c) Improved import and export legislation focusing on agriculture inputs and farm machinery.

Component C: Project Management (estimated US\$2.9 million, of which IDA would finance US\$2.9 million)

25. The component will support (a) project management and (b) M&E.

Subcomponent C1: Project Management (estimated US\$2.4 million, of which IDA would finance US\$2.4 million)

26. This subcomponent will support the day-to-day implementation, coordination, and management of project activities including planning and execution, FM, procurement, internal and external audits, and environmental and social safeguards management.

Subcomponent C2: Monitoring and Evaluation (estimated US\$0.5 million, of which IDA would finance US\$0.5 million)

27. This subcomponent will support the day-to-day monitoring, reporting, and evaluation of project activities.

Component D: Contingent Emergency Response (US\$0 million)

28. This component with a provisional allocation of zero dollars is included under the project in accordance with OP10.00, paragraphs 12 and 13, for projects in situations of urgent need of assistance or capacity constraints. This will allow for rapid allocation of project proceeds in the event of the Government declaring that a crisis or emergency has occurred and the World Bank Group agreeing with such determination. This component would finance public and private sector expenditures on a positive list of goods and/or specific works, goods, services and emergency operation costs required for emergency recovery. An ERM will apply to this component, detailing FM, procurement, safeguards and any other necessary implementation arrangements.

ANNEX 2: IMPLEMENTATION ARRANGEMENTS

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

Project Institutional and Implementation Arrangements

1. **The DOPF** of the MAF will be the key PIA. The DOPF will be responsible for (a) managing and coordinating the overall project implementation; (b) providing guidance and support to the project provinces in project implementation and management according to their mandates; (c) developing and maintaining a sound project FM system; (d) handling selection of international consultants and other procurement packages, which need to be handled at the central level; and (e) monitoring the quality of project implementation, safeguards compliance, and impact evaluation for reporting to the MAF and IDA.
2. **The NPMO** will be established at the DOPF. The NPMO will be responsible for overall project coordination and management, including FM, procurement, M&E, and reporting. The NPMO will be also responsible for implementation of activities related to policy and legal issues. The PMD under the NPMO will provide day-to-day support to the NPMO on FM, procurement, and safeguards implementation and compliance.
3. **The PAFO** will be responsible for project implementation in the provinces, including (a) preparing project plans and reports; (b) handling procurement activities which are decentralized to the province; (c) maintaining a sound FM system for the project, satisfactory to IDA; (d) monitoring the quality of project implementation and safeguards compliance; and (e) coordinating with the PICO, selected districts, and villages to carry out planned activities. The PICO and technical departments of the MAF and MOIC will provide the necessary technical support to the PAFO when required.
4. In addition, a NPSC and a PPSC will be established at the central level and provincial levels, respectively. The NPSC will be chaired by a Vice Minister of the MAF and include representatives from MOIC and other ministries and provinces involved in the implementation of the project. The NPSC will be responsible for approving the overall AWP, reviewing the project implementation progress, and providing guidance to the PIAs to resolve implementation bottlenecks. The PPSC will be chaired by the province's Governor or Vice Governor and include representatives from the respective PAFOs and other provincial offices and agencies involved in the implementation of the project, including representatives of the MAF, as observers, as needed. The PPSC will be responsible for approving the provincial level AWP which have been designated to the province.
5. During the project implementation, the DOPF will mobilize technical departments from the MAF and MOIC departments to provide technical support to the project provinces in implementing the technical activities. The district and commune governments will also participate, when necessary, to support project implementation in their locations.
6. The institutional and implementation arrangements are summarized in Figure 2.1.

Figure 2.1. Project’s Institutional and Implementation Arrangements

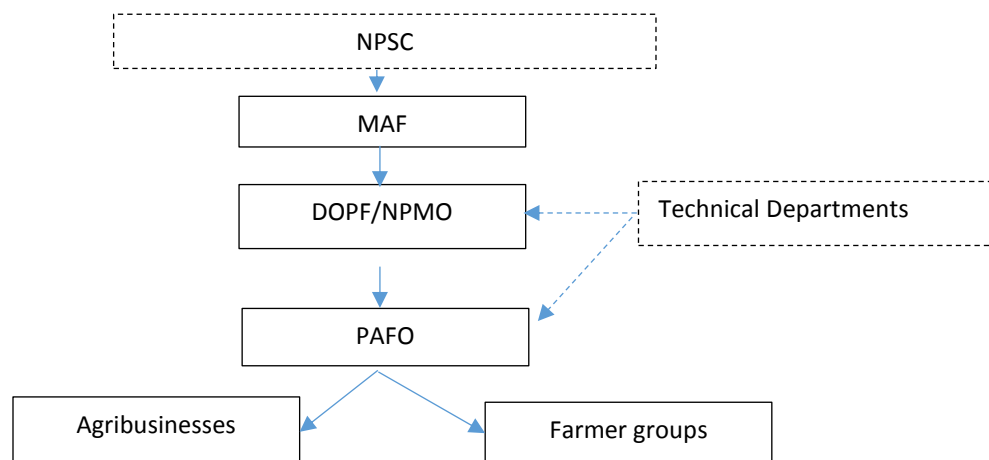


Table 2.1. Implementation Arrangements for Each Component

Component/Subcomponent	Primary Responsibility	Supporting Agencies
D. Improved Agricultural Efficiency and Sustainability A1. Promoting Adoption of Good Varieties and Quality Seeds A2. Promoting Good Agricultural Practices A3. Providing Critical Productive Infrastructure A4. Strengthening Public Services Delivery	DOPF/PAFOs	MAF technical departments
E. Enhanced Agricultural Commercialization B1. Establishing an Agriculture Value Chain Facility B2. Linking Farmers to Markets B3. Improving the Enabling Environment	DOPF/PAFOs/PICOs	MAF and MOIC technical departments
F. Project Management C1. Project Management C2. Monitoring and Evaluation	DOPF/PAFOs	MAF and MOIC technical departments

Note: The primary responsible agencies are responsible for making decisions for project implementation; the supporting agencies will provide technical advice and collaborate when necessary but will not possess any approval powers for project implementation.

Implementation arrangements for Component A

7. Implementation of Component A is decentralized to the provincial level, which the PAFO will take lead in preparing the AWP, setting the annual targets for each subcomponent. In Component A, Subcomponent A2 will be the center component which is used to guide the planning for other subcomponents. For instance, based on the target of GAP adoption set under Subcomponent A2, the PAFO will plan for the seed multiplication under Subcomponent A1. Likewise, planning for Subcomponents A3 and A4 will be linked to support activities under Subcomponents A2 and A1.

8. After defining the scope and targets for each component, the PAFO will cooperate with DAFOs to conduct baseline surveys in the target districts and communes, carry out the needs assessments for seed multiplication, for the establishment of additional SMGs and FPGs, and for technical training provided to SMGs and FPGs. Based on these, the PAFO will consult with the respective MAF departments (i.e., RIAFRD, DTEAP, DOA, DOI, and DALDM) to agree on the work programs which the MAF technical departments will

provide technical support to the PAFO and DAFOs (mainly through training of trainers) to achieve the set targets.

9. The PAFO will cooperate with DAFOs to launch an awareness and information campaign at the village level to call for interest from farmers to participate. Priority is given to FHHs and local ethnic minorities. Based on the farmers' responses and interests and with TA from the DTEAP, the PAFO will work with DAFOs to assist the interested farmers to establish SMGs and FPGs, and facilitate their registration at the district level including the establishment of a management unit and opening of a bank account for each FPG (at least 30 percent of SMG/FPG management units will be women). With TA from the MAF technical departments, the PAFO will prepare training materials, conduct training of trainers, and farmer training. Extension programs and training will be designed to encourage high participation of women and should be suitable to their conditions and culture. Local consultants recruited by the PAFO will assist SMGs and FPGs in preparing their investment plans to submit for matching grants then also assist them in implementation. Based on the review and approval, the PAFO will disburse the matching grants to the SMGs and FPGs. Finally, the PAFO will cooperate with DOA to carry out certification for seeds produced by SMGs and for GAP products produced by FPGs.

10. Implementation of Subcomponents A3 and A4 will also be carried out by the PAFO with TA from the MAF technical departments (i.e., DOI, DTEAP, DALDM, and so on). They will be linked with Subcomponents A1 and A2 in the same project district and communes to create synergy. Under Subcomponent A3, a special effort will be made to encourage participation of women in water user groups/associations to effectively operate and manage irrigation infrastructure supported by the project.

Implementation arrangements for Component B

11. Implementation of Component B is led and coordinated by the DOPF at the central level. For Subcomponent B1, an independent consulting agency will be recruited by the DOPF to manage and operate the AVCF. The AVCF management team will be responsible for launching the calls for business proposals, organizing evaluation of proposals, guiding in developing business plans, appraising, and recommending business plans to the MAF for approval, monitoring the implementation and evaluation of the results. At the provincial level, local consultants will be recruited by the PAFOs to assist agribusinesses in developing business proposals, including linking agribusinesses with FPGs. For Subcomponent B2, implementation will be done by PAFOs with TA from MAF and MOIC departments to strengthen horizontal links between farmers within FPGs and vertical links between FPGs and agribusinesses. Training will be provided to FPGs, agribusinesses, and PPs in business development, business skills, and management with priority given to women participation. Upgrade of the agriculture market information system will be led by MOIC. For Subcomponent B3, implementation of policies studies will be led by the respective MOIC and MAF departments after the TORs have been discussed and agreed with the World Bank.

Financial Management

12. **An FM assessment was carried out in accordance with OP/BP10.0.** The main FM risks identified include the weak capacity and lack of experience. The PIAs currently lack sufficiently qualified staff, systems, procedures, and experience in implementing World Bank-financed projects. This will likely increase risks of noncompliance, delays in submitting financial and audit reports, unsatisfactory accounting records, and misuse of funds. The overall FM risk, before and after the implementation of the proposed mitigation measures, is considered to be 'Substantial'.



13. **Risk mitigation measures include the following:** (a) assigning Government staff with adequate qualifications and experience in each PIA to support project FM and build capacity. One experienced staff has been assigned to work on project FM during project preparation and will stay on to support project work; (b) recruiting national consultants to support FM work of the project (i.e., three at the MAF NPMO: one head of the unit overseeing the overall FM work and capacity building, two accountants supporting FM work; and one accountant at each PAFO assisting FM work at the provincial level). It is expected that the national consultant recruited under the PPA will stay to support the project; (c) having in place an acceptable FM chapter in the POM, including having in place a robust system for monitoring of the use of matching grants; (d) providing training for FM/accounting staff on disbursement and FM requirements and processes; and (e) engaging qualified auditors with the TOR acceptable to the World Bank to audit project expenditures on an annual basis until the project closes.

14. **Organization and staffing.** At the central level, the PMD under the DOPF has been assigned for the overall project management, including FM during the preparation phase and it will continue taking this responsibility in the implementation phase. The PMD will also be responsible for FM for activities implemented by departments under MOIC. Although the PMD lacked capacity, experience, and necessary systems initially, they have gradually been built during the project preparation and will be further strengthened during the project implementation. The PMD staff assigned to work on FM and the FM consultant hired under the PPA will stay on to support the PMD during the implementation phase. Two additional accountants will be hired to support the PMD.

15. At the provincial level, the PAFO will be responsible for FM relating to activities implemented in their province. Given the lack of FM staff and experience coupled with the complexity of project activities at the provincial level, the project will recruit one qualified accountant to support the PAFO in the disbursement, monitoring, reporting, and record keeping of matching grant activities and for activities carried out by the PAFO, PICO, DAFOs, and DICOs. The PICO, DAFO, and DICO will appoint its staff responsible for reporting its expenditures to the PAFO.

16. **FM Manual.** An FM Manual was prepared by the DOPF, which is part of the POM. All project FM and accounting staff will be trained in World Bank disbursement and project FM once the project becomes effective.

17. **Budgeting and planning.** Budgets will be prepared by the respective PIAs and will be reviewed by their respective lines of reporting before consolidation into one project budget at the DOPF level. Budgets shall be prepared annually in accordance with the approved AWP, covering the period of the Government's fiscal year (i.e., January to December). The quality of budgeting and forecasting will be strengthened as part of support provided by the FM consultants. This will facilitate the use of variable ceilings of the Designated Account (DA) based on six-month cash forecasts. Guidance on the process and timing for the preparation and approval of annual budgets is described in detail in the FM Manual.

18. **Accounting policies and procedures.** The cash basis of accounting will be used to prepare financial statements. The project will use a computerized accounting software to record transactions and produce financial reports. It is expected that the computerized accounting software will be ready for use at project effectiveness. The use of the accounting software at the PAFO level will also be considered as it will facilitate data transfers and consolidation. The FM policies and procedures are described in detail in the FM Manual. The original supporting documents will be retained where transactions occur, during the life of the project or until at least the later of (a) one year after IDA has received the audited financial

statements covering the period during which the last withdrawal from the credit was made or (b) two years after the closing date.

19. **Financial reporting.** The project will follow the GOL's fiscal year (i.e., January to December). The unaudited interim financial reports (IFRs) will be prepared by the NPMO reporting on receipts and expenditures of the whole project. Each IFR will cover the period of six months and be submitted to the World Bank by the NPMO no later than 45 days after the end of each six-month period. The IFRs will report, at a minimum, receipts, expenditures, and fund balances and uses of funds by project components/activities. Variance analysis between the actual and budgeted expenditures will be performed and reported as part of the IFRs. The format of the IFRs was discussed and confirmed at negotiations. At the end of each fiscal year, the NPMO will prepare annual financial statements for the project audit.

20. **Audit arrangements.** The project will be subject to annual audits by qualified auditors with the TOR acceptable to the World Bank. The NPMO will be responsible for arranging project audits, covering all expenditure of the projects, and includes visits to selected PAFOs, agribusinesses, and farmer groups to audit the selected matching grants. The audit TOR has been drafted and agreed with the World Bank. The audit report, together with the management letter, will be submitted to the World Bank no later than six months after each fiscal year end. In accordance with World Bank Policy on Access to Information, the audited financial statement and audit opinion will be disclosed on the MAF's website.

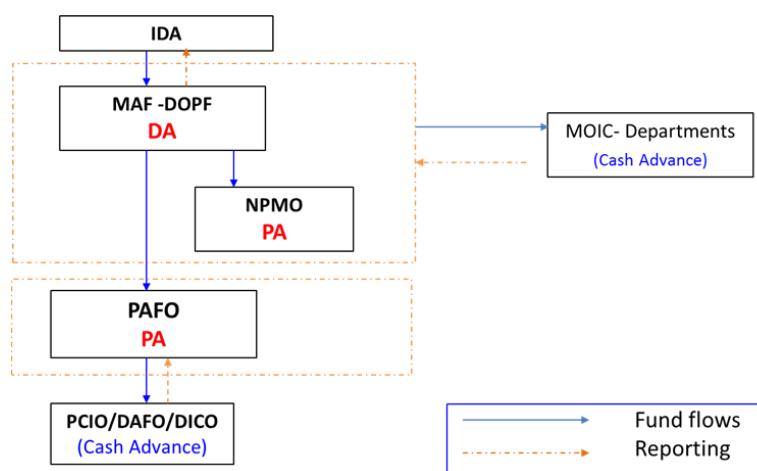
21. **Matching grants.** A relevant portion of the IDA matching grants will be disbursed only when certain conditions are met. Regarding matching grants for agribusinesses, disbursement will be made upon the presentation of invoice and evidence that the portion of the agribusiness has been met. For matching grants for SMGs and FPGs, the first tranche disbursement will be made when their investment plans have been reviewed and approved by PAFOs and the last tranche when more than 50 percent of farmers in the group have adopted the required techniques. As far as possible, large payments for goods and services relating to matching grants should be made directly to the suppliers from the DA or Project Account (PA). Expenditures will be recognized once the portion of IDA matching grant is disbursed. The procedures for selection, approval, disbursement/payments, reporting, and record keeping requirements are described in detail in the POM. Monitoring mechanisms to be implemented by the independent management agency and the PAFOs will be put in place to ensure that matching grants have been used for its intended purposes. The annual audits will also cover matching grants and field visits to agribusinesses and farmer groups.

Disbursements

22. **Flows of funds.** The DA, which was opened under the PPA, will continue to be used for the project. The DA will have variable ceilings based on six-month cash forecasts. At the central level, the NPMO will continue using its existing PA opened under the PPA, but its ceiling will be increased to US\$300,000 to facilitate smooth day-to-day implementation at the central level and transfers of funds to provinces. This ceiling can be revised based on implementation experience and approval by the MOF in accordance with the MOF regulations. Large payments should be paid from the DA or through direct payments. At the provincial level, a PA will be opened in each province and managed by the respective PAFO. These accounts will receive funds based on the periodic expenditure forecasts. Reporting on the use of funds will be made monthly. The departments of MOIC at the central level will receive cash advance from the NPMO PA, and PICOs, DICOs, and DAFOs at the provincial level will receive cash advance from the PAFO

PA based on individual requests to implement certain activities in accordance with the approved work plan. The PICO, DICOs, and DAFOs will report the expenditures incurred to the PAFO upon completion of those activities. The detailed requirements and procedures for requesting and reporting of funds used are described in the FM Manual. All amounts transferred to the PAs at the central and provincial levels will be considered as advance payments.

Figure 2.2. Funds Flow Arrangements



23. **Disbursement methods.** Applicable disbursement methods will include (a) advance, (b) reimbursements, (c) direct payments, and (d) special commitments. The minimum application value for direct payments and reimbursements will be US\$100,000. The reporting of expenditures paid from the DA will be based on submission of statements of expenditures. The frequency of reporting of expenditures will be monthly, but not more than three months. Table 2.2 provides the allocations and disbursement percentages for the different disbursement categories.

Table 2.2. Allocations of IDA Credit

Category	Amount of Financing Allocated (US\$)	Percentage of Expenditures to be Financed (inclusive of taxes)
(1) Goods, works, non-consulting services, consulting services, matching grants, training and operating costs under Components A, B and C of the Project	24,000,000	100%
(2) Refund of Preparation Advance	1,000,000	Amount payable pursuant to Section 2.07 (a) of the General Conditions
(3) Contingent emergency expenditures under Component D of the Project	0	100%
Total amount	25,000,000	

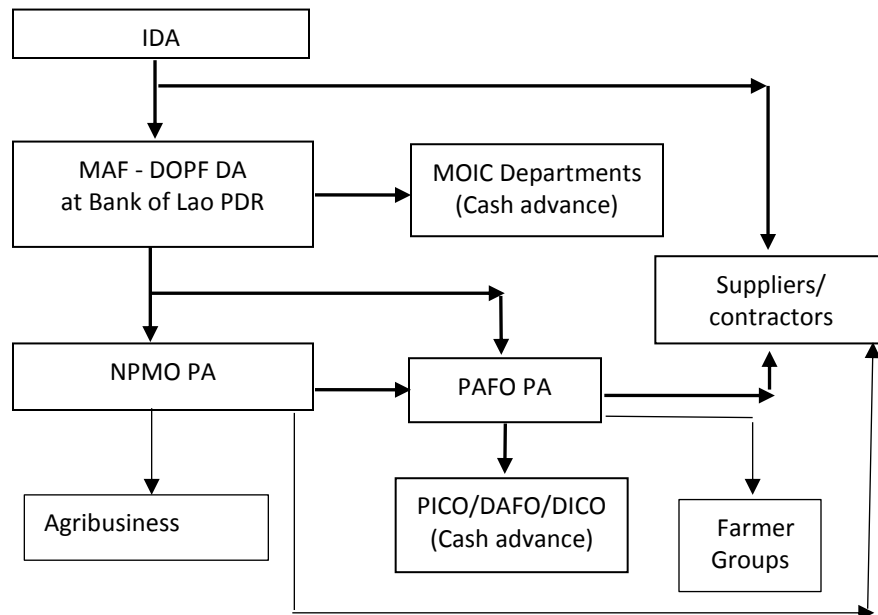
Note: The undisbursed amount of the PPA will be re-allocated to Category 1 after the PPA is closed.

24. The project will have a disbursement deadline date (final date on which the IDA will accept applications for withdrawal from the recipient or documentation on the use of credit proceeds already

advanced by the IDA) of four months after the closing date. This ‘grace period’ is granted to permit the orderly project completion and closure of the credit account through the submission of applications and supporting documentation for expenditures incurred on or before the closing date. Expenditures incurred between the closing date and the disbursement deadline date are not eligible for disbursement. All documentation for expenditure forwarded to IDA for disbursements will be retained and will be made available to the external auditors for their annual audits and to IDA and its representatives, if requested. In the event that the auditors or the IDA implementation support missions (ISMs) find that the disbursements made were not justified by the supporting documentation or are ineligible, IDA may, at its discretion, require the recipient to (a) refund an equivalent amount to IDA or (b) exceptionally, provide substitute documentation evidencing other eligible expenditures.

25. **Funds flows to matching grants recipients.** For agribusiness grant recipients, there will be two funds flow options: (a) eligible grant portion transferred to the recipient’s bank account from the NPMO PA based on the invoices or contracts that have been pre-financed 100 percent by the grant recipient or (b) the eligible grant portion transferred directly to the recipient supplier’s/contractor’s bank account from the NPMO PA based on the invoice or contract to cover the eligible grant portion. As for farmer groups, the PAFO will make payments or transfer to the grant recipient from their PA following two options: (a) the eligible grant portion transferred to the recipient’s bank account from the PAFO PA based on invoices or contracts that have been pre-financed 100 percent by the grant recipient or (b) the eligible grant portion transferred directly to the farmer group supplier’s/contractor’s bank account from the PAFO PA based on invoice or contract to cover the eligible grant portion. The eligible grant portion, including documentation requirements for disbursement, is detailed in the POM.

Figure 2.3. Funds Flow Arrangements for Matching Grants Recipients



26. **Disbursement arrangements for Component D (Contingent Emergency Response).** No withdrawal will be made under Component D until the Government has (a) declared that a crisis or emergency has occurred, and the World Bank has agreed with the determination; (b) prepared and disclosed all safeguards instruments required for activities under Component D of the project, if any,

and the Government has implemented any actions which are required to be taken under said instruments; (c) established adequate implementation arrangements, including a positive list of goods and/or specific works and services required for emergency recovery, satisfactory to IDA, including staff and resources for the purposes of said activities; and (d) has prepared and adopted the ERM acceptable to IDA, so as to be appropriate for the inclusion and implementation of activities under Component D. A Contingency Emergency Response Implementation Plan will be developed in accordance with the ERM before the release of any funds under Component D.

27. Disbursements would be made either against a positive list of critical goods and/or against the procurement of works and consultant services required to support the immediate response and recovery needs of GOL. All expenditures under this component, should it be triggered, will be in accordance with OP/BP 10.00 and will be appraised, reviewed, and found to be acceptable to the World Bank before any disbursement is made. All supporting documents for reimbursement of such expenditures will be verified by the authorized agencies, certifying that the expenditures were incurred for the intended purpose and to enable a fast recovery following the crisis or emergency, before the withdrawal application is submitted to the World Bank. This verification would be sent to the World Bank together with the application.

Procurement

28. **Institutional arrangements for procurement.** The DOPF under the MAF will be responsible for procurement activities at the central level. The PAFOs of the project provinces will be responsible for procurement activities including selection of consultants and procurement of goods and works which are decentralized to their respective provinces. Relevant departments under the MAF and provincial departments will be responsible for developing technical designs, specifications of goods, and TORs as well as managing contracts under their responsibilities. The Procurement Plan for the project has been prepared and approved by the MAF.

29. **Procurement capacity and risk assessment.** The World Bank carried out a procurement capacity and risk assessment of the PIAs in May 2017. It found that the PIAs, including the DOPF, have limited experience in implementation of the World Bank-funded projects. Major inadequacies and risks identified and presented in Table 2.3 may result in substantial delays of project implementation and/or cause possible noncompliance and irregularities in the procurement processes. From these, the procurement risk for the project is rated 'Substantial'. The key mitigation measures in Table 2.3 were agreed with the PIAs and will be implemented during project implementation to mitigate the identified risks and strengthen the procurement capacity of the PIAs.

Table 2.3. Identified Procurement-Related Risks and Mitigation Measures

No.	Risk/Challenge	Proposed Risk Mitigation Measure	Responsibility	Deadline
1.	Limited knowledge and experience of the PIAs' staff, including the DOPF, with World Bank's Procurement Regulations	(a) Provide procurement training for the PIAs' staff, including initial training during project preparation and in-depth procurement trainings during project implementation. (b) Recruit a procurement consultant to assist the PIAs in carrying out procurement activities.	World Bank and DOPF	During project preparation and implementation

No.	Risk/Challenge	Proposed Risk Mitigation Measure	Responsibility	Deadline
2.	Lengthy internal procurement reviewing process	(a) Adopt a POM satisfactory to IDA, including a chapter on procurement comprising clear rules, step-by-step procedures and responsibilities, time line requirements for procurement activities, actions and decisions, sample documents and evaluation report for small procurements, and so on.	World Bank and DOPF	During project implementation
3	Governance risks associated with conflict of interest, fraud, and corruption	<p>(a) Enhanced disclosure of procurement information, including publication of the annual Procurement Plan and a quarterly summary of the contract award information for all procurement packages on the MAF's website and in newspapers.</p> <p>(b) Establish a procurement complaint handling mechanism consistent with the Government Procurement Rules and Regulations of the MOF and the World Bank's requirements.</p> <p>(c) Require staff involved in procurement to declare their interest and sign a declaration form.</p> <p>(d) Monitoring and reporting on implementation of actions Point 2 (i) to (iv) and Point 3 (i) to (vi) for strengthening transparency and procurement training for the project</p>	<p>DOPF</p> <p>MOF</p> <p>DOPF</p> <p>DOPF</p>	During project implementation

30. **Applicable procurement procedures.** For contracts financed in whole or in part by the IBRD Loan or IDA Credit, procurement would be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers: Procurement in Investment Project Financing', (hereinafter referred to as 'Procurement Regulations') dated July 1, 2016, revised November 2017, and procurement under national procurement procedures as agreed with the World Bank will be carried out in accordance with national regulations including Procurement Decree No. 03, dated January 9, 2004; Implementation Rule and Regulations (IRR) No. 0063 issued by the MOF on March 12, 2004, and No. 0861/MOF, dated May 5, 2009 (amended version); and the Procurement Manual dated May 2009, and conditions for use of such procedures will be stipulated in the Procurement Plan.

31. The World Bank Standard Request for Proposal will be used for all consultancy services. Procurement under Component D of the project will be carried out in accordance with the ERM to be agreed between the World Bank and Government.

32. **Summary of the PPSD.** A PPSD was prepared by the DOPF with the support from the World Bank task team, and the document (available a separate project files) was reviewed and agreed by the World Bank. The PPSD presents how procurement activities will support the development objective of the project and deliver the best value for money under a risk-based approach. In addition, the PPSD includes the rationales for procurement decisions, including the selection of the approach to market and



procurement methods. The PPSD and the Procurement Plan for the project shall be regularly updated as appropriate during the project implementation.

33. About US\$8.2 million will be financed by matching grants, which will be around US\$16,000 for a farmer group and around US\$125,000 for one agribusiness. The procurement items under matching grants include farm equipment and small works of relatively small values. The procurement method used for procurement under the matching grants will follow the acceptable commercial practices.

34. The remaining budget of the project will finance procurement of goods, works and consulting services, non-consulting services, and other activities such as training, workshops, and incremental operating costs. The procurement of goods comprises vehicles, office and other equipment, furniture, and lab equipment, which are of relatively simple nature and small value. The market research, as part of the PPSD, showed that there are sufficient number of potential suppliers in the country that have the capacity to supply these types of goods. Therefore, it proposes to use the Request for Bid (RFB) method for the contracts with estimated cost equivalent or above US\$100,000 or the Request for Quotation (RFQ) method for contracts below US\$100,000 with the national market approach.

35. Civil works include rehabilitation of irrigation schemes; construction of productive infrastructure; and upgrades of small-scale infrastructure for extension, GAP, and seed multiplication in the project provinces. The scale of civil works is relatively small, ranging from US\$10,000 to about US\$1,000,000. There are many national or local contractors who have the capacity to execute such kinds of works as demonstrated by the PPSD. Therefore, it is proposed to use the RFQ method for contracts below US\$200,000 and the RFB method for contracts equivalent or above US\$200,000 with the national market approach.

36. Consulting services comprises (a) two key consulting assignments, including a TA for the management of matching grants and providing advisory services to agribusinesses (mainly rice mills) with the estimated cost of about US\$600,000, and a TA for supporting implementation of different technical aspects of the project with the cost estimate of about US\$770,000; (b) several firm consulting assignments such as project financial audits, SBCC for nutrition, baseline, midterm, and final assessments with cost estimate ranging from US\$100,000 to US\$400,000 per contract; and (c) various assignments for individual consultants such as project advisers, technical consultants, procurement, FM, and safeguards consultants, consultants for design of irrigation systems, and strengthening of Water Users Association (WUA) and O&M with cost estimates ranging from US\$30,000 to US\$180,000 per contract.

37. Regarding the TA for management of the AVCF, the PPSD showed that SNV Netherlands Development Organization appears to have experience of exceptional worth for the assignment through carrying out a similar assignment under the European Union-funded EMRIP in Lao PDR, which was closed in 2016. Given that there is a limited pool of consulting firms that have expertise in managing agribusiness matching grants and rice value chain development, the MAF may consider recruiting the SNV on the basis of direct selection to implement the AVCF to ensure the success and a timely implementation of the AVCF.

38. For the TA to support implementation on a wide range of agricultural technologies for GAP in rice and horticulture and maize production to assist farmer groups to adopt techniques of GAP and organic farming and nutrition-sensitive agricultural activities under the project, the PPSD demonstrated that the FAO is exceptionally qualified to provide this TA. The MAF, therefore, may consider selecting the FAO for this TA on the direct selection basis.

39. The other consulting assignments are mostly of relatively small scale with cost estimates ranging from US\$20,000 to below US\$200,000. The PPSD showed that there are sufficient national consulting firms and individuals having the qualifications and experience to provide such type of consulting services. It hence suggested that Selection based on the Consultants' Qualifications (CQS) and competitive selection methods be used for firm assignments and individual assignments, respectively with the national market approach. The international market approach should also be considered for the contracts that need international experience as international consultants will be beneficial to the project implementation. In addition, based on the PPSD, the Quality- and Cost-Based Selection (QCBS) method is encouraged to be used for relatively large contracts such as contracts with cost estimate of equivalent or above US\$300,000.

40. The PPSD also included an analysis and assessment of potential risks that may affect the success of the procurement process and proposed risk mitigation measures, as well as allocation of risks to the party that is in the best position to take the risks. The procurement arrangements are summarized in Table 2.4. The full PPSD is available for reference as a separate project file.

Table 2.4. Summary of Procurement Arrangements

Category	Procurement Method Thresholds		Prior Review Thresholds	
	Applicable Thresholds (in US\$ equivalent)	Remarks	Applicable Thresholds (in US\$, million)	Remarks
Works				
RFB through open international market approach	≥2.0 million	—	Above 10	Not foreseen at project preparation
RFB through open national market approach	≥200,000 <2.0 million	—	None	—
RFQ	<200,000	—	None	—
Direct Selection	None	No threshold; meet requirements of regulations 7.13–7.15	Same as for competitive selection	
Goods and Non-consulting Services				
RFB through open international market approach	≥0.6 million	—	Above 2	Not foreseen at the project preparation stage
RFB through open national market approach	≥100,000 <0.6 million	—	None	Risk-based approach
RFQ	<100,000	—	None	—
Direct Selection	None	No threshold; meet requirements of regulations 7.13–7.15	Same as for competitive selection	Not foreseen at the project preparation stage
Consulting Services				
QCBS, QBS, FBS, LCS (Using the most appropriate market approach)	≥300,000	Short list of only National Consultants (Firms) for contract agreed in the Procurement Plan	≥1.0	Risk-based approach

Category	Procurement Method Thresholds		Prior Review Thresholds	
	Applicable Thresholds (in US\$ equivalent)	Remarks	Applicable Thresholds (in US\$, million)	Remarks
CQS (Open or limited competition through national or international market approach, specified in the Procurement Plan and agreed with the World Bank)	<300,000	QCBS, QBS, FBS, LCS can be applied for contracts with value under US\$300,000.	None	—
Individual Consultants	Not applicable depending on nature of services	Essential individual assignments will be defined in the Procurement Plan agreed with the World Bank and in line with regulations 7.34–7.39 using the most appropriate market approach	≥ 0.3 and for the positions specified in the Procurement Plan agreed with the World Bank	Risk-based approach
Direct selection of firms	None	No threshold; meet requirements of regulations 7.13–7.15	Same as for competitive selection	Not foreseen at the project preparation stage

Note: FBS = Selection under a Fixed Budget; LCS = Least-Cost Selection.

41. **World Bank’s standard procurement documents.** If it becomes necessary to approach the international market for goods and works, the World Bank’s standard procurement documents shall be used and those contracts shall be specified in the Procurement Plan tables in STEP. Regarding the contracts using the national market approach, the procurement procedure will be carried out in accordance with the national regulations, including Procurement Decree No. 03, dated January 9, 2004, and No. 0861/MOF, dated May 5, 2009 (amended version) and Implementation Rule and Regulations (IRR) No.0063 issued by the MOF on March 12, 2004. Harmonized bidding documents or RFQs will be used.

42. **Procurement Plan.** The PIAs prepared the initial Procurement Plan for the first 18 months of project implementation based on the findings and recommendations of the PPSD. The Procurement Plans will be updated annually (or as needed) by the DOPF to (a) reflect project implementation, (b) accommodate changes that should be made, and (c) add new packages as needed for the project. All Procurement Plans, their updates, or modifications shall be subject to World Bank’s prior review and no objection. The World Bank shall arrange for the publication of the Procurement Plan and its updates on the World Bank’s external website and the MAF-DOPF shall also post the Procurement Plan and its updates on the MAF’s website. The detailed Procurement Plan is available in a separate project document.

43. **Use of STEP.** It is mandatory for all procurement transactions for post and prior review contracts under the project to be respectively recorded in or processed through the World Bank STEP. This is to



ensure that comprehensive information of all contracts awarded under the project (i.e. goods, works, and consultants' services), regardless of prior review or post review by the World Bank will be available automatically and systematically on an annual basis and/or whenever required, including, but not limited to, (a) reference number as indicated in the Procurement Plan and a brief description of the contract; (b) estimated cost; (c) procurement method; (d) time lines of the bidding process; (e) number of participated bidders; (f) names and reasons of rejected bidders; (g) date of contract award; (h) name of awarded supplier, contractor, or consultant; (i) final contract value; and (j) contractual implementation period and so on. This tool will be used to manage the exchange of information (i.e., bidding documents, bid evaluation reports, no objections, and so on) between the DOPF and the World Bank.

44. **World Bank's review, supervision, and support.** Based on the value, complexity, and risk level of project procurement, most of project procurement activities will be subject to the World Bank's post review as shown in the initial Procurement Plan, except Procurement Plans and their updates. The World Bank will carry out post review on an annual basis. The World Bank will closely supervise the project procurement performance through ISMs. The World Bank will also provide training, hands-on support, and guidance to the PIAs especially in updating the PPSD, Procurement Plan, and contract management.

Environment (including safeguards)

45. **The project triggers four environmental safeguard policies: Environmental Assessment (OP 4.01), Pest Management (OP 4.09), Physical Cultural Resources (OP 4.11), Safety of Dams (OP 4.37), and one legal policy which is Projects on International Waterways (OP 7.50).**

46. **The project is assigned an Environment Category B** as its overall environmental impacts are assessed to be positive and its negative impacts are limited, localized, and manageable. The potential negative environmental impacts include (a) improper use and management of chemicals in agriculture and (b) civil works impacts (i.e., increased localized dust, noise, disturbance to traffic and community, safety risks, and water pollution risks) during infrastructure upgrades or construction (i.e., construction of irrigation canals, processing facilities, warehouses, and so on). These impacts are assessed to be temporary and localized in nature and can be avoided or minimized by effective mitigation measures.

47. **Environment Assessment (OP 4.01)** is applied to all elements of a World Bank-financed operation. This policy requires that environmental assessments must be carried out at the early stage of project preparation so that safeguard tools (such as the ESMF, Environmental Impact Assessment, and Environmental Management Plan [EMP]) can be determined and prepared on time to avoid or address potential negative environmental impacts.

48. The project's overall socioenvironmental impacts are expected to be positive. The project aims to improve agricultural sustainability through providing good seed quality, promoting GAP (i.e., minimizing water and chemical fertilizer and pesticide uses), and good water management practices. Investments also include small-scale infrastructure (i.e., rice mills, storage facilities, processing houses, irrigation and drainage rehabilitation and upgrades, and so on), procurement of combined harvester machines, equipment, and training. These investments are not expected to cause adverse and unprecedented environmental and social impacts. Most of the negative impacts are short-term, temporary, localized, and can be mitigated.



49. Given that the nature of the project is demand driven and the scope and targets of the project will be determined by farmers' participation during the project implementation, an ESMF was prepared for the project. The ESMF provides policy provisions, principles, and processes to address the environmental and social impacts. It describes procedures for impact assessment, consultation, preparation of subsequent safeguard instruments, and implementation arrangements. The final ESMF was disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access.

50. **Environmental and Social Management Framework.** An ESMF was prepared by the MAF in accordance with the country's environmental regulations and the World Bank OP/BP 4.01. The ESMF will guide the project in screening, assessing, and mitigating project environmental and social impacts. The framework provides guidelines for (a) safeguard screening, including a negative/non-eligible list of subprojects which will be excluded from the menu of eligible subprojects; (b) impact assessment and development of mitigation measures, including the ECOP for small-scale construction and rehabilitation works; (c) possible land acquisition and RAPs; (d) safeguard implementation, monitoring, and reporting arrangements; (e) institutional strengthening and capacity-building programs for the PIAs; (f) a grievance redress mechanism; and (g) budget. The ESMF also includes an annex on the non-eligible activities; a screening form to examine the vulnerability of the subproject location to natural disaster and sensitive sites and environmental and social impact assessment; a due diligence form for agribusiness, value added/processing facilities; a screening form for social assessment; a simplified PMP to be adopted by the project to comply with the World Bank's OP 4.09; and a 'chance finds' clause for PCR to be included in the ECOP and civil work contracts. Guidance for subproject categorization and the screening form for Category C and Category B subprojects, as well as the monitoring matrix are provided in annex 6 of the ESMF.

51. The ESMF requires that for each type of infrastructure activity, the environmental and social consultants, in close consultation with the DOPF/NPMO and PAFO/DAFO, will support farmers/small enterprises in preparing subproject proposals after completion of the screening process together with standard mitigation measures in the form of the ECOP to mitigate construction- and operation-related impacts in accordance with the ESMF. The DOA, DOI, and DTEAP will provide technical support on alternative options, GAP, IPM, and irrigation systems rehabilitation during the subproject proposal and mitigation measures preparation. The subproject will be included in the bidding and contract documents and will be closely monitored by supervision engineers. No safeguard instruments will be required for subprojects in Category C. It is unlikely that subprojects in Category A will be proposed under this ACP. For subprojects in Category B that require the initial environmental examination (IEE), the IEE needs to be approved by the Provincial Office of Natural Resources and Environment (PONRE) before subproject implementation. The ESMF has included the ECOP for four types of potential subprojects to be applied during subprojects implementation.

52. **Natural Habitats (OP 4.04) and Forests (OP 4.36).** These policies are not triggered. The project will only finance rehabilitation of existing infrastructure schemes in existing farming areas, so it is not expected to result in direct impacts on critical natural habitats and forest resources.

53. **Pest Management (OP 4.09).** This policy is triggered. The project would not finance procurement of agrochemicals, pesticides, and herbicides. In contrast, the project is designed to promote the reduction in chemical and pesticide use by promoting sustainable farming practices. The project will follow the existing MAF's regulations for IPM and GAP. A PMP was prepared and included in annex 3 of the ESMF.



54. **Physical Cultural Resources (OP 4.11).** This policy is triggered. The siting of small infrastructure under the ACP will avoid relocation of any known existing PCRs. Chance find procedures were developed in the ESMF as preventive measures for projects involving earthworks and will be included in an ECOP and construction contracts as preventive measures.

55. **Safety of Dams (OP 4.37).** This policy is triggered. This will be reconfirmed during project implementation after the screening of the proposed infrastructure subprojects. Among many small infrastructure subprojects proposed by the project provinces, five irrigation subprojects rely on water supply from reservoirs. In the ESMF, a Terms of Reference of POE was prepared. During project implementation, the POE will (a) inspect and evaluate the safety status of the existing dam, its appurtenances, and its performance history; (b) review and evaluate the owner's O&M procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety. The results of the dam inspection and findings and recommendations as well as the plan for implementing the dam safety recommendations for remedial work or safety-related measures necessary to upgrade the existing dam to an acceptable standard of safety will be reviewed by the World Bank. Detailed roles assigned and mandated for dam inspection to the relevant agencies and organizations; strengthening the inspection, operation, and maintenance officers; and improving inspection procedures and reporting system will be proposed in the Dam Inspection Report as part of the recommendations by the POE. The MAF will ensure that the plan for implementing the dam safety recommendations that are agreed with the World Bank is implemented. Rehabilitation of dam-related schemes will not take place in the first year of project implementation.

56. **Projects on International Waterways (OP 7.50).** This policy is triggered because the project will support the rehabilitation of irrigation systems located in tributaries which are part of the Mekong River basin. As requested by the GOL, the World Bank sent a notification letter on behalf of the GOL on December 14, 2017, informing riparian countries, including China, Myanmar, Thailand, Cambodia, and Vietnam of the proposed project. On February 22, 2018, China issued its no objection letter to the proposed project while there have been no responses by the other riparian countries to the notification letters so far. In the World Bank's assessment, the proposed investments would not adversely affect the flow, quantity, and quality of the Mekong River's waters.

Social (including safeguards)

57. The project triggers two social safeguards policies (OP. 4.10 and OP 4.12).

58. Overall, the social assessment indicates that activities supported by the project will have a positive impact on local communities, including ethnic groups by improving their access to sustainable farming technologies and support, thereby improving their livelihoods and incomes. Major social impacts are not anticipated from the project activities as it will finance the rehabilitation of existing community irrigation schemes and agricultural production and processing facilities to be built or installed mainly in the current premises of famers, smallholders, and communities.

59. **Involuntary Resettlement (OP 4.12).** The project will avoid land acquisition associated with all infrastructure upgrades. Where irreversible, the design of subprojects will be adjusted and alternative locations sought to minimize land acquisition. However, as a preventive measure, a CRPF was prepared by the MAF to be applied under the project. The CRPF provides the principles and process to be followed



for detailed impact assessment and FPIC with PAPs. The CRPF will guide the preparation, review, and clearance of ARAPs/RAPs, when required, to be prepared based on the outcomes of the impact assessments for infrastructure subprojects when the design and locations of the subprojects become known. The ARAP/RAP provides implementation process and monitoring arrangements and budget estimation for compensation of land and assets lost and livelihood support required for PAPs. Compensation and necessary support for PAPs will be provided before the commencement of subproject implementation. The final CRPF was disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access.

60. During project preparation, the PAFOs and DOI already evaluated and excluded all investment proposals that may cause large-scale (or irreversible) social and environment impacts. For the infrastructure subprojects to be implemented in the first year, the PIAs carried out screening and confirmed that these subprojects will not require land acquisition. During project implementation, if a subproject requires acquisition of private land and/or other assets, a ARAP/RAP will be prepared and submitted to the World Bank for review. The approved ARAPs/RAPs are required to be disclosed publicly and locally before implementation of the subproject.

61. **Indigenous Peoples (OP/BP 4.10).** The project provinces are home to some ethnic minority groups (ethnic groups) including Hmong, Khmu Makong, and Katang, who are defined as indigenous people under the World Bank policy on Indigenous Peoples (OP/BP 4.10). Activities supported under the project are expected to have a positive impact on indigenous ethnic groups. An EGEF was prepared by the MAF to be applied under the project in accordance with the World Bank's OP/BP 4.10. The EGEF sets procedures for screening and excluding negative impacts on local ethnic groups. It also includes the participatory and consultative process to enable local ethnic communities to fully participate in the project and benefit from the project investment in a culturally sensitive manner. The EGEF will guide preparation of EGDPs, when required, based on the outcome of the detailed social assessment and FPIC. The final EGEF was disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access. During project implementation, EGDPs will be prepared before project investments and civil works start in the communities where population of ethnic groups identified. The EGDPs will be submitted to the World Bank for review and disclosed before implementation.

62. **Environmental and social safeguard implementation arrangements.** The DOPF/NPMO and the PAFOs/DAFOs are responsible for overall supervision, monitoring, and implementation of the ESMF and ECOPs as well as the CRPF and EGEF. Each will appoint an environmental and social safeguard officer. The project will provide adequate resources to allow the DOPF/NPMO and the PAFOs/DAFOs to work effectively with the local governments to carry out environmental and social safeguard compliance monitoring and management as stipulated in the ESMF/ECOPs/CRPF/EGEF. The project will also provide training to build capacity of the DOPF/NPMO, and the PAFOs/DAFOs on implementation of the ESMF, ECOP, CRPF, EGEF, and related monitoring activities. The main role of the NPMO during project implementation will be to provide necessary guidance, training, and TA to the PAFOs and ensure that the PAFOs are aware of the environment and social safeguard policy requirements and are able to implement, monitor, and report the safeguard compliance status effectively. The PAFOs will be responsible for preparing the ARAPs/RAPs and the EGDPs, if required, for submission to the DOPF and World Bank for review and to the District Office of Natural Resources and Environment (DONRE) or PONRE for approval. A TA team and safeguard consultants will also be recruited to assist the DOPF/NPMO in managing project implementation, including environmental and social safeguards.



63. During project implementation, the following steps will be taken: (a) environmental and social screening to determine eligibility (by the PAFO with TA from the DOPF/NPMO, safeguard consultants, and concerned line agencies such as DOA, DOI, DTEA, and so on); (b) determining whether a detailed environmental impact assessment and mitigation measures or instruments, including EMP and the ECOP are required for the subproject (by the PAFO/DAFO with TA from the DOPF/NPMO); (c) preparing the required safeguards instruments (by the PAFO/DAFO with TA from the DOPF/NPMO and safeguard consultants) and seeking approval (by DONRE or PONRE for subprojects that require IEE), followed by public disclosure (by the PAFO/DAFO); (d) incorporating mitigation measures into bidding documents, construction, and supervision contracts (by the PAFO/DAFO); and (e) monitoring implementation of the ECOP (by the PAFO/DAFO/NPMO and construction supervision consultants).

64. **Public consultation and disclosure.** Extensive consultations were carried out with the affected communities during the social assessment and the preparation of the project's environmental and social safeguard frameworks. The ESMF, CRPF, and EGEF are acceptable to the World Bank. Their last updates were disclosed on the World Bank website on January 15, 2018, and in the project provinces and on the MAF website in both Lao and English on January 16, 2018, for public access.

Monitoring and Evaluation

65. The project will develop a dedicated M&E system for tracking project inputs, activities, outputs, and impacts across all components in all project districts. The intended results, results indicators, and arrangements for results monitoring are specified in the Results Framework and Monitoring (section VII). The overall M&E system will be implemented by the NPMO. However, MOIC and the provincial- and district-level agencies will play an important role in providing inputs to the MIS on a web-based platform, which will be developed during the first year of project implementation.

66. At least one M&E consultant (or staff) would be recruited and appointed in each PIA. In the DOPF, an international M&E consultant would be recruited. The project would also recruit a technical consulting firm to assist the DOPF in developing and managing the project M&E system, consolidating information from the components, and preparing the quarterly M&E reports. The M&E consultant would assist the NPMO in developing the M&E Manual and providing M&E training for all the PIAs in preparing M&E progress reports.

67. Regarding M&E data collection for Component A, at the central level they would be collected from the MAF departments' progress reports and at the provincial level from the PAFOs' progress reports through existing networks of the PAFOs, districts and commune extension agencies, and from farmer groups established and facilitated under the project. For Component B, at the central level they would be collected from the AVCF management team and at the provincial level from the PAFOs' progress reports with inputs from the PICOs.

68. M&E reports will be prepared, updated, and submitted to the World Bank semiannually as part of the semiannual and annual progress reports. High attention will be paid to monitoring of progress of the PDO indicators, intermediate results indicators, and gender-related and citizen engagement indicators. The M&E results will be analyzed and will serve project management and decision-making purposes to improve project implementation and performance. Where necessary, selected indicators may be fine-tuned through project restructuring. A midterm review will assess progress in achieving the PDO.



An Implementation Completion and Results Report (ICR) will be prepared by the GOL and by the World Bank task team within six months after the project closes to assess the project's achievements.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

Strategy and Approach for Implementation Support

1. A risk-based approach has been used to develop the implementation support plan for the project. The key risks identified for the proposed project mainly relate to the inadequate staffing and lack of experience of the PIAs, the governance risk associated with project's matching grants, and the compliance risks in handling the project's procurement, FM, and safeguards. The main strategy and approach for implementation support to manage the identified risks include capacity building for the PIAs, enhancement of project governance, and diligent project monitoring and supervision, especially during the first two years of project implementation. Mitigation measures have been proposed and discussed with the MAF and MOIC and project provinces. They will be adopted during project implementation.
2. **Building capacity of the PIAs.** Most of the PIAs have little experience with World Bank-funded projects and are also not familiar with World Bank procedures. The project includes training and capacity-building activities for the implementing and oversight agencies. TA during project implementation will provide timely guidance and advice to the PIAs, especially the PAFOs when there are technically complex implementation issues or there are differences between national regulations and World Bank procedures.
3. **Enhancement of project governance.** There are governance risks associated with the project's matching grants. In addition, capacity at local levels is generally low. To enhance project governance and effectively manage the AVCF for agribusinesses, the project would recruit an independent consulting agency to manage and operate this facility. The responsibilities of each PIA are clearly defined in the POM, which includes grievance redress mechanisms.
4. **Intensive monitoring and supervision.** There are risks of noncompliance in procurement, FM, and safeguards during project implementation. The project, therefore, requires intensive monitoring and supervision in the initial period to identify issues on time and address them before they become major problems. The review and supervision will follow a risk-based approach, which will focus on poor-performing PIAs and on high risk areas. Intensive monitoring and supervision would be maintained until the capacity of the PIAs has been improved or the project's TA team has been recruited and is functioning effectively.

Implementation Support Plan and Resource Requirements

5. The World Bank task team will provide intensive implementation support in the initial period, focusing on the implementation of the various agreed risk management measures on technical issues, as well as on fiduciary, safeguards, and governance aspects. It will address identified issues promptly and provide extra support to those agencies and provinces where implementation is either lagging or not in compliance with agreed policies and procedures. In addition to full ISMs (generally twice a year), one or two interim missions will also be fielded depending on project needs. After the first year of implementation, the NPMO would organize an implementation review workshop to assess project performance, draw lessons, and recommend necessary adjustments.

6. A Midterm Review mission will be conducted, in the third year, to review implementation progress and assess the likelihood of achieving the PDO, as well as to identify any changes needed to the project. Some of these may require formal restructuring, based on the Government's request, including amendments to the Financing Agreement. About six months before project closing, an Implementation Completion and Results Review mission will be fielded to carry out a comprehensive assessment of the project and draft the World Bank ICR, as well as to guide the MAF and the project provinces in preparing the Government's own ICR.

7. A balanced skills mix will be retained for every full mission. Most of the World Bank task team is based in Vientiane and in the region, which will be convenient to support project agencies on a frequent basis. The MAF plans to seek TA from the FAO to assist them in coordinating and managing the project and providing specialized technical expertise to its departments and project provinces during project implementation.

Table 3.1. Implementation Support

Time	Focus	Skills Needed	Resource Estimate (weeks)	Budget (US\$ '000)
Y1 (first 12 months)	Procurement	Procurement specialist	4	
	FM and disbursement	FM specialist	4	
	Social safeguards	Social safeguards specialist	3	
	Environmental safeguards	Environmental safeguards specialist	3	
	M&E	M&E specialist	2	
	Crop/GAP	Crop/GAP specialist	2	
	Agriculture value chain	Agriculture value chain specialist	2	
	Estimated budget required per year		20	75
Y2–Y4 (13–48 months)	Procurement	Procurement specialist	3	
	FM and disbursement	FM specialist	3	
	Social safeguards	Social safeguards specialist	3	
	Environmental safeguards	Environmental safeguards specialist	3	
	M&E	M&E specialist	2	
	Crop/GAP	Crop/GAP specialist	2	
	Agriculture value chain	Agriculture value chain specialist	2	
	Nutrition	Nutrition specialist	2	
	Estimated budget required per year		20	75

Time	Focus	Skills Needed	Resource Estimate (weeks)	Budget (US\$ '000)
Y5–Y6 (49–72 months)	Procurement	Procurement specialist	3	
	FM and disbursement	FM specialist	3	
	Social safeguards	Social safeguards specialist	2	
	Environmental safeguards	Environmental safeguards specialist	2	
	M&E	M&E specialist	2	
	Crop/GAP	Crop/GAP specialist	3	
	Agriculture value chain	Agriculture value chain specialist	3	
	Nutrition	Nutrition specialist	2	
	Estimated budget required per year		20	75

Table 3.2. Skills Mix Required

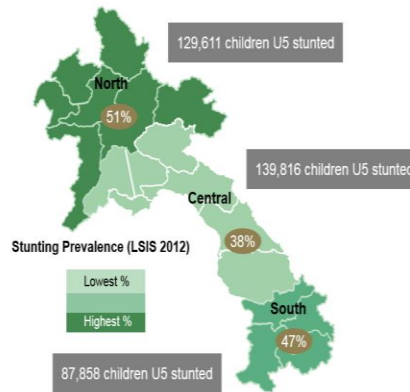
Skills Needed	Number of Staff Weeks per Year	Number of Trips	Comments
Project management/Agriculture (co-team leader)	8	2–3	World Bank staff
Private sector development (co-team leader)	8	2–3	World Bank staff
Economics	3–4	2	World Bank staff
Procurement	3–4	2	World Bank staff
FM	3–4	2	World Bank staff
Social safeguards	3–4	2	World Bank staff
Environmental safeguards	3–4	2	World Bank staff
M&E	3–4	2	Local consultant
Value chain specialist	3	1–2	FAO consultant
Nutrition	2	1–2	FAO consultant

ANNEX 4: NUTRITION-SENSITIVE ACTIVITIES UNDER THE PROJECT

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

1. While Lao PDR has experienced progressive economic growth, malnutrition remains one of the highest in Southeast Asia, hardly declining with time. Nearly half of Lao children are chronically malnourished (stunting or height for age), affecting 385,000 or 44 percent of CU5. While stunting remains a biggest malnutritional challenge, the data from the Lao Social Indicator Survey (2011/12) indicate that 6 percent of CU5 also suffer from wasting (weight for height, an indicator for acute malnutrition) and 27 percent were underweight (weight for age, a composite indicator of both chronic and acute malnutrition). Micronutrient deficiencies, indicative of insufficient access to diverse foods, are substantial, including Vitamin A and iron (up to 59 percent of children under two are reported anaemic).²⁵

Figure 4.1. Stunting Problem in Lao PDR



Source: Lao Social Indicators Survey 2011/12.

2. There are great disparities in stunting across the country with the highest incidence found in the far north and south of the country (Figure 4.1). However, even in the central part of the country stunting averages 38 percent, twice as high as the 20 percent threshold considered in East Asia and Pacific as a moderate rate of stunting. In the project areas, which is the central part of Lao PDR, the average stunting is 40 percent, except in Vientiane Capital where the stunting is 20 percent.

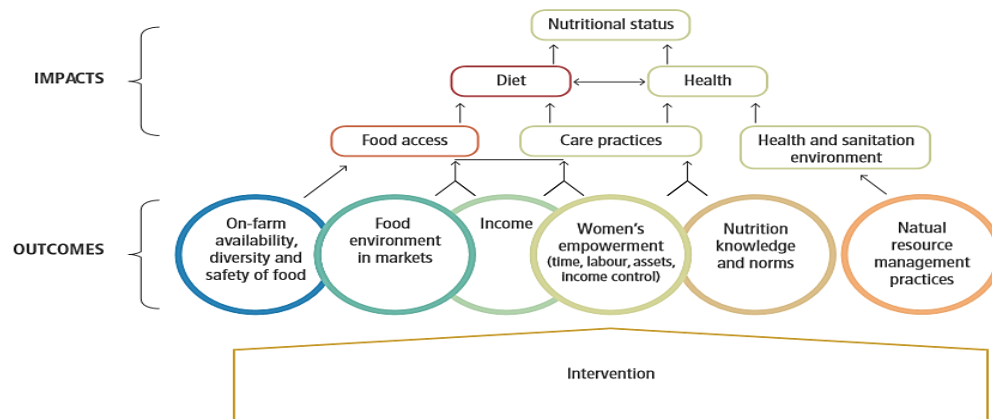
3. The high rate of CU5 stunting in the project areas is one of the reasons for including them in the project. One alternative was to target provinces with the highest stunting rates such as Luang Namtha and Oudomxay in the north and Saravane in the south, which are defined by the Government and the donors as 'convergence' provinces to address malnutrition through agriculture, health, water and sanitation, and other interventions. The World Bank's Health Governance and Nutrition Development Project and Rural Water Supply and Sanitation Project, for example, operate in these provinces with the objective to reduce CU5 stunting and improve nutritional security. Yet that alternative was rejected. While agriculture and food security are not supported by the World Bank projects in these provinces, other big agricultural donors are active there. The IFAD's Agriculture for Nutrition Project invests US\$40 million in agricultural nutrition-sensitive activities in these provinces. That project was explicitly designed using a

²⁵ <http://dhsprogram.com/pubs/pdf/fr268/fr268.pdf>.

convergence approach. In addition, agricultural development in these provinces are supported through the projects from the ADB, the EU, and other donors.

4. While addressing malnutrition requires multi-sectoral interventions to affect food access, care practices, and health and sanitation environment (Figure 4.2), improving one or several aspects of malnutrition is also good to achieve in the absence of a convergence approach. The proposed ACP will support activities that improve access to diverse food. The main vehicle for this will be increasing agricultural productivity and commercialization, which would support income generation for improved access to healthy food basket.

Figure 4.2. Multi-sectoral Interventions



Source: Herforth and Ballard 2016.²⁶

5. The income growth is found to have had a significant impact on CU5 stunting in Lao PDR. In 2014, each incremental increase in income was positively associated with a reduction in CU5 stunting, decreasing by 10 percentage points per wealth quintile: stunting in the poorest quintile averaged 61 percent, second 50 percent, middle 42 percent, fourth 32 percent, and richest 20 percent.²⁷ Currently, the elasticity of income increase to stunting reduction in Lao PDR seems to be quite high and income increase of the project beneficiaries from stronger agricultural commercialization and competitiveness is expected to contribute to reduce CU5 stunting.

6. The Lao PDR food plate is principally based on rice and particularly glutinous rice ('sticky' rice). Rice accounts for 81 percent of total daily food consumption, the highest in the entire region. This staple is complemented by vegetables and animal-based products, when available. Oil is only minimally added to meals (overall lacking in the diet). The World Bank (2016)²⁸ study found that dietary diversity in Lao PDR remained a significant concern with most households only consuming 3 out of 9 food groups, with urban areas faring a bit better (Figure 4.3).

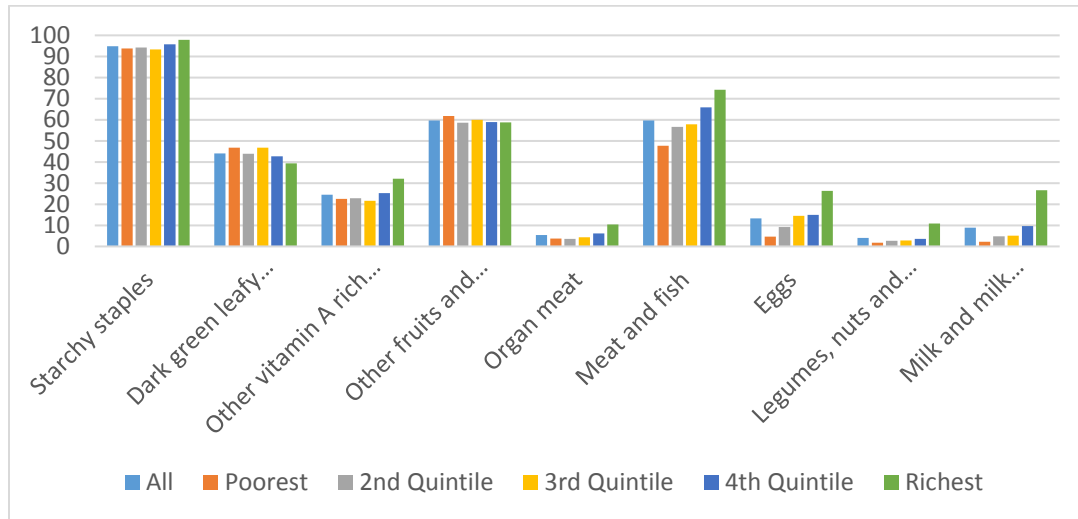
²⁶ Herforth, A., and T. Ballard. 2016. *Nutrition Indicators in Agriculture Projects: Current Measurement, Priorities, and Gaps*. EU-FAO Improved Global Governance for Hunger Reduction Program.

²⁷ Analysis supported in 2016 by the EU, Scaling Up Nutrition (SUN) and United Nations Children's Fund.

²⁸ World Bank. 2016. *Nutrition in Lao PDR: Causes, Determinants, and Bottlenecks*. Washington, DC: World Bank.



Figure 4.3. Lao PDR: Dietary Diversity by Economic Welfare



Source: World Bank 2017.²⁹

7. Higher incomes of the project beneficiaries are expected to improve access to safe and diverse foods, which is one of the key ingredients for good nutrition and health. The FAO recommends the use of dietary diversity as a proxy for micronutrient adequacy to help understand the link between agriculture and food systems and adequate micronutrient intake. While some studies confirm the direct association between dietary diversity and stunting in Lao PDR,³⁰ other case studies negate this.³¹ Overall, there is no clear consensus for Lao PDR due to the diversity of dietary habits, socioeconomic conditions, agroecological zones, and ethnic groups.

8. Supporting the income increase through commercialization will not be the only nutrition-sensitive and nutrition-specific activity under the project. The following nutrition-sensitive activities under Component A will improve nutritional outcomes in the project areas:

- Encourage time and labor-saving technologies to reduce women’s work burden
- Support clean and organic production through improved agricultural practices
- Increase the year around availability of nutrient-rich food produced locally such as fruits and vegetables.
- Promote agricultural diversification by shifting some paddy land to fruits and vegetables and encouraging inter and mixed cropping.
- Given the limited location-specific knowledge in Lao PDR on the impact of integrated farming systems on nutrition, the project will carry out a study on opportunities of integrated

²⁹ World Bank. 2017. *Child Nutrition and Determinants in Lao PDR: Income, Condition at Birth, Food Diversity, and Socioeconomic Environment*. Washington, DC: World Bank.

³⁰ See: World Bank. 2016. *Nutrition in Lao PDR: Causes, Determinants, and Bottlenecks*. Washington, DC: World Bank.

³¹ See: World Bank. 2013. *Lao PDR Risk and Vulnerability Survey 2012/13*.



farming systems/diversification for nutrition to inform adjustments during project implementation.

- Strengthen capacities of provincial and district staff to support institutionalization of nutrition into work plans and extension and uptake of lessons learned.
- Support the nutritional SBCC,³² particularly for adolescent girls and young women and local change agents on identification of available edible resources, dietary diversity, adequate care practices, processing/cooking, and other interventions.

9. Under Component B, the following activities will support reduction in malnutrition:

- Support food safety along value chains for rice, maize, and horticulture to reduce chemical residues, contamination, spoilage, and adulteration.
- Improve market opportunities for women growing nutritious vegetables by supporting proper handling, packaging, processing, and labelling.

10. In addition, under Component C, the project will conduct an impact evaluation to capture the link between commercialization and nutrition. Evaluating the impact of the project on nutrition is of crucial importance to start building an evidence base for Lao PDR on balancing commercialization with nutrition-leveraging opportunities and mitigating risks. These findings can be triangulated and cross-checked with the Lao Social Indicator Survey, which should be conducted 2017/18, and the next one at the end of the project period.

11. The Results Framework includes two intermediary outcome indicators measuring the impact of the project on nutrition:

- (a) Minimum Dietary Score for Women, measured as percentage of women ages 15–49 consuming number of food groups out of 10 (5 being the cutoff).
- (b) Targeted farm households receiving nutritional training and awareness raising.

³² The proposed project will use 10 nutrition modules and complementary audiovisual materials produced under the IFAD-financed Agriculture for Nutrition Project and the World Bank-financed Health Governance and Nutrition Development Project on Water Supply, Sanitation and Hygiene, food preservation, cooking demonstrations, and use of underutilized foods.



ANNEX 5: GHG ACCOUNTING, CLIMATE RISK SCREENING, AND CLIMATE CO-BENEFITS

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

A. Climate Risks Screening

1. Climate and disaster risks screening was carried out. Extreme temperature, extreme precipitation, and drought were identified to be the key climate and geophysical hazards, which are likely relevant to the project location both at present and in the future. The exposure ratings for climate and geophysical hazards are 'moderate'. Concerning extreme temperature, the recent trends indicate that such exposure in the project locations is increasing. Regarding precipitation, Lao PDR has been experiencing a decline in total annual rainfall. It is expected that rainfall variability will increase and there will be more days of heavy rains. As a result, periods of hot and cool days might increase in length. As for drought, their frequency and intensity is predicted to increase due to increased temperature and decreased total rainfall. To mitigate these climate risks, the project has been designed to introduce improved agronomic practices including improved land preparation practices, water and nutrient management, fertilizer and chemical use, and water-saving irrigation and reduced pumping. In addition, the project will also support agribusinesses to upgrade their processing and postharvest handling facilities to reduce physical losses and improve energy and operational efficiency.

2. **Impacts on irrigation and drainage.** The ratings for the current and future impacts on irrigation are 'moderate potential'. The recent trends indicate increased variability in the timing and amount of precipitation. These changes may reduce the level of water in irrigation canals in the dry season and increase flooding in the rainy season. These, in turn, will affect the cropped areas and water productivity. To mitigate these risks, the project has been designed to focus only on the rehabilitation of existing infrastructure because investment in irrigation systems is costly and difficult to modify in the future. In addition, the project will pay high attention to institutional strengthening to improve water productivity and efficiency of irrigation systems. The project will also focus on promoting greater cropping diversification toward crops requiring less water, therefore reducing overall water demand, and employing water-saving techniques to improve water efficiency in the project area.

B. GHG Accounting

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

4. **Methodology.** To estimate the impact of agricultural investment lending on GHG emission and carbon sequestration, the World Bank has adopted the EX-ACT, which was developed by the FAO in 2010. The EX-ACT allows the assessment of a project's net carbon-balance, defined as the net balance of CO₂ equivalent GHG that were emitted or sequestered because of project implementation compared to a without project scenario. The EX-ACT estimates the carbon stock changes (emissions or sinks), expressed in equivalent tons of CO₂ per hectare and year.

5. **Data sources.** Project preparation team and state departments. The assumptions correspond to

the assumptions in the economic analysis.

6. **Key assumptions.** The project region has a tropical climate with moist moisture regime. The dominant soil type is low activity clay. The project implementation phase is 6 years and the capitalization phase is assumed to be 14 years. The 20-year implementation period is standard in the use of EX-ACT.

7. **Project boundary**

(a) **Improvements in annual crop management**

Table 5.1. Adoption of Climate-resilient Agriculture Practices

Crop	Improved Agronomic Practices	Nutrient Management	No Tillage	No Residue Burning	Manure Application	Area (ha)
Maize	✓	✓			✓	5,000
Vegetable	✓	✓	✓	✓	✓	870

(b) **Improved practices on flooded rice system.** Improved practices on flooded rice system. The hectare area under paddy rice is 23,283 ha, which is cultivated twice a year, considering both dry and wet season.³³ In flooded rice production, EX-ACT considers CH₄ emission produced from anaerobic decomposition, thus depending on the choice of water regime assumed in the analysis, and CH₄ and N₂O emission stemming from biomass burning.

Table 5.2. Improved Methods in Rice Cultivation

	Cultivation Period (days)	Water Regime		Organic Amendment Type (straw or other)	Area (ha)		
		<i>During the cultivation period</i>	<i>Before the cultivation period</i>		<i>Start</i>	<i>Without</i>	<i>With</i>
Improved irrigation management "with project"	250	Irrigated - Intermittently flooded	Non-flooded preseason <180 days	Farmyard manure			23,283
Traditional irrigation management "without project"	310	Irrigated - Continuously flooded	Non-flooded preseason <180 days	Straw incorporated shortly (<30 days) before cultivation	23,283	23,283	

(c) **Fertilizers use.** Urea use will decrease from 5,674 without project to 4,349 tons of N per year with project, compost use will increase from 0 without project to 1,500 (assumed) tons of N

³³ The Economic and Financial Analysis in Annex 6 considers double-cropping on 23,283 ha, thus crop production for two seasons per year, and calculated by assuming production area of 46,566 ha.

per year with project, and phosphorus use will increase from 6,075 without project to 9,314 tons of P₂O₅ per year with project.

- (d) **Energy consumption.** Electricity use will increase from 0 MWh without project to 1,205 MWh per year with project.
- (e) **Construction of irrigation systems.** Irrigation systems on a total of 15,000 ha will be rehabilitated with project. A total of 80 percent of area is assumed to use surface and irrigation runoff return systems and 20 percent use trickle.

8. **Results.** The net carbon balance quantifies GHGs emitted or sequestered because of the project compared to the without project scenario. Over the project duration of 20 years, the project constitutes gross GHG emissions 5,677,720 tCO₂eq, and a net carbon sink of -9,808,041 tCO₂eq. The project provides a net carbon sink of -490,402 tCO₂eq per year, equivalent to -16.9 tCO₂eq per ha per year.

Table 5.3. Results of the Ex Ante GHG Analysis

Project Activities	Over the Economic Project Lifetime (tCO ₂ eq)			Annual Average (tCO ₂ eq/year)		
	GHG Emissions of Without Project Scenario (1)	Gross Emissions of Project Scenario (2)	Net GHG Emissions (2 - 1)	GHG Emissions of Without Project Scenario (3)	Gross Emissions of Project Scenario (4)	Net GHG Emissions (4 - 3)
Improved crop management	-8,766	-231,693	-222,928	-438	-11,585	-11,146
Improved practices on rice	14,155,750	4,645,702	-9,510,048	707,787	232,285	-475,502
Management in Inputs and investments	1,338,777	1,263,712	-75,065	66,939	63,186	-3,753
Total	15,485,761	5,677,720	-9,808,041	774,288	283,886	-490,402
Per ha	534	196	-338	26.7	9.8	-16.9

C. Climate Co-Benefits³⁴

Component	Total financing (US\$, millions)	Possibility of Adaptation Co-benefits	Possibility of Mitigation Co-benefits
A1: Promoting Adoption of Good Varieties and Quality Seeds: (a) matching grants for seed production and (b) training and capacity building for seed production activities	2.40	Adaptation co-benefits would be realized in two ways: (a) increased seed production and multiplication will result in drought and flood resilient seeds and (b) availability of seeds for vegetables and maize would help in moving away from dominant paddy production system (72 percent of cultivated area) to a gradual shift to a paddy-maize-vegetable diversified cropping system reducing the risk from mono-crop failures.	No mitigation co-benefits are expected.
A2: Promoting Good Agricultural Practices: (a) dissemination of GAP, (b) matching grants to promote adoption of GAP and related infrastructure technologies, and (c) training and capacity building of agencies to deliver advisory services to ensure implementation of GAP	6.20	Adaptation co-benefits would be realized from GAP interventions which include (a) adopting improved farming techniques to enhance crop productivity and resilience to climate variability, and (b) promoting crop rotation and crop diversification (i.e. various crops different than rice) which are adaptive to different climate conditions, thereby enhancing their resilience.	Mitigation co-benefits would be realized through promotion and adoption of AWD paddy production technique in two specific ways: (a) AWD technique reduces methane emissions produced by anaerobic archaea and this reduction would be realized for some 25,000 ha of area under paddy cultivation annually and (b) AWD technique also results in reduced fertilizer consumption (and use of organic fertilization) in paddy production. Both these outcomes are expected to result in annual GHG emissions reduction of about 430,000 tCO ₂ e.
A3: Providing Critical Productive Infrastructure (a) Irrigation systems rehabilitation, (b) Training for improved water management, and (c) WUAs for system O&M	5.60	Adaptation co-benefits would be realized through (a) improved water use, (b) better water management, and (c) productivity of existing irrigation schemes. These will enhance farm resilience to impacts of climate change.	Improved irrigation infrastructure will increase adoption of AWD techniques, which will help reduce GHG emissions in rice farming.

³⁴ The project's co-benefits have been assessed by the World Bank Climate Change Assessment team and will be reassessed at the Board approval stage.



Component	Total financing (US\$, millions)	Possibility of Adaptation Co-benefits	Possibility of Mitigation Co-benefits
A4: Strengthening Public Services Delivery	2.60	Strengthening public services to deliver better quality services to farmers will enhance their resilience to climate change.	No mitigation co-benefits are expected.
B1: Establishing an Agriculture Value Chain Facility (matching grants for investment)	3.10	No adaptation co-benefits are expected.	Mitigation co-benefits would be realized because the project will support the existing selected agribusinesses to upgrade their processing and postharvest handling facilities to reduce physical losses and improve energy efficiency
B2: Linking Farmers to Markets	1.00	Strengthening market linkages will improve marketing of GAP products and is expected to make farmers resilient to climate change.	No mitigation co-benefits are expected.
B3: Improving the Enabling Environment	0.50	No adaptation co-benefits are expected.	No mitigation co-benefits are expected.
Component C – Project Management	3.60	Pro rata adaptation co-benefits could be realized.	Pro rata mitigation co-benefits could be realized.
TOTAL	25.00		

ANNEX 6: FINANCIAL AND ECONOMIC ANALYSIS

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

1. **Project interventions and associated benefits.** The project benefits are mostly attributed to the two technical components: (a) Improved Agricultural Efficiency and Sustainability and (b) Enhanced Agricultural Commercialization. Table 6.1 summarizes the project interventions and potential benefits of such interventions to the project beneficiaries. Almost all the benefits highlighted in the Table are valued to the extent possible with the validated data and used as quantified benefits in the financial and economic analysis.

Table 6.1. Project Components, Interventions, and Potential Benefits to Project Beneficiaries

Project Components	Project Interventions	Benefits
A: Improved Agricultural Efficiency and Sustainability		
A1. Promoting Adoption of Good Varieties and Quality Seeds	The ACP will support R1, R2, and R3 seed production. The activities include capacity building of state institutions that are involved in seed production (R1 and R2) and SMGs to produce, package, store, and distribute good quality seeds to farmers.	Use of better seeds for increasing productivity
A2. Promoting Good Agricultural Practices	The ACP will help state agencies in developing technological production packages, conducting field trials and demonstration sites at farmer field schools, and improving extension services. Farmer organizations and their members will also be helped.	Improved practices will increase the productivity and reduce the cost of production.
A 3. Providing Critical Productive Infrastructure	The ACP will finance rehabilitation of public irrigation systems, different irrigation models with a view to improving water use efficiency, O&M of such systems, and support water user groups.	Increase the cropping areas of paddy in both dry and wet seasons.
A4. Strengthening Public Services Delivery	The ACP will finance state institutions to conduct adaptive research in seeds and agricultural farming models; GAP products certification; undertake soil surveys, analysis, and extension.	Rate of adoption of GAP would increase and productivity would also improve.
B: Enhanced Agricultural Commercialization		
B 1: Establishing an Agricultural Value Chain Facility	Viable agribusiness will be provided with matching grants and prepare them to access commercial credit from banks to establish and operate agribusinesses. The agribusinesses are assisted to prepare business plans to receive matching grants and credit.	Matching grants will be provided to agribusiness for their establishment and operation. Make them creditworthy for accessing commercial credit.
B2. Linking Farmers to Markets	State institutions will be facilitated to support improving capacity of rice mills for higher quality and management standards and achieving better rice milling ratio performance, upgrading few selected fruit and vegetable markets, and improving the existing market information system.	Producers who are linked with markets and agribusiness will receive premium prices for their paddy, vegetable, and maize in relevant areas.

Project Components	Project Interventions	Benefits
B3. Improving the Enabling Environment	The ACP will help rationalization, simplification, and efficiency improvement of regulatory measures and permits for import of agricultural inputs for production expansion, new technology adoption, and high-quality postharvest processing and establishing quality and safety standards for farm produces.	Production improvement is ensured with quality ensured inputs. Premium prices are ensured with the application of product quality improvement systems.

2. **Project direct and spillover beneficiaries.** The direct project beneficiaries are small producers (farming households) of rice, horticulture, and maize; the private sector who would invest in agribusiness in milling rice, processing vegetable as primary processors, and marketers in the project districts; and the seed producers (Table 6.2). The estimate is a total of 29,473 households. At the rate of average family size being six, this would mean that about 176,800 people will be benefited by the project within the six-year project period and correspondingly 52,296 ha will be developed. In addition, it is estimated that about 5 percent of the direct beneficiaries would also be benefited indirectly, as spillover beneficiaries, through improved extension systems, seed production and paddy milling, and so on.

Table 6.2. Direct Beneficiaries by Value Chain - Number of Households and Land Extents

Type of Beneficiaries	Growers (households)	Extents (ha)	Agribusiness Operators	Seed Producers
Paddy value chain	25,287	46,568	21	804
Horticulture value chain	871	728	9	2
Maize value chain	2,476	5,000	3	0
Total	28,634	52,296	33	806

3. **Project benefits.** The combined effect of the two technical components contributes, as the main driver, to generate project benefits. However, project benefits that are attributable to each project component would be assessed. Incremental production in paddy in all five provinces; production of vegetable (both greenhouse and open-field conditions) in Vientiane Capital Province and Vientiane Province; and drying facilities of the targeted maize cultivation in Xayabouly Province provide a large part of the benefits. The production increase is mainly attributable to irrigation rehabilitation and adoption of GAP. In addition, the financial benefits of project supported seed production, rice milling, maize drying, and vegetable primary processing is estimated.

4. **Financial analysis.** The financial analysis assesses the financial viability of production and commercial activities of the project from the point of view of individual stakeholders. Three types of financial analysis were undertaken. All prices are based on 2017 market prices provided by the project preparation team.

5. **Crop budgets.** The incremental net revenues of all crop models indicate their financial viability. Three types of paddy crop models were assessed. Model 1: paddy will be cultivated using good seeds and adopting all GAP; Model 2: additionally, farmers will dry and store paddy for two to three months to get about 4 percent higher price, in comparison to Model 1 paddy, at farm-gate selling; and Model 3: while adopting all practices in Model 1 and 2, producers will establish a market link with millers and sell to a miller. Other crop budgets include open-field vegetable, maize, and seed paddy cultivations. All crop

budgets with their assumptions are detailed in the economic and financial analysis (EFA) Excel sheets and summarized in Table 6.3. The cost of labor at US\$6 per person-day and after project land tax at US\$2.41 per ha were assumed. All crops present a positive incremental return and increased return to labor, justifying the assistance provided.

Table 6.3. Yield, Prices, and Profitability of Crop in the Three Value Chains

Crop Budgets - 1 ha units	Area Targeted (ha)	Yield (ton/ha)		Farm-gate Price (US\$/kg)		Incremental Net Revenue (US\$/ha)	Incremental Return to Labor (US\$/man-day)
		WOP	WP	WOP	WP		
Paddy - Model 1: Dry and wet seasons	7,508	5.7	8.0	0.28	0.30	570	97
Paddy - Model 2: Dry and wet seasons	15,016	5.7	8.0	0.28	0.31	661	102
Paddy - Model 3: Dry and wet seasons	24,043	5.7	8.0	0.28	0.35	867	111
Open-field vegetable	728	17	17.9	0.82	0.85	974	16
Maize production	5,000	4.5	6.2	0.11	0.12	1,080	47
Seed paddy production	434	2	2.5	0.41	0.45	444	5

Note: WOP = Without project; WP = With project.

6. **Farm models.** These were estimated to indicate the financial impact of the project intervention on a typical farm of the project beneficiaries. All the beneficiaries have paddy and they are benefitted mainly with irrigation water. One farm model, therefore, was formulated with paddy as the main crop and vegetable, banana, and lemongrass as other crops to indicate the project impact. It assumed, as farmers revealed, that lemongrass would be replaced with beans, tomatoes, and chayote once irrigation water is available. The average size of a typical paddy farm is assumed at 1.1 ha and the same farm has additional 0.5 ha of upland. Both dry and wet seasons were considered. Details of the farm model analysis are presented in the EFA Excel sheets. There are substantial gains in net revenue and return to labor for the project participants (Table 6.4). The land use intensity (LUI) is 150 percent for paddy in 'with' project situation because the total extent can be cultivated in the wet season and 50 percent of the land in the dry season with irrigation water. The total farm has 183 percent LUI because the extent under non-paddy crops also will be higher with irrigation water.

Table 6.4. Net Revenue and Return to Labor of a Typical Farm of a Beneficiary - With and Without Project

Crops in the Farm	LUI		Net Return (US\$/year)		Return to Labor (US\$/day)	
	WOP (%)	WP (%)	WOP	WP	WOP	WP
Paddy	110	150	-189	285	4	21.7
Whole farm (paddy and other crops)	145	217	1,359	5,468	15	25

Note: LUI = Cultivated land extent during wet and dry seasons over total available land in the farm. WOP = Without project; WP = With project.

7. **Agribusiness models.** Rice milling, seed paddy sorting, grading and sorting of vegetables, vegetable greenhouses, and maize drying represented these models. The second component of the ACP provided matching grants for these enterprises and all represent new investments. Therefore the ‘without’ project scenario is captured by using an opportunity cost for the labor that is used in these enterprises with the assumption that about 60 percent of the used labor would be employed elsewhere if these enterprises were not established. The models estimated the matching grants needs and the credit needs to finance the financing gap. The FIRR and the NPV, at 12 percent financial discount rate for a period of 20 years, were used to assess the financial viability of the models. The details are presented in the EFA Excel sheets. As summarized in Table 6.5, all agribusinesses are financially viable.

Table 6.5. Financial Viability of Agribusiness Supported by the Project

Agribusiness	Units Targeted	Operating Capacity at FD (ton/year)	Matching Grants Need/Unit (US\$)	Credit Needs/Unit (US\$)	FIRR/Unit (%)	Financial NPV @ 12% Discount Rate, 20 years (US\$)/unit
Rice mills	20	1,200	68,608	170,815	16	61,718
Vegetable greenhouses (120 mt ²)	6	0.72	649	162	>50	7,435
Vegetable processing	6	720	11,440	2,860	15	2,887
Maize dryer	6	3,000	10,615	10,615	22	25,246
Seed paddy sorting	72	216	20,836	5,209	24	45,487

Note: FD = At full development of the activity.

8. **Project-level benefits.** Total annual production of project supported crops (paddy, vegetables, and maize) and annual output of agribusiness established with project assistance at full development are summarized in Table 6.6. The percentage increase indicates the increment in comparison to ‘without’ project production levels. Almost all agribusiness activities are new and thus no comparison is done.

Table 6.6. Total Production of Crops and Total Output of Agribusiness Supported by the Project

Production Activities Supported	Total Incremental Production at FD (ton)	% Increase of Production
Paddy - both wet season and dry season production	52,284	43
Open field vegetable - Wet season production	357	5
Maize - Wet season production	6,800	38
Seed paddy - under irrigation	174	25
Milled rice - rate of recovery - 60%	11,520	New activity
Broken rice - 15% recovery	2,880	New activity
Vegetable greenhouses (size of a greenhouse - 120 mt ²)	5,965	50
Vegetable processing - sorting and grading	3,240	New activity
Maize dryer	11,520	New activity
Seed paddy sorting	10,886	New activity

Note: FD = At full development of the activity.



9. **Overall financial analysis.** The incremental costs and benefits of crops and agribusiness are scaled up to estimate the project level costs and benefits. The targeted extents of crops and targeted number of agribusiness are used for the scaling up. A gradually increasing adoption rate of technologies and realizing full project benefits was assumed for all production activities. The rate was 20 percent of the hectares for paddy in the first year and increases up to 80 percent at full development; 10 percent to 60 percent for vegetable; and 85 percent from the first year onward for greenhouse vegetables because it is a commercial activity. A similar trend of capacity utilization was assumed for agribusiness: 20 percent of the capacity would be used in the first year for paddy milling and increases up to 80 percent at full development; same rates for the maize dryer; 50 percent to 80 percent for vegetable processors; and 10 percent to 70 percent for seed paddy sorting. The total investment cost of the project, estimated at US\$29.53 million (COSTAB) is added to the total cost flow of the analysis. Because all benefits of the project have a commercial nature, the analysis used a uniform discount rate of 12 percent that reflects the weighted average interest rates of term deposits in Lao PDR. The cost and benefits for a period of 20 years are considered, which reflects operational life span of machineries in agribusiness. The undiscounted annual incremental net financial benefits at full project development are estimated at US\$19.5 million or LAK 161,535 million. The FIRR of the project is 31 percent with an NPV of US\$56 million.

10. **GHG analysis.** The team undertook a GHG balance calculation using the EX-ACT. The net carbon balance quantifies GHGs emitted or sequestered because of the project compared to the 'without' project scenario. Over the project duration of 20 years, the project constitutes gross GHG emissions of 5,677,720 tCO₂eq, and a net carbon sink of -9,808,041 tCO₂eq. The project provides a net carbon sink of -490,402 tCO₂eq per year, equivalent to -16.9 tCO₂eq per ha per year. They would be progressively realized through project life. Following recent World Bank guidance, these benefits have been valued at a social value of carbon that is increasing over time in real value (2017 constant prices) from US\$30 per tCO₂eq in 2017 to US\$78 per tCO₂eq in 2050 at the lower bound (from US\$75 to US\$156 at the upper bound).

11. **Economic analysis.** The economic analysis is carried out after making appropriate adjustments to financial benefits and costs. The adjustments include (a) converting cost and benefits to economic values using Standard Conversion Factor of 0.85 to minimize market distortions and inefficient transaction costs, (b) using 60 percent of the market wage rate as the opportunity cost of labor, and (c) excluding land tax and tax on profit of the agribusinesses because these are transfer payments. The economic value of the project cost, without price contingencies, was obtained directly from COSTAB. The economic discount rate of 12 percent was used as World Bank uses this rates in the region.

12. **Economic viability of the project components.** The economic viability of the activities supported by the ACP Components A and B was separately estimated. The relevant project economic costs of these components were obtained from COSTAB. The results are summarized in Table 6.7. The cost of irrigation is included in the project cost of Component A and irrigation benefits are captured by paddy farming. The analysis indicates that Component A has higher economic viability.

Table 6.7. Disaggregated Economic Analysis of Project Components

Project Component	Production Activities Supported	Economic IRR (%)	Economic NPV (12% Economic Discount Rate, 20-year period): (US\$, thousands)
A. Improved Agricultural Efficiency and Sustainability	<ul style="list-style-type: none"> • Irrigated paddy • Vegetable • Maize • Seed paddy 	32	30,696
B. Enhanced Agricultural Commercialization	<ul style="list-style-type: none"> • Rice milling • Vegetable green houses • Vegetable processing • Maize dryer • Seed paddy sorting and packing 	20	7,669

13. **Economic viability of the whole project.** The base EIRR is estimated at 26 percent with the economic NPV of US\$32.5 million or LAK 268,940 million for a 20-year period without counting the GHG benefits. With GHG benefits at the lower bound of the ‘social value of carbon’, the EIRR is estimated at 69 percent and economic NPV is US\$151.5 million, and at the higher bound of value, the EIRR is 109 percent and economic NPV is US\$270.1 million.

14. **Sensitivity analyses.** Seven possible scenarios are analyzed: the project cost escalates by 10 percent, 20 percent, and 30 percent; project benefits decrease by 10 percent and 20 percent; and benefits delay by one year and two years. The results of the sensitivity analyses are summarized in Table 6.8. The sensitivity analyses show that the project economic benefits are resilient to cost escalations, benefits reductions, and delay in realizing benefits with the EIRR remaining above 12 percent. The worst-case scenarios are the cost escalation of 30 percent and the two-year delay in getting benefits. The sensitivity analysis shows that the project is sensitive to delays in realizing benefits once the investment is committed. The two-year delay in particular generates considerably low return as indicated by the NPV. Table 6.8 also shows the EIRR and economic NPV with the GHG benefits for all sensitivity scenarios.

Table 6.8. Results of the Sensitivity Analyses of Economic Analysis

Sensitivity Scenarios	Without GHG Benefits				With GHG Benefits (lower bound)			
	IRR	BC Ratio	NPV (USD 1000)	NPV (LKP mn)	IRR	BC Ratio	NPV (USD 1000)	NPV (LKP mn)
Base case	26%	1.30	32,461	268,940	69%	2.38	151,470	1,254,930
Cost increase by 10%	21%	1.18	21,488	178,028	63%	2.16	140,497	1,164,018
Cost increase by 20%	17%	1.08	10,515	87,116	57%	1.98	129,524	1,073,106
Cost increase by 30%	12%	1.00	(458)	-3,797	52%	1.83	118,551	982,194
Benefits decreased by 10%	21%	1.17	18,242	151,134	62%	2.14	125,350	1,038,525
Benefits decreased by 20%	14%	1.04	4,023	33,328	54%	1.90	99,230	822,120
One-year delay in realizing benefits	17%	1.26	14,193	117,589	45%	2.32	117,864	976,502
Two-years delay in realizing benefits	11%	1.23	(2,118)	-17,546	32%	2.26	87,904	728,281

ANNEX 7: SUMMARY OF GENDER GAPS AND ACTION PLAN

COUNTRY: Lao People's Democratic Republic Agriculture Competitiveness Project

1. Increase in sales from FHHs supported by the project (PDO indicator)

- **Gaps:** FHHs face greater constraints in their access to agricultural resources (i.e., land, productive assets, labor, and credit), information and extension services, and markets for agricultural production.
- **Actions:**
 - Give priority to FHHs and encourage them to participate in SMGs, FPGs, and WUAs supported by the project. The project matching grants and project investments will help improve their access to productive assets and irrigation infrastructure;
 - Tailor extension and training to allow full participation of FHHs and help them improve productivity, farm produce quality, and surplus for sale; and
 - Provide training in business development, business skills, and management; link them with agribusinesses to establish productive partnerships to improve marketing and market access.

2. Female-farmers reached with agricultural assets or services (Intermediate results indicator)

- **Gaps:** Women have less access to agricultural assets and services, in part due to perceived views that their inputs are domestic only. Without access to assets and services, their ability to make agricultural and household decisions remains restricted.
- **Actions:**
 - Encourage women to participate in management groups of SMGs, FPGs, and WUAs to enable them to raise their voice, participate in decision making process to enhance their social status; This will be linked to a quota for women participation in management of minimum 30 percent;
 - Provide matching grants to FHHs to improve their access to productive assets and irrigation infrastructure;
 - Form women farming groups to improve extension cover and quality;
 - Set targets of minimum 30 percent for women participation in each training; and
 - Tailor extension and training to allow full participation of female farmers.

3. Female farmers adopting improved agricultural technology (Intermediate results indicator)

- **Gender gaps:** Female farmers have less access to agricultural extension and new technological training, and agricultural technology dissemination is not reflective of their on-household-farm time and labor constraints.
- **Actions:**
 - Form female farming groups to improve extension cover and quality;
 - Tailor extension and training to allow full participation of female farmers;
 - Introduce mechanization and improved technologies to reduce women's time in seeding, weeding, and harvesting to allow them to participate in training and in skilled jobs; and
 - Introduce technologies which aim to ease farming work for women to allow them to engage more in economic activities.

4. Female farmer members of the farmer groups (Intermediate results indicator)

- **Gaps:** Female farmers have less opportunities to be involved in social and economic activities, including being formal members of social and economic organizations.
- **Actions:**



- Launch awareness raising campaigns and conduct gender training for both women and men in the project areas;
- Encourage women and set a quota of at least 30 percent for women to participate in management groups of SMGs, FPGs, and WUAs to enhance their social status;
- Form women farming groups to share experience in farming and familiarize themselves with social engagement; and
- Encourage women and set a quota of at least 30 percent for women to participate in project meetings including planning, implementation, supervision, and monitoring.

5. Targeted female farmers satisfied with services provided by the project (Intermediate results indicator)

- **Gaps:** Men have control of productive assets and are responsible for social and economic activities. Therefore, agricultural services provided are mainly responding to men’s demands, while women’s farm labor participation is not properly represented.
- **Actions:**
 - Enhance the role of women in farming and social and economic activities to make it more visible;
 - Conduct separate consultations with women in designing extension and agricultural services;
 - Conduct regular surveys on female farmers’ satisfaction with the services provided by the project; and
 - Make necessary adjustments to ensure a high level of satisfaction of female farmers with the services provided by the project.

6. Minimum Dietary Diversity Score for women benefitting of nutrition education under the Project (Intermediate results indicator)

- **Gaps:** The Lao PDR food plate is principally based on rice and particularly glutinous rice. Most households only consume 3 out of 9 food groups.
- **Actions:**
 - Improve incomes and access to nutritious and safe food for local farming households through adoption of improved farming technologies and agricultural diversification;
 - Conduct nutritional awareness raising campaigns and SBCC for women in the project areas through SMGs/FPGs, social and mass organizations, high schools, mass media, and local governments; and
 - Conduct surveys, monitor progress, and make appropriate adjustments to improve Dietary Diversity Score for women who received nutritional education under the project.

7. Women receiving nutritional training and awareness raising in the project areas (Intermediate results indicator).

- **Gaps:** Nearly half of Lao children are chronically malnourished (stunting or height for age), affecting 385,000 children (44 percent) under the age of five. Women have limited opportunities to participate in nutritional training.
- **Actions:**
 - Conduct nutritional awareness raising campaigns and SBCC for women in the project areas through SMGs/FPGs, social and mass organizations, high schools, mass media, and local governments
 - Provide nutritional training to women in the project areas through SMGs/FPGs; and
 - Conduct surveys, monitor progress, and make appropriate adjustments to improve training delivery for women in the project areas.