Environmental Assessment and Review Framework

DRAFT

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Lao PDR: Climate-Friendly Agribusiness Value Chain Sector Project

Prepared by the Ministry of Agriculture and Forestry for the Asian Development Bank (ADB).

CURRENCY EQUIVALENTS

(as of 2 April 2018)

Currency unit – Laotian kip (LAK) LAK1.00 = \$0.00012 \$1.00 = LAK 8,283.97

ABBREVIATIONS

ADB	_	Asian Development Bank
APG	_	agricultural producer group
BOF	_	bio-organic fertilizer (factory)
CFAVCP	_	Climate-Friendly Agribusiness Value Chain Sector Project
DIU	_	District Implementation Unit
EARF	_	environmental review assessment framework
ECC	_	environmental code of conduct
EIA	_	environmental impact assessment
EMP	_	environmental management & monitoring plan
ESO	_	environmental safeguards officer
GRM	_	grievance redress mechanism
IEE	_	initial environmental examination
MAF	_	Ministry of Agriculture and Forestry
MONRE	_	Ministry of National Resources and Environment
NPMO	_	National Project Management Office
PAFO	_	Provincial Agriculture and Forestry Office
PIC	_	project implementation consultants
PPCU	_	Provincial Project Complaints Unit
PPIU	_	Provincial Project Implementation Unit
PPTA	_	project preparation technical Assistance
PONRE	_	Provincial Office of Natural Resources and Environment
REA	_	rapid environmental assessment
SOES	_	safeguards officer for environment and social
SPS	_	safeguard policy statement
TOR	_	terms of reference

Note

In this report, "\$" refers to United States dollars.

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I. INTRODUCTION

A. Background

1. The Climate-Friendly Agribusiness Value Chain Sector Project (CFAVCP) has been classified as environment category B as potential impacts are assessed as site-specific and readily mitigated through the effective implementation of mitigation measures.¹ Three representative subprojects prepared during the project preparatory technical assistance (PPTA) were initially assessed as environment Category B but following the due diligence exercise are determined to have minimal environmental impacts so have been classified as environment Category C.

2. It is anticipated that most of the candidate subprojects may be classified as Category C. However, as the exact location of subprojects has not yet been determined, and there may be future changes to the candidate subproject list, a precautionary approach has been adopted and the classification of the overall project remains environment Category B.

3. This environmental assessment and review framework (EARF) has been prepared in accordance with ADB Safeguard Policy Statement (SPS) 2009 and the Lao People's Democratic Republic (Lao PDR) environmental laws and regulations.

B. Project Description

4. The proposed project will support implementation of the government's Agricultural Development Strategy by enhancing competitiveness of rice value chains in Khammouane, Saravan and Savannakhet provinces along the Greater Mekong Subregion east-west economic corridor, and the vegetable value chains in Champasak, Sekong and Vientiane (including the Vientiane Capital Administration Authority) provinces. It will improve climate resilience of critical agricultural production and post-harvest infrastructure, and promote crop intensification and commercialization. The project will help increase crop productivity, improve storage, processing, quality and safety testing capacity, and promote organic farming and the use of biofertilizers. It will also create an enabling policy environment for climate friendly agribusinesses, and strengthen technical and institutional capacity for climate smart agriculture and green finance. This will, in turn, promote environmental sustainability and enhance profitability for farmers and agribusiness enterprises.

5. The expected project impact is improved agricultural competitiveness in the project areas through enhanced productivity, quality and safety, value addition and rural household incomes. The expected project outcome is more productive and resource efficient agribusiness value chains in project areas developed. The project outputs are:

6. **Output 1: Critical agribusiness value chain infrastructure improved and made climate resilient**. It involves rehabilitation and modernization of critical agricultural production and post-harvest infrastructure to increase production and resource efficiency, reduce post-harvest losses, and enhance quality and value chain links while increasing climate resilience. Key activities include (i) rehabilitating small scale irrigation infrastructure and rural roads to climate resilient condition; (ii) enhancing climate-conscious crop research, protection and testing

¹ ADB projects are assigned environment category A, B or C depending on the significance of potential environmental impacts and risks. Projects are classified using the Rapid Environmental Assessment Checklist See Appendix 1.

infrastructure; and (iii) improving climate friendly agribusiness enterprise value chain infrastructure.

7. The project will upgrade selected small to medium rice mills to (i) allow the separation of white and glutinous rice to improve their access to premium domestic and export markets; (ii) improve rice recovery rates; (iii) enhance rice mill capacity usage; and (iv) provide support to rice farmers' groups. The project will also construct or upgrade pack houses for vegetable collection and marketing clusters to: (i) reduce post-harvest losses; (ii) improve quality and quantity of vegetables to domestic and export markets; and (iii) provide services to farmers. The project will upgrade five biofertilizer production factories to: (i) increase organic fertilizer production and operational efficiency; (ii) promote the use of organic fertilizers; and (iii) provide services and support to buyers of organic rice and vegetables. Selection criteria for infrastructure investments and envisioned procedures for development, implementation and monitoring are listed in the project administration manual (PAM).² Women and other vulnerable groups will be involved in the identification and implementation of agribusiness investments.

8. **Output 2: Climate-smart agriculture promoted.** This output will focus on (i) deploying climate-resilient rice and vegetable varieties; (ii) strengthening capacity in climate friendly and organic agriculture; and (iii) promoting smallholder financing scheme for climate friendly agriculture. Capacity building for APGs will include training on group management, financial management, crop calendars, preparation of business plans, networking and marketing. Capacity building for agribusinesses will include (i) post-harvest crop handling to improve quality and market access; (ii) value addition through branding; (iii) packaging and agro-processing; (iv) contract farming; and (v) joint contract harvesting operations. Support for farm mechanization includes acquisition of small machinery for land clearance and levelling, planting, on-farm micro-irrigation, water storage and conservation, and application of agricultural inputs.

9. **Output 3: Enabling environment for climate smart agribusiness enhanced**. This output focuses on (i) formulating climate conscious agribusiness policies and standards; (ii) promoting green finance and climate risk sharing mechanism.³

10. **Candidate Subprojects.** A list of candidate subprojects was developed during the course of the PPTA. Pre-screening during project design included a degree of prioritization, however, the executing agency have reserved the right to undertake further prioritization and selection during the implementation process.

11. The project is expected to be implemented over a six-year period. The major civil works will be the construction of post-harvest processing and packaging buildings and rehabilitation of access roads and tertiary irrigation canals. Candidate subprojects include;

- (i) Upgrade of 14 rice mills to enhance capacity and usage;
- (ii) Establish and/or upgrade 17 pack houses for vegetable collection and storage;
- (iii) Improvement of five biofertilizer factories to increase production and efficiency;
- (iv) Improvement and upgrading of tertiary canals targeting 15,000 ha from earth lined to permanent concrete or brick lined structures to ensure that water is directed to the farmer's field as required and reduces water losses;

² Project Administration Manual (available from the list of supplementary documents in Appendix 2).

³ Green finance is financing of investments that provide environmental benefits (e.g., reductions in air, water and land pollution, reductions in greenhouse gas (GHG) emissions, improved energy efficiency, climate change adaptation) in the broader context of sustainable development. Green finance involves the effective management of environmental risks across the financial system (Source: UNEP, September 2015).

- Improvement and upgrading of > 45 km of earth-based farm access roads to gravel based surfaces to improve supply of inputs to farms and market access, reduce post-harvest crop losses, and to enhance traveller safety;
- (vi) Supply of land clearance and levelling equipment;
- (vii) Construction of small scale on-farm irrigation (ponds / drip /sprinkler systems); and
- (viii) Construction of water storage and conservation facilities.

12. Detailed selection criteria for subprojects including size, position, market orientation, preferred profile of individual farmers and APGs are summarised in Table 4 and detailed in the project administration manual (section on implementation guidelines).

13. **Representative Core Subprojects.** From the candidate subproject list, three representative core subprojects were selected. Feasibility and safeguards due diligence studies have been carried out for the following three representative core subprojects:

- (i) Upgrading of infrastructure in small to medium scale rice mills with service provision to farmers. The project will upgrade infrastructure in at least 14 rice mills, being members of clusters formed into registered rice groups or cooperatives to, inter alia, (i) allow the separation of white and glutinous rice and avoid the production of mixed rice types and improve access to premium domestic and export markets; (ii) improve rice recovery rates; (iii) enhance mill capacity usage; (iv) provide services and support to rice APG paddy suppliers; and (v) comply with the requirements to achieve good manufacturing practices (GMP) and hazard critical control points (HACCP) certification. The project will support small and medium scale rice mills, which have a production capacity between 4 to 16 paddy tons per day. The project will focus on supporting registered rice milling groups and cooperatives.
- (ii) Construction or Upgrading of APG-owned vegetable collection centers and pack houses. The project will support registered APGs/agriculture cooperatives to upgrade at least 17 pack houses for vegetable collection and marketing clusters to, inter alia, (i) reduce post-harvest losses; (ii) improve quality and quantity of high value vegetables marketed to premium domestic and export markets; (iii) provide services to their members; and, (iv) comply with the requirements of good agriculture practice (GAP) and organic agriculture certification.
- (iii) Upgrading bio-fertilizer factories with service provision to farmers. The project will upgrade at least five registered biofertilizer factories to (i) increase organic fertilizer production and operational efficiency; (ii) promote the use of organic fertilizers to organic crop farmers; (iii) provide services and support to APG buyers; and (iv) comply with the requirements to achieve GMP certification.

C. Purpose

14. This EARF provides an overview of the candidate subprojects, the environmental policy framework, anticipated impacts and implementation arrangements. It documents due diligence carried out for the three representative subprojects and sets out the procedures to be followed for the environmental assessment of subprojects prepared and implemented after loan approval. In accordance with ADB SPS (2009), this EARF will:

(i) reflect fully the policy objectives and relevant policy principles and environmental safeguard requirements governing preparation and implementation of subprojects;

- (ii) explain the general anticipated impacts of the subprojects to be financed under the proposed project;
- (iii) specify the requirements that will be followed for subproject screening and categorization, assessment, and planning, including arrangements for information disclosure, meaningful consultation with measures to involve vulnerable groups including women, grievance redress mechanism, and where applicable, safeguard criteria that are to be used in selecting subprojects;
- (iv) describe implementation procedures, including budgets, institutional arrangements, and capacity development requirements;
- (v) specify monitoring and reporting requirements;
- (vi) specify the responsibilities and authorities of the borrower/client, ADB, and relevant government agencies in relation to the preparation, submission, review, and clearance of subproject safeguard documents, and monitoring and supervision of safeguard plan implementation; and
- (vii) assess the borrower's capacity to manage environmental impacts and risks and to implement national laws and ADB's requirements. Where gaps are apparent, details of the specific gap-filling requirements are specified to ensure that policy principles and safeguard requirements are achieved. A costed Training and Capacity Development Program appears as Table 7 under Section 7.

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. ADB Environmental Assessment Requirements

15. An EARF is required for all sector investments with potential environmental impacts. This EARF identifies the broad scope of the project and outlines the policy, procedures and institutional requirements for preparing subprojects under the project. This EARF will guide subproject screening and categorization, environmental assessment, and preparation and implementation of safeguard plans to facilitate compliance with ADB SPS (2009).

16. Each proposed subproject will be assigned to one of the following categories depending on the significance of the potential environmental impacts and risks:

- (i) **Category A:** Proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works.
- (ii) **Category B:** Proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects.
- (iii) **Category C:** Proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. An environmental impact assessment (EIA) or initial environmental examination (IEE) is not required, although environmental implications need to be reviewed.

17. Subprojects classified as ADB environmental category A or environmental category 2 requiring environment and social impact assessment (ESIA) under the 2010 Lao PDR EIA subdecree will be excluded from consideration. In addition, subprojects located immediately adjacent to protected areas and/or that could lead to encroachment or higher risk of exploitation of natural resources in protected areas will also be excluded. For subprojects classified as ADB Category B, an IEE and environmental management plan (EMP) are required and potentially an IEE under Lao PDR EIA sub-decree.

18. It is anticipated that most of the candidate subprojects implemented under the loan will be classified as environment category C as they are considered to have minimal or no adverse environmental impacts. However, a precautionary approach has been adopted and the classification of the overall project remains environment category B. It is anticipated that the roads and irrigation canal improvements could be category B if there are in sensitive locations, and/or they increase the irrigation command area.

19. **Climate Risk.** All ADB projects are screened for climate risks. A detailed climate risk and vulnerability assessment is carried out for projects identified to be at medium or high risk from climate change impacts. The assessment aims to quantify risks and identify adaptation options that can be integrated into the project design.

B. Lao PDR Environmental Assessment Requirements

20. The Lao PDR government law covering EIA is No. 29/NA in the Law on Environmental Protection dated 18 December 2012. The main objectives of this law are to:

- (i) implement where necessary an appropriate EIA process upon each proposed private and public project or activity which must then be reviewed by the Ministry of Natural Resources and Environment (MONRE), prior to the submission for a decision from the government;
- (ii) determine the type and size of the proposed project(s) and activities, including existing and ongoing activities in both private and public sector prior to undertaking the process of EIA; and
- (iii) encourage public participation in the implementation of the EIA process and take into account their conceptual input and suggestions for re-consideration prior to the implementation of any project.

21. An appendix of the sub-decree lists the activities and the scale of activity which require an environmental assessment. An excerpt from this appendix, covering agricultural activities is included below.

		Category 1	Category 2
Type of investment projects		Shall prepare an IEE	Shall prepare an ESIA
I. Agriculture and Forestry Development Project			
2.1	Forest plantation project	20 –300 ha	> 300 ha
2.2	Agricultural products and herbal flora plantation for supplying to industrial work	20– 500ha	> 500 ha
2.3	Irrigation construction project	100– 2, 000ha	> 2,000 ha
2.4 Cattle farm (e.g. cow, buffalo, horse and others)		> 500 units	
2.5	Poultry farm	> 1,000 chickens	

Table 1: Scale of Activities Requiring an Environmental Assessment

		Category 1	Category 2
Type of investment projects		Shall prepare an IEE	Shall prepare an ESIA
	I. Agriculture and Forestry Developm	ent Project	
2.6	Pig farm	> 2 00pigs	
2.7	Fish raising and aquaculture project (fish raising in the pond)	>10 ha	
2.8	Fish raising and aquaculture project (fish cage raising in the river)	>300 m ³	
2.9	Crocodile farm	>100 Head	

Source: Government of Lao PDR. 1999. No. 697/PMO-MONRE, in the Agreement on List of Investment Projects subject to IEE and ESIA. Vientiane.

22. According to these criteria, the only candidate subprojects which may require an IEE under the sub-decree are those where existing irrigation schemes are being refurbished and may increase the irrigation command area. Those subprojects requiring ESIA will be excluded.

C. International Conventions on Environment

23. As a commitment to global environmental issues, Lao PDR has ratified several international conventions, including the following which are most relevant to the project:

- ASEAN Agreement on the Conservation of Nature and Natural Resources, in 1985, which is to ensure that conservation and management of natural resources are integrated in development planning at all stages and at all levels of respective national laws;
- Convention on Biological Diversity, in 1996, for parties to require the environmental assessment of their proposed projects that are likely to have significant adverse effects on biological diversity with a view of avoiding or minimizing such effects;
- (iii) United Nations Framework Convention on Climate Change, in 1995, and subsequent protocols, for parties to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects;
- (iv) Vienna Convention for the Protection of the Ozone Layer, in 1998, and subsequent protocol and amendments, for parties to take appropriate measures to protect human health and the environment against adverse effects likely to arise from human activities that will/likely modify the ozone layer;
- Stockholm Convention on Persistent Organic Pollutants, in 2002, which each country members prohibits and/or takes legal and administrative actions required for elimination/restriction of production and use of chemicals and release;
- (vi) United Nations Convention to Combat Desertification;
- (vii) Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- (viii) Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade;
- (ix) Basel Convention on Transboundary Movements of Hazardous Wastes and their Disposal;
- (x) Kyoto Protocol ratified, 2003;

- (xi) Mekong Agreement 1995; and
- (xii) Hyogo Framework for Action 2005-2015 and the Sendai Framework for Disaster Risk Reduction 2015-2030 (United Nations Office for Disaster Risk Reduction).

D. Complying with Lao PDR Government and ADB Requirements

24. According to the Decree and Ministerial agreement, any IEE can be approved by the Provincial Governor and certified by the Provincial office of Natural Resources and Environment, (PONRE). In most cases, the ADB IEE will satisfy MONRE requirements but this will need to be checked for each subproject. For each subproject, the National Project Management Office (NPMO) should submit the project description and the level of ADB assessment that will be carried out and request MONRE to confirm domestic approval requirements.

ADB Project Categories	Lao PDR Categorization
Category A : Projects with potential for significant adverse environmental impacts, requiring an environmental impact assessment. (Note: Any potential investment activity falling into Category A will be excluded.)	Group II : Investment projects with potential for significant adverse environmental impacts, requiring an environmental and social impact assessment. (Note: Any potential investment activity falling into the Group II category will be excluded.)
Category B : Projects judged to have some adverse environmental impacts, but of lower degree and/or less significant than those for category A projects. Category B projects require IEE.	Group I : Investment projects judged to have some adverse environmental impacts, but of lower degree and/or less significant than those for Group II projects. Group I projects require an IEE. The Lao PDR IEE documentation is very similar to that of an ADB IEE as detailed in appendix 2.
Category C : Projects unlikely to have adverse environmental impacts. No special requirement, but the environmental aspects are reviewed as well.	Unlikely to require ESIA/IEE but subproject description to be submitted to allow MONRE to evaluate case by case
Category FI . Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.	

Table 2: Comparing ADB and Lao PDR Categorization Systems

ADB = Asian Development Bank, ESIA = environment and social impact assessment, IEE = initial environmental examination MONRE = Ministry of National Resources and Environment

E. Adequacy of and Capacity to Implement Legal Framework

25. While the Lao PDR laws can be seen to be comprehensive and far reaching, a number of environmental departments at provincial level have indicated that they do not have the resources to ensure widespread compliance. While this situation is not unique, this EARF which provides the environmental framework for the project aims to ensure compliance with both ADB and Lao PDR standards.

F. Institutional Capacity to Implement EARF

26. Ministry of Agriculture and Forestry (MAF) is the executing agency and will be responsible for overall project co-ordination and management, including compliance with the applicable national and local laws, regulations and standards on environmental assessment and

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management. MAF will establish a NPMO, which will be responsible for planning and implementation of the works. The NPMO will be located in the Department of Planning and Cooperation within MAF. The Department of Planning and Cooperation is specifically tasked and experienced in overseeing foreign financed projects. A project implementation consultant (PIC) firm will be recruited to assist NPMO to implement the project and to meet the reporting and procedural requirements of ADB. The PIC services include an international environmental/climate change specialist and a national environment/climate change specialist to support NPMO with environmental and climate risk screening, assessment, reporting and monitoring of subprojects during design and implementation. The consultants will also provide training for executing agency, NPMO, implementing agency, Provincial Project Implementation Units (PPIUs) and contractors on environmental aspects of the project. A training and capacity development program with costs is provided in Table 7 in Section II. It is recognised that the subproject components are likely to be implemented in phases, Table 7 lays out the costs for a program which, although it may need to be repeated, can be expected to be have considerable economies as it is reiterated.

III. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS

A. ADB Environment Classification

27. The overall project has been classified as environment Category B as potential impacts are considered site-specific and can be readily mitigated. Three representative subprojects prepared during the project preparatory technical assistance (PPTA) were initially assessed as potentially environment Category B but following the due diligence exercise were determined to have minimal environmental impacts so have been classified as environment Category C and do not require an IEE. It is anticipated that most of the candidate subprojects may be classified as Category C. However, as the exact location of subprojects has not yet been determined, and there may be future changes to the candidate subproject list, a precautionary approach has been adopted and the classification of the overall project remains environment Category B.

B. Environmental Screening of Subprojects

28. Each proposed subproject should be pre-screened to determine if there are any environmental issues which would be critical risks to the success and environmental performance of the subproject. Table 3 presents the environmental and social exclusion criteria which will be used as part of a pre-screening process prior to completing the REA screening. It will also be important for subproject selection and location to take account of issues raised during public consultation. Table 4 summarises guiding principles for selection of candidate subprojects.

Issue	Screening Criteria - Exclusions		
Categorization	Will avoid significant environmental impacts (no Category A project)		
	Will predominantly be Category C activities where possible.		
Biophysical	Will not be undertaken where soil contamination requiring remediation occurs.		
	Will avoid cutting any mature trees or trees of conservation or cultural value		
	Will not utilize water of very poor quality, as evidenced by the presence of high		
	levels of pollution.		
	Will not result in destruction of or encroachment on protected areas, including		
	wildlife sanctuaries, reserved forests or biodiversity conservation hotspots.		
	Subproject activities will not be located within 5 km of any protected areas		
Social - general	Not have any significant adverse impact upon local settlement and adjacent /		
	neighbouring land-use.		

 Table 3: Pre-screening Environment Criteria for Subprojects

Issue	Screening Criteria - Exclusions
	Will not bring about significant change in land use from residential and/or
	institutional to commercial and/or transport and/or industrial in the vicinity of the
	subproject site
	Will avoid locating facilities close to socially and culturally important buildings and
	sites, including schools, health centers, temples, and shrines.
	Will not be subject to water use conflict or other water security issues.
	Will avoid any potential social conflict including resettlement/relocation.
	Will have no works in sensitive archaeological areas, avoid recognised national,
	provincial and district monuments of cultural or historical importance, nor result in
	destruction/disturbance to historical and cultural places/values.
Farmer	Membership of a registered agricultural production group (APG).
	Rice and /or vegetable production experience.
	Applicant to operate a farm of less than 2.5 ha.
	Attendance at Project awareness and capacity building training courses, or at
	courses offered by previous relevant donor projects.
	Access to actual or potential rice and vegetable markets.
	Rationale and justification of investment proposal to be submitted and approved by
	APG.
	All applicants must be prepared to contribute from own funds or "in kind" to the
	cost of the investment.
Farmers	Existence as APG for minimum of one year with legal status to allow them to enter
Groups	contracts with third parties.
	Participation of leading members of APGs in project's knowledge awareness
	training courses production and value addition and APG management described
	under output 2
	Investment project be market driven involving crops with proven actual or potential
	demand, illustrating backward & forward linkages along the value chain.
	Potential for involvement of women on equal basis with men in investment.
	Employment potential for youth, indigenous peoples and disadvantaged groups in
	the investment.
	Investment proposal should not have any negative social and environmental
	netential price provide proof of knowledge of the comparative benefits and fisks, and the
Diag good	Potential price premiums that will result from the investment
Rice Seed	sub-project activity must not be in the manuale for improvement under an existing
production	Investmente must be merket/demend driven
	investments must be marker/demand driven.
	APG support must not duplicate that given under the ADB smallholder
	development project (2002 -2015).
	APG must make a financial, or in-kind contribution to the provision of any
	infrastructure, machinery, equipment and vehicles supplied by the Project.
	Any proposed infrastructure and technology, supplied by the Project, must be
	appropriately designed to consider adaptation to climate change variability.

Subproject type	Subproject Selection	
Building construction	Proposed civil works must be appropriately designed to consider	
	adaptation to climate change impacts.	
Access Roads	Proposed road improvement work must be directly farm linked	
	Proposed road works should focus on upgrading a minimum of 2 km	
	road by the levelling and consolidation of soil based surfaces to gravel	

Table 4: Subproject Type Selection Guidelines

	Sub-project must not be in the mandate for improvement under an existing rural infrastructure project, e.g. EWAC
Tertiary Irrigation Canals	Proposed irrigation improvement work must be directly farm linked.
	Proposed irrigation work should focus, primarily, on tertiary canal
	upgrading from soil lined canals to concrete / brick lined structures;
	however, other civil works may be considered at the discretion of the EA
	and on justification from Department of Irrigation (DOI).
Roads & Tertiary Irrigation	In conjunction with the DOI, the introduction of appropriate bio-
Canals	engineering approaches to the upgrade specification and detailing of
	roads and canals is to be encouraged, both from the climate change
	perspective, as well as specifically helping to maintain the traditional
	biodiversity of the canal systems.

29. The environmental screening of subprojects will be undertaken by the NPMO with the support of the PIC environmental/climate change specialists during the stages of subproject selection using the REA checklist (see Appendix 1 for representative REA templates which includes specific templates for buildings, roads and irrigation activities).

30. Determination of subproject classification (environment category A, B or C) identifies the required level of environmental assessment. Category A subprojects are excluded from consideration. For Category B subprojects, an IEE and EMP is required (an outline is included in Appendix 2). For Category C subprojects, environmental implications need to be reviewed and it is good practice to adopt an environmental code of conduct for contractors to avoid potential impacts. A generic environmental code of conduct that can be adopted for all candidate subprojects in included in Appendix 3.

C. Procedures for Environment Category B Subprojects

31. The process shall initially involve a scoping exercise. Scoping is a planning exercise to determine the content and emphasis (level of detail) for the assessment. Scoping quickly assesses the existing environmental context of the project area, the likely environmental impacts, and determines the methodology of assessment and required expertise.

- 32. **Assessment Methods:** The IEE assessment should include the following steps:
 - (i) Desk Study: Review available information such as maps, reports, feasibility and design reports for the subproject and site. Identify site information needed to prepare the IEE. The subproject area of influence and assessment area shall be defined.
 - (ii) Consultation and Information Disclosure: Carry out focus group discussions (FGD) with affected persons and local stakeholders, including government and non-government agencies on the proposed subproject. MONRE should be consulted to confirm if there are any domestic environmental approval requirements. Other government approvals required for specific subproject activities, e.g. tree-cutting, increase in water intake etc, should also be confirmed. Following completion of project preparation, affected persons and stakeholders should be made aware of the final details of the subproject and how their feedback was taken into account.

- (iii) **Field Assessment:** Field visits shall be carried out to assess environmental baseline conditions and to identify potential direct, indirect, cumulative and induced impacts and risks to physical, biological, socioeconomic and physical cultural resources in the project's area of influence.
- (v) Identification of Environmental Impacts and Mitigation Measures: The impacts will be identified in terms of their significance, extent, reversibility, and duration. Alternative analysis should be carried out for any potentially significant impacts. Measures should be identified to avoid minimize and/or mitigate adverse impacts and to enhance positive impacts.
- (vi) Design of Environmental Management Plan: The IEE shall include an EMP which sets out the proposed mitigation measures, monitoring and reporting requirements, institutional arrangements for subproject and EMP implementation, cost estimates and performance indicators. The EMP will need to be incorporated into tender documents and construction contracts.

33. Although screening representative subprojects during PPTA reveals that there will be few Category B projects, the first IEE/EMP for each type of Category B intervention will be submitted to ADB for review. All subproject IEE/EMPs will be disclosed on the ADB website and the project website as well as shared with MONRE. Environmental monitoring will be carried out and the results will be used to evaluate the extent and severity of actual environmental impacts against the predicted impacts and the performance of the environmental protection measures.

D. Procedures for Environment Category C Subprojects

34. The environmental implications of proposed activities will be reviewed in relation to the types of activities and impacts identified in Appendix 3: Environmental Code of Conduct (ECC). If there are any unanticipated environmental impacts and risks that are not already covered by the code then additional measures can be added.

35. Implementation of the ECC will be a mandatory requirement for Category C subprojects. The ECC covers all phases of subproject implementation from preparation through construction and operation, and sets out potential environmental impacts and corresponding environmental protection measures to: (i) avoid, and (ii) where avoidance is not possible, mitigate environmental impacts, and (iii) achieve compliance with national environmental regulations and ADB SPS 2009.

36. The ECC will be incorporated into tender documents, construction contracts, and operational management procedures. Contractors, PIC, PPIUs and Provincial Agriculture and Forestry Offices (PAFOs) will implement these measures, depending upon subproject phase. The effectiveness of these measures will be carefully monitored to ensure they are effective and to make adjustments, as required.

37. The supervision and monitoring of project-related environmental activities during the preconstruction, construction and operation phases are the functions of the PPIU and the district implementation units (DIUs). In line with this, a safeguards officer for environment and social (SOES) in the NPMO will be assigned to be responsible for supervision of environmental management and for environmental monitoring.

38. The main environmental guidance for the implementation phase will be provided by the Environment Specialist in the PIC team. The role of the PIC will be to work alongside the SOES

and NPMO, helping them fulfil their supervision and monitoring responsibilities. The PIC will also provide monitoring reports for the ADB. The PIC will be contracted by the NPMO for the duration of the implementation period.

39. Contractors will be engaged by the NPMO for construction. The construction impact mitigation measures contained in this ECC will be included as requirements in the contract documents. The incorporation of ECC provisions into the contract documents will be undertaken by the NPMO. The contractors will have the responsibility for implementing the impact mitigation measures in the construction phase and their performance will be supervised by the NPMO.

40. Environmental monitoring during operation of the project in the longer term is the responsibility of the executing agency at the provincial level, in this case the PAFO.

IV. ANTICIPATED ENVIRONMENTAL IMPACTS

A. Potential Impacts

41. Environmental assessment is required to consider all potential direct, indirect, cumulative and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihoods through environmental media, health and safety, vulnerable groups and gender issues), and physical cultural resources in the project's area of influence.

42. Initial screening during the PPTA has identified that the candidate subprojects involve minor civil works with minimal environmental impacts which are primarily related to location and construction site management. For the most part activities provide an opportunity to introduce building and construction standards which enhance environmental resilience. Project environmental screening criteria (Table 3) have been developed to avoid significant environmental impacts during subproject and site selection. Careful site selection and engineering design of subproject components, coupled with clearly defined construction, operation and maintenance procedures can avoid and reduce environmental impacts to a minimal level.

43. The anticipated environmental impacts and mitigation measures for candidate subproject activities are provided below in Tables 4 and 5. These are indicative impacts, and will need to be further explored during the detailed design stage.

44. The REA checklists completed for the representative core subprojects provided guidance on the common types of environmental impacts to be expected for the construction and operation phases, and also flagged some potential minor environmental issues. Project activities associated with Output 1.1 (Climate resilient communal rural infrastructure improved), Output 1.2 (Crop research, protection and testing infrastructure enhanced), and Output 1.3 (Agribusiness enterprise value chain infrastructure improves) will include (irrigation, roads, research centers laboratories): (i) upgrading of infrastructure in small to medium scale rices mills with service provision to farmers;⁴ (ii) construction or upgrading of APG-owned vegetable collection centers and pack houses; and (iii) upgrading biofertilizer factories with service

⁴ Land acquisition is not identified as a problem as farmers are keen to donate as in-kind support, and/or same for rice mills.

provision to farmers.⁵ Degree, magnitude and intensity of actual impacts will depend on location but activities are small-scale and are anticipated to have minimal environmental impacts.

45. Subprojects will only be sustainable if they are well-managed and maintained. This requires specification and use of good quality and durable materials, good quality construction and development of local capacity and skills for maintenance.

B. Pre-Construction Impacts

46. Consideration at planning and design stages can avoid or minimise potential environmental impacts. Table 5 highlights potential impacts and mitigation, grouped by the three main types of interventions proposed: (i) building construction and upgrade; (ii) irrigation canal upgrade; and (iii) access road upgrade.

Potential Impacts	Building construction & upgrading	Tertiary irrigation canal upgrade	Access roads upgrade
Sustainability	Any activity will need to be considered sustainable such that provides benefits and services without compromising physical or social resource quality.		
Climate Condition & change	Planning and design will take into consideration increased frequency of extreme weather related events such as floods, droughts, storms and landslides.		
	Design will specifically a climate change impacts	aim to incorporate resilie	nce against anticipated
Site Location	Upgrade within existing footprint. Orientate buildings to maximise opportunities for natural ventilation.	Use existing alignments to minimise impacts.	Use existing alignments to minimise impacts.
Biodiversity	New buildings, road upgrades or tertiary irrigation canal enhancements can be adjacent forest or regrowth shrub land and provide habitat for local wildlife populations. Areas not previously farmed or long abandoned may be involved where an irrigation command area is increased as a result of a renovated irrigation scheme. Subproject selection criteria have ensured that no critical or important natural habitats will be involved, however local biodiversity may need to be considered and the retention of linked refuge vegetation and corridors should be included where local biodiversity is recorded		
Air Pollution and Water Supply	Buildings, roads construction and irrigation canal works may involve potentially polluting agents and care is required to ensure soil and water resources are not compromised. The quality and quantity of localised water supply, as well as user access, will not be negatively impacted by activities. On-site prevention and abatement procedures will be established by contractors where required.		

Table 5: Indicative Impacts - Design and Planning

⁵ Extension is the name given to capacity building functions in agriculture projects and for Lao PDR this includes technical support in climate smart agriculture and good agricultural practices as well as value chain marketing expertise.

Potential Impacts	Building	Tertiary irrigation	Access roads upgrade
	construction &	canal upgrade	
	upgrading	Malatalala	N1/A
Water Supply Balance	N/A	Maintaining water supply is an integral part of water and agricultural planning within irrigation command areas. Water management should be prepared using local data for inflow, infiltration, runoff coefficients, crop water demands and agricultural calendars.	N/A
Conversion of Land Use	Design minimises footput trees of conservation/cu	rint and clearance of veg Iltural value	etation, agricultural land and
Increased storm water run-off as a result of climate change	Ensure buildings include adequate drainage provisions and any cut slopes are stabilised prior to completion.	Ensure canal banks are stabilised to minimise erosion and run-off.	Ensure road embankments and cuttings are reinforced to minimise erosion and run-off, drainage specifications are adequate and will not have a negative impact on localised flooding impacts.
Minimise greenhouse gas emissions	Specify energy and water efficient fixtures, fittings and equipment. Specify materials with good insulating and reflective properties for building envelope to minimise energy requirements.	Ensure design and specification maximise durability.	Ensure specified road surface and drainage is appropriate for volume of traffic and rainfall to ensure durability.
Increased vehicular traffic	Ensure planning to provide for safe access and egress.	N/A	Ensure selected road surface appropriate for volume of traffic and budget and resources available for periodic maintenance.
Waste	Planning and design ca	n focus upon the manag	ement of waste during
	construction, to avoid or	r minimise hazardous an	d nonhazardous waste, and
Need for borrow-	N/A	N/A	Where possible, the design
pits			should optimise cut and fill balance and plan for reuse of spoil by the local community or adjacent construction sites to minimise disposal. Any

Potential Impacts	Building construction & upgrading	Tertiary irrigation canal upgrade	Access roads upgrade
			topsoil should be stored and reinstated after completion.
Grievances	Ensure public disclosure of subproject information and that affected persons are given the opportunity to provide feedback during the design process.		

C. Construction Impacts

47. For access road upgrades, irrigation canals and building upgrades, there will be potential for soil, air and water pollution, soil erosion and localized traffic impacts. Community and occupational health and safety will also be a primary concern. Each subproject will follow the ECC which flags the need to set, as a prerequisite for project commencement, a clear and detailed schedule to be prepared in consultation with farmers and submitted before construction, taking account of seasonal activities.

48. Construction-phase impacts can be readily mitigated through the effective implementation of environmental mitigation measures. Measures should be specified in the works tender and contract documents. Contractors will be responsible for day to day implementation. The NPMO SOES and PIC consultants will be responsible for overseeing implementation. Table 6 shows generic potential construction environmental impacts that are relevant to all candidate subprojects and specific impacts that are relevant to particular candidate subprojects.

Generic- relevant to all subprojects		
Anticipated Environmental Impacts	Mitigation Measures	
Occupational health and safety	Appoint an Environmental Health and Safety Officer to carry out daily site management checks and to provide training for construction workforce. Provide appropriate personal protective equipment for workers.	
Community health and safety	Ensure access to active construction sites and movement of construction heavy equipment is controlled.	
Loss of trees and vegetation	Ensure construction working area is clearly demarcated and trees/vegetation protected from damage. Permits and compensation may be required for removal of certain tree species.	
Disruption to businesses and communities	Prepare and implement traffic management plans in coordination with local authorities. Conduct public consultation prior to and during construction and ensure information is provided in advance on noisy and/or disturbing activities.	
Activities in rice, vegetable and BOF could	Farmers will benefit from consultation on	
potentially negatively intersect with the annual	planned schedules for construction including to	
	miligate imgation water loss, road access etc.	
Building, road and irrigation upgrades and construction		
Building / Construction (e.g. Rice Milling and Vegetable Processing buildings, Roads)		
Impact on topography and slope stability	Construction activities should avoid steep slopes, landslide and erosion prone areas.	

Table 6: Indicative Impacts - Construction

Generic- relevant to all subprojects				
Anticipated Environmental Impacts	Mitigation Measures			
Management of spoil and materials	Cover material and spoil stockpiles and during transport.			
Siltation of irrigation channels and water resources	Appropriate cut off and cross drains should be installed to avoid run-off to irrigation canals and watercourses.			
Dust generation and dispersal	Carry out regular spraying of haul routes and active construction			
Roads construction and upgrading can contribute to erosion.	During construction, contractor to minimise potential for erosion through application of procedures to mitigate and minimise erosion.			
Excavation may generate excess spoil	Find beneficial uses for spoil in construction or local infill to avoid the need for disposal			
Damage to utility infrastructure	Confirm location of existing utilities and any need for temporary disruption.			
Irrigation				
Impacts on water quality and agricultural productivity	Control works and ensure effective site management and clean-up on completion.			
Fishing and economic displacement.	In canal sections where the canals are to be upgraded, WUGs need to allow affected families to fish elsewhere in the canals.			

D. Operation Phase Impacts

49. Subprojects will only be sustainable if they are well-managed and maintained, this requires development of local capacity and skills for maintenance.

Anticipated Environmental Impacts	Mitigation Measures
Generic– relevan	t to all subprojects
Operational Maintenance	Sufficient training to all technical staff provided
	to manage, operate and maintain
	infrastructure and operations at a high
	standard conducted at handover.
Occupational health and safety	Ensure training for operational workforce in
	key environmental health and safety issues;
	machinery noise, protection and prevention of
	accidents. Provide appropriate personal
	protective equipment for operation and
	maintenance workers.
Recycling, Energy Efficiency	Information, education and communication
	program on aspects of recycling and energy
	efficiency incorporated into handover
	schedule.
Integrated management of farming inputs;	Capacity building and training is proposed to
fertilizers, herbicides and pesticides	reinforce efficient and responsible use of
	farming inputs at handover to link with hational
	integrated pest management program.
Effects of extreme weather events.	A training program to promote village-based
	disaster risk management to be included at
	nandover.

Table 7: Indicative Impacts - Operation

Rice Milling, Vegeta	able processing, BOF		
Increased localised concentrations of	Operate facilities so that any hazardous		
processing in one place could lead to an	wastes, solid wastes, are properly		
increase in in fertiliser and pesticide	managed; ensure sanitary standards required		
residues, as well as agricultural waste.	for food industry (if applicable) are maintained.		
	Organic waste from processing requires		
	(i) management and consideration of recycling		
	opportunities post-processing and (ii) care in		
	transportation from site to minimise any		
	potential negative impacts.		
Irrigation			
An increase in rice paddy areas will result in	GHG emissions should be calculated and		
increased GHG emissions.	assessed for significance at handover.		
Water pollution	Ongoing monitoring of surface water to identify		
	and resolve impacts on downstream water		
	bodies.		
Siltation of irrigation channels and water	Routine maintenance of channels is required		
resources	by WUGs.		
Knock-on impacts of increased agricultural	WUGs, APGs and individual farmers offered		
production due to improved water availability	training on improved agronomic practices		
 – on soil and water (including groundwater) 	including correct application of fertilisers and		
quality due to increased use of fertilisers and	pesticides, so as to mitigate any negative		
pesticides.	impact.		
APG – agricultural producer group BOF – bio-organic fertilizer GHG – greenbouse gas WLG –			

APG = agricultural producer group, BOF = bio-organic fertilizer, GHG = greenhouse gas, WUG = water user group.

V. CONSULTATION, INFORMATION DISCLOSURE, & GRIEVANCE REDRESS MECHANISM

A. Public Consultation

50. The public consultation and participation process during the project preparation stage should involve: (i) reconnaissance surveys of the subproject sites; and (ii) participatory meetings with local stakeholders. Table 8 presents a Public Consultation Plan.

51. Reconnaissance surveys of the subproject sites will comprise on-site discussions with farmer groups including vegetable hub members, rice millers, access road beneficiaries and water user groups to provide information on the physical and biological resources, social-economic environment, opportunities and constraints relevant to the proposed subproject.

52. Participatory meetings with government stakeholders and representatives from water user groups and farmers should be undertaken to collect data and to present the project (designs and locations), and to ascertain social and environmental issues and concerns.

53. Feedback from the participants on subproject implementation and consensus on how to deal with environmental issues in the area will be important goals of the consultation process.

B. Public Disclosure

54. All IEEs, EMPs and environmental monitoring reports must be submitted and disclosed on ADB website. IEEs will also be disclosed on the NPMO's website. In the case of some foreign financed projects in Lao PDR, a dedicated project website has been developed to offer ongoing news and updates. MAF has its own website to broadcast information about agriculture and forestry issues. Decision on a dedicated project site will be a welcome addition to raise awareness of progress of project implementation.

C. Grievance Redress Mechanism

55. **Proposed Mechanism.** The NPMO will establish a Project Public Complaint Unit (PPCU) which will act as a central recording and coordinating unit in compliance with ADB's SPS (2009) requirement to establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns regarding the project's environmental performance. Each subproject PPIU will ensure that a grievance redress mechanism (GRM) is publicized locally so that the community is fully aware of the mechanism and the local points of entry to it. The setting up of the GRM in the NPMO and its initial implementation through the PPIUs will be supported by the environmental specialist of the PIC.

56. The GRM will be accessible to diverse members of the community, including more vulnerable groups such as women and youth. Multiple points of entry, including face-to-face meetings, written complaints, telephone conversations, or e-mail, will be available. Opportunities for confidentiality and privacy for complainants will be honoured where this is seen as important.

57. When construction starts, a sign will be erected at each construction site providing the public with updated project information and summarizing the GRM process including details of the GRM entry points. The contact persons for different GRM entry points (PPIUs, water users group leaders, contractors, and operators of project facilities) will be identified prior to construction. The contact details for the entry points (e.g. phone numbers, addresses, e-mail addresses, etc.) will be publicly disseminated on information boards at construction sites and on the website of the local government.

58. The preferred action sequence for complaints handling is that the complaint should be investigated and resolved by the unit receiving the complaint. If this is not possible, the complaint should be referred to the NPMO, whose wider membership will enable coordinated action in response.

59. The PPCU will maintain records of complaints and actions taken to correct them. This data will be included in the safeguard monitoring reports submitted to the ADB. The PPCU will establish a GRM tracking and documentation system. The system will include the following elements: (i) tracking forms and procedures for gathering information from project personnel and complainant(s); (ii) staff to update the database routinely; (iii) systems with the capacity to analyse information so as to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how complaints are being handled, and periodically evaluate the overall functioning of the mechanism; (iv) processes for informing stakeholders about the status of a case; and (v) procedures to retrieve data for reporting purposes, including the periodic reports to the ADB.

60. **GRM Procedure and Timeframe.** The procedure and timeframe for the grievance redress mechanism are described as follows (see Figure 1). The stages are represented by different colours in the flow diagram:

(i) Stage 1: If a concern arises during construction, the affected person will submit a written or oral complaint to the contractor directly. Whenever possible, the contractor will resolve the issue directly with the affected person. The contractor

will give a clear reply within one week. If successful, the contractor will inform the PPCU accordingly.

(ii) Stage 2: If no appropriate solution can be found, the contractor should forward the complaint to the PPCU within five working days. The complainant may also decide to submit a written or oral complaint to the PPCU, either directly or via one of the GRM entry points (in this case through the agricultural cooperative board). The PPCU will investigate and identify the solution and provide a clear reply for the complainant within five working days. The environment consultants of the PIC will assist the PPIU in replying to the affected person. The PPIU will timely convey the complaint/grievance and suggested solution to the contractors or operators of facilities. The contractors during construction and the operators during operation will implement the agreed redress solution and report the outcome to the PPCU within seven working days.

61. During construction, the PPCU will be informed by contractors and construction supervisors, cooperative board or PPIUs if people complain about the project. During operation, the PPCU will be advised of complaints by the PDA and the Cooperative. The NPMO will also inform the ADB project team and submit all relevant documents.

62. To ensure that complaints are timely dealt with, the time limits set for referral of complaints and resolution, as stated above, are summarised as follows.

- (i) Stage 1 = a clear reply within one five day working week
- (ii) Stage 2 = If no solution found, contractor submits to PPCU within five working days. The PPCU investigates and provides a clear reply for the complainant within five working days. Contractor responsible for implementing solution and report to the PPCU within seven working days.

63. The NPMO will maintain records of complaints and actions taken to correct them. This data will be included in the NPMO's semi-annual environmental reports submitted to the ADB.

64. At any time, an affected person may contact the ADB project team or Lao PDR Resident Mission in respect of grievances. If grievances, cannot be resolved through these channels, affected persons may submit a complaint via the ADB Accountability Mechanism. The accountability mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort to address problems via the GRM and ADB project team. Only after doing that, and if they are still dissatisfied, should the Accountability Mechanism be used.⁶

⁶ ADB. Accountability Mechanism. <u>https://www.adb.org/site/accountability-mechanism/main</u>



Figure 1: Procedure of the Grievance Redress Mechanism

VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

A. Implementation Arrangements

65. MAF is the executing agency and will be responsible for overall project co-ordination and management. MAF will establish an NPMO, which will be responsible for technical guidance and coordination of planning and implementation of the works.

66. The MAF Department Coordination Unit is experienced in overseeing foreign finance projects but this does not rule out the need for support to implement the ECC for Category C projects, as well as to ensure competence in production of IEEs for any Category B subproject activities. A PIC firm will be recruited to: (i) assist NPMO to implement the project and to meet the reporting and procedural requirements of ADB; (ii) undertake feasibility studies/investment reports including technical design and costing, economic and financial analysis and safeguards review and compliance, including capacity building as required for the development of appropriate documentation and processes by DIUs or provincial project implementation units (PPIUs) for either Category B or C subprojects; (iii) undertake detailed design, contract award and construction supervision; (iv) assist in project performance monitoring and evaluation; and (v) ensure adequate provision for compliance with social and environmental safeguards, including monitoring and review during the construction and post-construction period.

67. The PIC services include an international environmental/climate change specialist (total of 9 months, 2.25 months input per year from 2017 to 2020) and a national environment/climate change specialist (total of 18 months, 4.5 months per year from 2017 to 2020). These specialists will be required to provide training on environmental aspects of the implementation of the project. Section D below sets out the environmental training and capacity development plan with an estimate of costs.

68. MAF will be requested to nominate one SOES to the NPMO (see Appendix 4 for Terms of Reference), who will have a central level coordinating role and provide technical advice to the PAFO and District Agriculture and Forestry Office. The major responsibilities of the SOES will be to ensure that:

- (i) Mitigation measures and monitoring of these activities are carried out in accordance with the ECC;
- (ii) Carry out the Environmental monitoring program, comprising the of taking samples and analysis; and
- (iii) Reporting is performed in compliance with ADB and Lao PDR requirements.

69. PAFO and District Agriculture and Forestry Office will also nominate safeguards focal points. It is recommended that the SOES in the NPMO is nominated to serve on the Project Steering Committee.

70. With these staff and consultants, the capacity of the executing and implementing agencies is considered adequate to implement government legislation and ADB safeguard requirements.

B. Consultation, Participation and Information Disclosure

71. **Consultation during project preparation**. In order to facilitate a clear understanding of the project activities, as well as the GRM, there is a need for public participation and consultation to be an ongoing process during project preparation and implementation.

72. **Future public consultation plan.** Plans for public involvement during construction and operation stages have been developed during project preparation. These include public participation in: (i) monitoring impacts and mitigation measures during the construction and operation stages; (ii) evaluating environmental and economic benefits and social impacts; and (iii) interviewing the public after the project is completed. These plans will include several types

of public involvement, including site visits, interviews, workshops and investigation of specific issues (indicative costs are provided in Table 8). The assumption is that the NPMO can access the provincial and district partner offices responsible, and that considering the anticipated phased implementation, follow up consultation and project information will be repeated where either considered necessary or requested. It is anticipated that the cost estimates in the table are for public consultation – not information sharing and training of provincial, district or contractor staff for the monitoring of works.

Organizer	Format	No. of Times	Subject	Attendees	Budget
		Construction Stage	for ECC Cat C & IEE / EMP activ	ities	
PPIU	Public consultation & site visit	2 times: 1 time before construction commences and 1 time each year during construction if required.	Adjusting of mitigation measures, if necessary; construction impact; feedback and suggestions	Residents adjacent to components, village / group representatives	\$5,000
PPIU	Expert workshop/press conference	As needed based on public consultation	Feedback / suggestions on mitigation measures, public opinions	Experts of various sectors, media	\$2,000
		Operati	onal Stage as required		
PPIU O&M Units	Public consultation and site visits	Once at project handover	Effectiveness of mitigation measures, impacts of operation and maintenance feedback and suggestions.	Residents adjacent to component sites, social sectors	\$1,500
				Total budget:	\$8,500

Table 8: Estimate o	f Costs for	Overall Public	Consultation Plan
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ECC = environmental code of conduct, EMP = environmental management plan, IEE = initial environmental examination, O&M = operation and maintenance, PPIU = Provincial Project Implementation Unit

C. Institutional Capacity Building and Training

73. The capacity of NPMO, implementing agencies and contractors' staff responsible for implementation and supervision of ECC or IEE/EMP implementation will be strengthened through training and appointment of qualified staff and safeguard focal points. All parties involved in implementing and supervising the ECC or IEE must have an understanding of the goals, methods, and practices of project environmental management.

74. The PIC international and national environmental consultants will provide advice and guidance and conduct capacity building on environmental management and monitoring, as required (Terms of Reference are provided in Appendix 4).

75. A training and capacity development program is outlined in Table 9. The table outlines indicative costs for overall project institutional capacity building and training which will include adoption of the ECC, completion of IEEs for category B projects, the implementation of the monitoring plan as well as the routine reporting requirements for all environmental monitoring.

76. **Institutional strengthening.** The capacities of the NPMO and IAs to coordinate environmental management will be strengthened through the appointment of at least one qualified environment specialist within the NPMO staff to be in-charge of ECC and IEE/EMP coordination, implementation and site inspections, GRM and environmental monitoring reports.

77. **Training.** NPMO, IAs and contractors will receive training on aspects of ECC and IEE/EMP implementation as appropriate, supervision, and reporting, and on the GRM (Figure 1). Training will be facilitated by the SOES with support of international and national experts as outlined in Table 9.

78. **Capacity building.** In addition to training for ECC and IEE/EMP implementation as appropriate, the project will provide consulting services and training to assist and train the staff of NPMO and implementing agencies, DIUs, PPIUs & PoNRE in project management, environmental management, land acquisition and resettlement, procurement, as well as external resettlement and environmental monitoring.

Training	Attendees	Contents	Times	Period (days)	No. of persons	Cost (\$/person /day)	Total Cost
ECC Implementation	NPMO, IAs, contractors, DIUs & PPIUs	Development and adjustment of the ECC, roles and responsibilities, monitoring, supervision and reporting procedures, review of experience (after 12 months)	Twice - Once prior to, and once after the first year of project implementation	2	20	100	\$4,000
EMP implementation	NPMO, IAs, contractors, DIUs & PPIUs	Development and adjustment of the EMP, roles and responsibilities, monitoring, supervision and reporting procedures, review of experience (after 12 months)	Twice - Once prior to, and once after the first year of project implementation	2	20	100	\$4,000
Grievance Redress Mechanism	NPMO, IAs, contractors, DIUs, PPIUs & PoNRE	Roles and responsibilities, Procedures, review of experience (after 12 months)	Twice - Once prior to, and once after the first year of project implementation	1	15	100	\$1,500
Environmental protection	NPMO, IAs, contractors, DIUs, PPIUs & PoNRE	Pollution control on construction sites (air, noise, wastewater, solid waste)	Once (during project implementation)	2	15	100	\$3,000
Environmental monitoring	NPMO, IAs, contractors, DIUs, PPIUs & PoNRE	Monitoring methods, data collection and processing, reporting systems	Once (at beginning of project construction)	1	10	100	\$1,000
				٦	Total estin	nated cost:	\$13,500

Table 9: Overall Project Environment Training and Capacity Development Program

IAs = implementing agencies, DIUs = district implementation unit, ECC = environmental code of conduct, EMP = environmental management plan, NPMO = national project management office, PONRE = Provincial Office of Natural Resources and Environment; PPIUs = Provincial Project Implementation Unit

D. Environmental Monitoring

79. The supervision and monitoring of environmental activities during the pre-construction, construction and operation phases are the functions of the NPMO. To support the executing agency and implementing agency to prepare environmental safeguards documents, and implement the environmental management and monitoring plans of subprojects, an SOES should

be assigned to the NPMO who will also work in collaboration with the relevant personnel in PIC team responsible for environmental and social safeguards management. The SOES will be assisted and trained by international and national environment/climate change safeguards specialist (consultants) on environmental management and monitoring. Terms of Reference for SOES and international and national environment and climate change specialists are included in Appendix 4.

80. During construction, the PPIU will make appropriate arrangements for monitoring according to implementation progress. If grievances are received from the public (either directly or via the formal grievance redress mechanism), monitoring staff will conduct additional inspections immediately.

81. In the following Table 10, the Environmental Monitoring Plan, which is also referred to in Appendix 3 where it comprises a component of the Model Environmental Code of Conduct, outlines the specific issues which will potentially require monitoring. It is anticipated that this plan will be used as a key document prompting actions by both the PPIU and the PIC.

Parameters	Location	Frequency	Costs	Responsibilities
Pre-Construction				· · ·
Planning for design as well as implementation will include monitoring to ensure that all sites buildings, irrigation upgrading, access road construction, are managed in a systematic manner and good site management practices as set out in the ECC are implemented.	For example, as per the intentions behind the ECC, planning and design documentation will emphasise the value of top soils, along with the need to manage site waste and to maintain a clean and safe site which can be verified through successful monitoring.	Specific planning and design documentation for activities will reinforce the ECC.	Specified in contract documents.	PIC and PPIU to inspect.
Existing on-site vegetation	All on-site vegetation designated for protection and inclusion in the finished site should be identified. (Some sites may have none).	Once at the pre- construction period.	One day including logistics	National Nominated Provincial Officer to visit site
Surface water quality: pH, SS, EC, NH ₄ +, NO3-, PO4 3, DO, BOD5, COD, Oil & Grease, Coliforms.	Any surface water associated with building sites and irrigation sub-projects requires the testing of water to establish baseline water quality for surface water which enters and will leave the project site.	Once at the pre- construction period.	A unit cost of \$420 per suite of tests.	PIC & PPIU
During Construction				
Dust and noise	Site inspection of subproject site	Quarterly	A unit cost of one day monitoring including logistics	PIC to supervise and PPIU to inspect
On-site vegetation.	Site inspection of subproject sites as appropriate.	Quarterly	Unit cost of one day monitoring including logistics	PPIU
Surface water quality: pH, SS, EC, NH ₄ +, NO3-, PO4 3, DO, BOD5, COD, Oil & Grease, Coliforms	Any surface / Canal water 100m downstream of major construction sites where there could be some contamination.	Quarterly	A unit cost of \$420 per suite of tests.	PIC & PPIU
Solid Waste Management	Building site is to be kept clean and orderly to minimise prospect of accidents. All waste is to be segregated by type and be placed in a prescribed and dedicated location for removal.	Quarterly	Unit cost of one day monitoring including logistics	PPIU
Operation Phase				
Surface water quality: pH, SS, EC, NH ₄ +, NO3-, PO4 3, DO, BOD5, COD, Oil & Grease, Coliforms.	Any surface water associated with sub-project sites.	Semi-annual	A unit cost of \$420 per suite of tests both for ground and surface water	NPMO & IAs to contract an organization to do sampling and testing.
Groundwater quality: "Priority Parameters": pH, Turbidity, Arsenic, Iron, TDS, Pesticides, coliforms.	Groundwater quality should not be compromised at all during operation. If considered necessary,	Semi-annual	testing.	NPMO to contract an organization to do sampling and testing

Table 10: Environmental Monitoring Plan

Parameters	Location	Frequency	Costs	Responsibilities
	sampling points, where available, could be			
	identified during detailed design.			

E. Environmental Monitoring and Reporting Plan

82. The NPMO SOES will be responsible for the submission of semi-annual environmental monitoring reports to the ADB during project implementation. The reports will include environmental performance based on the monitoring and inspections data provided by the Provinces. The NPMO monitoring reports should also be made available to MNRE as required.

83. The NPMO will submit semi-annual environmental monitoring reports to ADB in January for the July-December reporting period, and in July for the January-June reporting period. The preparation and assembly of the monitoring reports will be completed by the NPMO with assistance from the international and national environmental and climate change specialist consultants. All the environmental monitoring reports will be disclosed on ADB and the project websites. Any potentially adverse issues in the interim periods should be raised with the ADB project team directly or in the quarterly project progress reports.

84. A project completion report will be prepared within six months of physical completion of the project.

	Reports	From	То	Frequency			
	Construction Phase						
Internal progress reports by contractors	Internal project progress report by construction contractors, including monitoring results	Contractors	NPMO, IAs	Quarterly			
Environmental monitoring and compliance monitoring reports	Project Progress Report including appendix on environment	NPMO (SOES support with data from DIUs & PPIUs)	MONRE, IAs, NPMO, SOES, EEM	Quarterly			
	Environment monitoring reports	NPMO (with SOES support)	ADB	Quarterly & Annual (Consolidated reports)			
PCR	Environmental monitoring and audit details included in PCR	NPMO	ADB	Once; within 6 months of completion of physical works			
	Operati	ional Phase	•				
Environmental monitoring	Environmental monitoring reports (until a PCR is issued)	SOES/NPMO	MONRE, IAs, NPMO, EEM, ADB	Annual			
	Project completion report with environment chapter and appendix	NPMO (with SOES support)	ADB	Once within 6 months of physical completion			

Table 11: Monitoring and Reporting Plan

ADB = Asian Development Bank, DIUs = District Implementation Office, IA = Implementing Agency, MONRE = Ministry of National Resources and Environment, NPMO = National Project Management Office, PCR = Project Completion Report, SOES = Safeguards Officer for Environment and Social

F. Estimated Environmental Monitoring Costs

85. The costs of implementing the environmental management and impact mitigation measures listed for any Category B project with accompanying EMP should be included in the design costs, construction contracts and operational budgets. Detailed budget allocations against each of the items in the EMP will be developed by the NPMO with the assistance of the PIC environment specialists during detailed engineering design. Cost estimates for awareness raising for the ECC, development of IEE's and each EMP, as well as environmental monitoring, public consultations and capacity building are summarized in Table 12. The compliance monitoring costs

will be borne by the IAs as part of the implementation functions. Internal monitoring costs will be borne by the contractors and the implementing agencies. Independent monitoring costs will be from the PPIU consultancy budget. Before implementing a monitoring plan, responsible agencies will present a more detailed breakdown of the estimated budget. During project implementation, the budgets will be adjusted based upon actual requirements. Contractors will bear the costs of all mitigation measures during construction, which will be included in the tender and contract documents. The implementing agencies will bear the costs related to mitigation measures during operation. Costs related to environmental supervision during construction and operation will be borne by the implementing agencies and the operators. Costs for capacity building will be borne by the project as a whole.

86. The continuing activities of the PPIUs and DIUs monitoring during construction and the initial operational period will be funded from construction budgets. After refresher and/or capacity building training regarding the specific difference in approach and actions between ECC and IEE based subproject activities, monitoring will be conducted in collaboration with the provincial Department of Agriculture Extension and Cooperatives, rice mills, vegetable processing and BOF, and the Department of Irrigation, access roads and tertiary canals, who will collaborate with consolidation and project progress reporting on a quarterly basis to the NPMO.

87. Table 12 outlines indicative costs for sub-project environmental monitoring activities. The assumptions in this table is that (i) the role of the training the PPIU and the PIC to implement appropriately the ECC and EMPs has been previously covered; (ii) that the NPMO can access the provincial and district partner offices responsible; (iii) that each activity and subproject will be different and thus require differing levels of monitoring which will become more efficient over the life of the project; and (iv) that considering the anticipated phased implementation, follow up training and support will be applied and available where requested or considered necessary. The total amount identified in the table is therefore indicative per subproject. The figures assume that the salary of those people involved in the training are already covered so the budget allows for informational education and communication materials required. (NB: It is anticipated that the cost estimates in the table are for information sharing and training of provincial, district or contractor staff for the successful following of the IEE or ECC).

Item	Estimated Costs ⁷ (USD)	Source of Funds
Environmental mitigation (including as appropriate either ECC and EMP operationalization)	800	Contractor Budget
Environmental monitoring (e.g. Including water	1,100	NPMO Budget & IA
quality testing, soil & excavation testing)		budget
Public Consultation	500	NPMO Budget
Environmental management Consultancy (where	1,300	NPMO Budget
needed)		
Training (specific training to nominated staff where	1,500	NPMO Budget
needed)		
Total	\$5,200	

Table 12: Environmental Monitoring Plan Cost estimates for IEE & ECC

⁷ These figures assume costs of personnel are covered, project logistics will cover vehicles and the NPMO will improve the efficiency of process through iteration.

APPENDIX 1: SAMPLE RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST

Buildings

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Lao PDR: Climate-Friendly Agribusiness Value Chain Sector Project

Sector Division:

Agriculture and Natural Resources

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
 Protected area 			
 Wetland 			
 Mangrove 			
 Estuarine 			
 Buffer zone of protected area 			
 Special area for protecting biodiversity 			
B. Potential environmental impacts Will the project cause			

Screening Questions	Yes	No	Remarks
 loss of precious ecological values (e.g. result of encroachment into forests/swamplands or historical/cultural buildings/areas, disruption of hydrology of natural waterways, regional flooding, and drainage hazards)? 			
 conflicts in water supply rights and related social conflicts? 			
impediments to movements of people and animals?			
 potential ecological problems due to increased soil erosion and siltation, leading to decreased stream capacity? 			
Insufficient drainage leading to salinity intrusion?			
 over pumping of groundwater, leading to salinization and ground subsidence? 			
 impairment of downstream water quality and therefore, impairment of downstream beneficial uses of water? 			
 dislocation or involuntary resettlement of people? 			
 disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups? 			
• potential social conflicts arising from land tenure and land use issues?			
soil erosion before compaction and lining of canals?			
noise from construction equipment?			
□ dust during construction?			
waterlogging and soil salinization due to inadequate drainage and farm management?			
leaching of soil nutrients and changes in soil characteristics due to excessive application of irrigation water?			
reduction of downstream water supply during peak seasons?			
soil pollution, polluted farm runoff and groundwater, and public health risks due to excessive application of fertilizers and pesticides?			
□ soil erosion (furrow, surface)?			
□ scouring of canals?			

Screening Questions	Yes	No	Remarks
clogging of canals by sediments?			
□ clogging of canals by weeds?			
seawater intrusion into downstream freshwater systems?			
introduction of increase in incidence of waterborne or water related diseases?			
dangers to a safe and healthy working environment due to physical, chemical and biological hazards during project construction and operation?			
Iarge population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
social conflicts if workers from other regions or countries are hired?			
risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., irrigation dams) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title: Lao PDR: Climate-Friendly Agribusiness Value Chain Sector Project

Sector: Agriculture, natural resources and rural development Subsector: Agriculture and natural resources Division/Department: SEER/SERD

Screening Questio	Score	Remarks ¹	
Location and Design of project			
	Would the project design (e.g. the clearance for bridges) need to consider any hydro- meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered **low risk** project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a **medium risk** category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as **high risk** project.

Result of Initial Screening (Low, Medium, High): Medium

Other Comments:

¹ If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Rapid Environmental Assessment (REA) Checklist

Roads

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES), for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:	Lao PDR: Climate-Friendly Agribusiness Value Chain Sector Proiect
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Sector Division:

Agriculture and Natural Resources

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Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
Cultural heritage site			
 Protected Area 			
 Wetland 			
 Mangrove 			
 Estuarine 			
 Buffer zone of protected area 			
 Special area for protecting biodiversity 			
B. Potential Environmental Impacts Will the Project cause			
 encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries? 			
 encroachment on precious ecology (e.g. sensitive or protected areas)? 			

	Screening Questions	Yes	No	Remarks
-	alteration of surface water hydrology of waterways crossed			
	by roads, resulting in increased sediment in streams			
	affected by increased soil erosion at construction site?			
-	deterioration of surface water quality due to silt runoff and			
	sanitary wastes from worker-based camps and chemicals			
	used in construction?			
•	increased local air pollution due to rock crushing, cutting			
	and filling works, and chemicals from asphalt processing?			
•	risks and vulnerabilities related to occupational health and			
	safety due to physical, chemical, biological, and radiological			
	hazards during project construction and operation during			
	project construction and operation?			
•	noise and vibration due to blasting and other civil works?			
•	dislocation or involuntary resettlement of people?			
٠	dislocation and compulsory resettlement of people living in			
	right-of-way?			
•	disproportionate impacts on the poor, women and children,			
	Indigenous Peoples or other vulnerable groups?			
•	other social concerns relating to inconveniences in living			
	conditions in the project areas that may trigger cases of			
	upper respiratory problems and stress?			
•	hazardous driving conditions where construction interferes with pre-existing roads?			
•	poor sanitation and solid waste disposal in construction			
	camps and work sites, and possible transmission of			
	communicable diseases (such as STI's and HIV/AIDS) from			
	workers to local populations?			
•	creation of temporary breeding habitats for diseases such as			
	those transmitted by mosquitoes and rodents?			
•	accident risks associated with increased vehicular traffic,			
	leading to accidental spills of toxic materials?			
•	increased noise and air pollution resulting from traffic			
•	increased risk of water pollution from oil, grease and fuel			
-	spins, and other materials from vehicles using the road?			
•	social conflicts if workers from other regions or countries are hired?			
•	large population influx during project construction and			
	operation that causes increased burden on social			
	infrastructure and services (such as water supply and			
<u> </u>	sanitation systems)?			
•	risks to community health and safety due to the transport,			
	storage, and use and/or disposal of materials such as			
	explosives, rule and other chemicals during construction and operation?			
-	community safety risks due to both accidental and natural			
-	causes especially where the structural elements or			
	components of the project are accessible to members of the			
	affected community or where their failure could result in			
	injury to the community throughout project construction.			
	operation and decommissioning.			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title: Regional Road Development and Maintenance: Checklist for Output 1

Sector : Transport

Subsector: Roads

Division/Department:

	Screening Questions	Score	Remarks ²
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro- meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

² If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered **low risk** project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a **medium risk** category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as **high risk** project.

Result of Initial Screening (Low, Medium, High): High

Other Comments: Screening using AWARE has indicated that the project is at **Medium** risk from projected climate change impacts. The project may be at high risk from increased snow loading and at medium risk from increased precipitation and temperature. Climate change impacts may result in increased damage and failure of road infrastructure and disruption of operation. Alignment planning, detailed design standards and maintenance frequency will need to take account of projected climate change impacts. The PPTA will carry out a more detailed climate risk and vulnerability analyses study to understand risks more fully. The RRP will include a supplementary appendix with a report on the consideration given to climate change risks and measures to be adopted to increase climate resilience.

Prepared by:

Rapid Environmental Assessment (REA) Checklist

Irrigation Rehabilitation

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Lao: Climate-Friendly Agribusiness Value Chain Sector Project

Sector Division:

Agriculture and Natural Resources

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area adjacent to or within any of the following Environmentally sensitive areas?			
Protected area			
 Wetland 			
 Mangrove 			
Estuarine			
 Buffer zone of protected area 			
 Special area for protecting biodiversity 			
B. Potential environmental impacts Will the project cause			
 loss of precious ecological values (e.g. result of encroachment into forests/swamplands or historical/cultural buildings/areas, disruption of hydrology of natural waterways, regional flooding, and drainage hazards)? 			
conflicts in water supply rights and related social conflicts?			
impediments to movements of people and animals?			

Screening Questions	Yes	No	Remarks
 potential ecological problems due to increased soil erosion and siltation loading to decreased stream capacity? 			
silitation, leading to decreased stream capacity:			
 over pumping of groundwater, leading to salinization and 			
ground subsidence?			
 impairment of downstream water quality and therefore, 			
impairment of downstream beneficial uses of water?			
 dislocation or involuntary resettlement of people? 			
 disproportionate impacts on the poor, women and children, 			
Indigenous Peoples or other vulnerable groups?			
 potential social conflicts arising from land tenure and land use issues? 			
soil erosion before compaction and lining of canals?			
noise from construction equipment?			
 dust during construction? 			
 waterlogging and soil salinization due to inadequate drainage and farm management? 			
leaching of soil nutrients and changes in soil characteristics due			
to excessive application of irrigation water?			
reduction of downstream water supply during peak seasons?			
 soil pollution, polluted farm runoff and groundwater, and 			
public health risks due to excessive application of fertilizers and			
soil erosion (furrow, surface)?			
scouring of canals?			
 clogging of canals by sediments? 			
clogging of canals by weeds?			
seawater intrusion into downstream freshwater systems?			
 introduction of increase in incidence of waterborne or water 			
related diseases?			
 dangers to a safe and healthy working environment due to 			
physical, chemical and biological hazards during project construction and operation?			
 large nonulation influx during project construction and 			
operation that causes increased burden on social infrastructure			
and services (such as water supply and sanitation systems)?			
 social conflicts if workers from other regions or countries are 			
hired?			

Screening Questions	Yes	No	Remarks
 risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			
 community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., irrigation dams) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning? 			

Climate Change and Disaster Risk Questions	Yes	No	Remarks
The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.			
 Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate change? 			
 Could changes in temperature, precipitation, or extreme events patterns over the Project lifespan affect technical or financial sustainability (e.g., increased glacial melt affect delivery volumes of irrigated water; sea level rise increases salinity gradient such that source water cannot be used for some or all of the year). 			
 Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)? 			
 Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by diverting water in rivers that further increases salinity upstream, or encouraging settlement in earthquake zones)? 			

Note: Hazards are potentially damaging physical events.

OUTLINE OF AN INITIAL ENVIRONMENTAL EXAMINATION (IEE) REPORT

This outline is part of the safeguards requirements. An IEE report is required for all environment category B projects. Its level of detail and comprehensiveness is commensurate to the significance of potential environmental impacts and risks. A typical IEE may have a narrower scope than an EIA, depending on the nature of the project. The substantive aspects of this outline will guide the preparation of IEE reports, although not necessarily in the order shown.

A. Introduction

B. Policy, Legal, and Administrative Framework – discusses the national and local legal and institutional frameworks within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project – describes (i) the proposed project; (ii) its major components; and (iii) its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data) – describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures – (i) predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media), and physical cultural resources in the project's area of influence, in quantitative terms, and to the extent possible; (ii) identifies mitigation measures and any residual negative impacts that cannot be mitigated; (iii) explores opportunities for enhancement; (iv) identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and (v) examines global, trans-boundary, and cumulative impacts as appropriate.

F. Information Disclosure, Consultation, and Participation - (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders; (ii) summarizes comments and concerns received from affected people and other stakeholders, and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and indigenous peoples; and (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination), and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

G. Grievance Redress Mechanism – describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

H. Environmental Management Plan – deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate to the project's impacts and risks):

(i) Mitigation:

- (a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
- (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies),together with designs, equipment descriptions, and operating procedures, as appropriate; and
- (c) provides links to any other mitigation plans (for example, for involuntary resettlement, indigenous people, or emergency response) required for the project.

(ii) Monitoring:

- (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits, and definition of thresholds that will signal the need for corrective actions; and
- (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate mitigation measures, and documents the progress and results of mitigation.

(iii) Implementation arrangements:

- (a) specifies the implementation schedule, showing phasing and coordination with overall project implementation;
- (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
- (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.
- (iv) **Performance indicators:** describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.
- **I. Conclusion and Recommendation –** provides the conclusions drawn from the assessment and provides recommendations.

MODEL ENVIRONMENTAL CODE OF CONDUCT

A. Environmental Code of Conduct; the over-arching approach

- 1. The Environmental Code of Conduct (ECC) will cover all subproject types. It is assumed that the ECC will therefore impact the planning, design, implementation, monitoring, operation and maintenance of project activities.
- 2. The key issues which need to be adopted to fulfil the ECC for Category C projects of the CFAVCP combine issues of stewardship of physical and social resources (e.g. water, air, soils, vegetation communities, protected and cultural areas), occupational health and safety of staff, and care to minimise and mitigate potential impacts upon the community. The intention and detail of the ECC is actually combined in the below five components which will comprise the relevant capacity building and training for Cat C projects.
 - (i) The Environmental Code of Conduct (Table 13 which follows);
 - (ii) Table 5. Indicative Impacts Design and Planning
 - (iii) Table 6: Indicative Impacts Construction
 - (iv) Section IV D Operation Phase Impacts
 - (v) Section IV E Special and Cross Cutting Environmental Considerations.
- 3. As per the capacity building and training, the NPMO will work with contractors, communities, and provincial teams to raise awareness regarding the ECC.
- 4. Mitigation measures are not detailed as they have been included in the EMP and the key issue elements of the ECC will be incorporated into tender documents, construction contracts, and operational management procedures. Contractors and PPIUs will implement these measures, depending upon subproject phases. Effectiveness of the measures will be carefully monitored to determine whether to continue them or to make improvements.

B. Summary of Potential Impacts

5. Table 13 summarizes the potential impacts of the subprojects identified as part of the screening of representative subprojects during the PPTA. The table identifies construction and operation as well as corresponding mitigation measures designated to minimize those impacts.

C. Mitigation Measures

6. The Environmental Code of Conduct will be incorporated into tender documents, construction contracts, and operational management procedures. Contractors and PPIUs will implement these measures, depending upon subproject phases. Effectiveness of the measures will be carefully monitored to determine whether to continue them or to make improvements.

Potential	Generic /	Nature of impacts					Responsibilities
impacts	Project		Significance**	Duration	Mitigation Measures	Cost	
	Specific		-				
1. Recommenda	tions during proj	ect location and design	phase for all pro	posed subp	projects		
Non-compliance	- Building &	A major cost involved in	3	Long	- Final technical design	Included in	- NPMO/PPUU
of the technical	Access	post-occupation of		Term	of the building should	the project	- TA/ Contractor
design to	Road	buildings includes the			take into consideration	cost	
applicable	Construction	energy required for			the following: (i)		 Monitor by:
national and		them to perform their			construction		NPMO/PPCU/TA
international		function. Globally, the			specifications to		(Environment
guidelines		cost of energy			incorporate energy		Specialist)
		production continues to			efficient principles and		
		rise and energy use can			technical specification		
		be made a great deal			to withstand increase		
		more efficient through			in frequency and		
		decision making at			intensity of storm		
		planning and design			events, (II) sanitation		
		stage. Likewise there is			facilities should not be		
		a need for building			drinking water (at least		
		detailing to adopt			30 motors from the		
		standards which aim to			source of drinking		
		withstand impacts of			water) and consistent		
		increase in high velocity			with applicable		
		winds and storms			national and		
		-			international		
					guidelines (i.e. World		
					Health Organization's		
					Water, Sanitation and		
					Hygiene Standards for		
					Schools in Low-cost		
					Settings) if project will		
					provide; (iii)		
					Production/processing		
					facilities should not be		
					located within 300m of		
					water courses; (iii)		
					follow further		
					applicable rules and		

Table 13: Environmental Code of Conduct: Potential Impacts and Mitigation Measures for proposed activities

Potential impacts	Generic / Project	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
impuoto	Specific		olgimeanoc	Burution	initigation incubarco	0001	
					regulations on structural integrity of building structure.		
Timing of Works	- Access Roads & Irrigation Rehab:	 The works involved in access road construction and tertiary canal rehabilitation will involve vehicle movements, removal of spoil, and installation of the new which will impact upon the daily lives of people in the village. 	3	Short term	 To minimize the impact of subprojects in the village, planning needs to ensure early discussions will take place with village heads to talk about the schedule and agree on times within which the contractor can operate. 	N/A	 PPIU/PPCU TA Contractor Monitor by PPIU/PPCU.
UXO	- Generic -	 Project works will take place in areas that are already well trafficked. Thus, it is not likely to have a significant UXO risk. During the public consultation in March 2016, no one raised any UXO risk at the proposed site. However, there are known UXO sites in some areas where the project is working. 	2	Short term	 To avoid any risks, all sites where excavation or ground clearance needs to take place, where there is a reasonable doubt as to the safety of the area, an approved mine clearance agency should be engaged for an agreed package of verification, detection and clearance work, to ensure that all areas where excavation, or access construction will take place are clear of UXO. 	In contract by Contractor	 PPIU/PPCU TA/ Contractor Monitor by: PPIU/PPCU/TA (Environment Specialist)
Protected areas	- Generic -	- It is possible that activity sites which	1		N/A	N/A	- NPMO/PPIU - TA

Potential impacts	Generic / Project Specific	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
	opeome	are too close to protected areas can have a negative impact. Planning to ensure sites are at a safe distance from protected areas is important.					- Monitor by: PPIU /TA (Environment Specialist)
Fish migration	- Generic -	 Planning should ensure that changing of surface water flows (rivers, streams, canal) have no significant impact on fish migration. 	1		N/A	N/A	 NPMO/PPIU Monitor by: PPIU//TA/PPCU (Environment Specialist)
Encroachment of precious ecological areas.	- Generic -	- Not significant	1	Short Term	- As the proposed site is out of protected areas and conservation thus it will not have any significant impact, but environmental consideration is still care about ecological species if there will happen during construction or operation.	Included in Project cost	 NPMO/PPIU Monitor by: PPIU /PPCU/TA (Environment Specialist)
Historical/cultural monuments and values	- Generic -	 No historical or cultural monuments are located in the subproject area 	1	N/A	- Should any items of historical or cultural nature be unearthed during construction work is to cease and the SOES at	N/A	 NPMO/PPIU Monitor by: PPIU /PPCU/TA (Environment Specialist)

Potential	Generic / Project	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
impuoto	Specific		olgimeanee	Duration	intigation incusares	0031	
					NPMO is to be notified at earliest possible time.		
Funeral areas	- Generic -	 Project activities close to funeral areas can cause significant cultural and emotional stress. Planning should ensure activities are not near these areas. 	1			N/A	 PPIU/PPCU TA: Engineer Monitor by: PPIU /PPCU/TA (Environment Specialist)
Resettlement / Land Acquisition	- Generic -	 There is not significant impact on land resettlement; however private assets including land and economic trees must be considered with compliance to ADB and Lao PDR policy. 	2	Long Term	- Included in Resettlement Plan.	Project Cost	 NPMO/PPIU TA: Resettlement Monitor by: NPMO/PPIU/PPCU/TA (Resettlement)
Odour	- BOF, Rice Mills, Vegetable Processing	 Processes, especially BOF may emit unpleasant odours 	2	Medium Term	 Ensure detailed design integrates measures to minimise emission of unpleasant odours 	Included in Project Costs	 PPIU/PPCU TA: Engineer Monitor by: PPIU /PPCU/TA (Environment Specialist)
2. Generic & Spe	ecific impacts duri	ng Construction					
Dust from construction works	- Generic	 An adverse environmental impact could occur during the 	2	Short Term	 Water shall be sprayed during construction if the construction zone will 	In contract of a contractor bidding package	 Contractor Monitor: PPIU/PPCU/TA

Potential impacts	Generic / Project Specific	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
		construction phase in case of improper construction management but is not likely significant.			be located close 50 m to urban areas such as village, hospital, school and so on to ensure that dust is minimized throughout the construction zone.		(Environment Specialist)
Dust and material Transportation	- Generic –	 An adverse environmental impact could occur during the construction phase in case of improper construction management but is not likely significant. 	2	Short Term	 Dry material handling and transport generate large amounts of dust thus: The Contractor shall prepare a dust control program. Water shall be sprayed where dry materials are handled, crushed and transported. Vehicles transporting materials are to be covered to reduce spills and dust. 	In contract of a contractor bidding package	 Contractor Monitor: PPIU/PPCU/TA (Environment Specialist)
Air pollution and noise	- Generic	 An adverse environmental impact could occur during the construction phase in case of improper construction management but is not likely significant. 	2	Short Term	 Vehicle and equipment emissions cause air pollution and noise: Hence, vehicles and equipment are to be maintained to meet Lao PDR emission and noise standards. Construction within 100m of a village or town is to be limited to lunch hours and night time. 	In contract of a contractor bidding package	 Contractor Monitor by: PPIU/PPCU/TA (Environment Specialist)

Potential	Generic /	Nature of impacts		_			Responsibilities
impacts	Project Specific		Significance**	Duration	Mitigation Measures	Cost	
Human wastes from construction	- Generic	 An adverse environmental impact could occur during the construction phase from workers faeces. This will generate flies and transmitted diseases which will possibly result n sanitation in the areas. 	2	Short Term	 Provision of sanitary facilities (toilets, burying, etc.) with proper waste disposal will be provided by contractors. 	In contract of a contractor bidding package	 Contractor Monitor by: PPIU/PPCU/TA (Environment Specialist)
Solid waste generation from construction camp, work sites and workers	- Generic	 Solid waste can create nuisance and bad odour, encourage disease vectors (such as flies and rats), blocked drainage system and hazard to environment. Hence, sufficient garbage containers are to be provided in construction camps and at work site, and be emptied daily, the waste being disposed of in an approved dump site. 	3	Short Term	 Every camp and work site should be clean during stay and before moving to a new sites. 	In contract of a contractor bidding package	 Contractor Monitor by: PPIU/PPCU/TA (Environment Specialist)
Traffic accident and traffic jam of equipment transportation	- Generic	 Some heavy equipment (heavy trucks, bulldozers, backhoes, etc.) will be brought to the 	3	Short Term	 Construction vehicles will comply with national speed limitation. 	In contract of a contractor bidding package	 Contractor Monitor by: PPIU/PPCU/TA

Potential impacts	Generic / Project Specific	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
		construction areas for excavation and construction works. They will only be transported in and out during the construction period and in relatively small numbers. Even though the project area is not heavily populated, no serious disturbance is envisaged; however it could possibly cause accidents in local communities, traffic jam and dust.			 Construction vehicles will drive at low speeds, especially at market, school, hospital, urban areas Keep road space or bypass for travellers to avoid traffic jams. Vehicle for construction should park at designated safe places. 		(Environment Specialist)
Soil erosion	- Generic	 Soil erosion will occur during earthwork but the footprint (size) of the building is very small thus impact is not significant. 	3	Medium	 Good construction practices shall help to mitigate soil erosion and siltation. 	Project Package	 Contractor in corporation with local authority Monitor by: PPIU/PPCU/TA (Environment Specialist)
Worker safety and health	- Generic	- Some workers will be recruited for construction activities and workers' camp will be constructed. These will include non-skilled workers, operators and drivers as well as	3	Short Term	 Workers should wear protection equipment during works to ensure that they are safe and good health. A contractor should develop a guideline on working mechanism, health and safety 	In contract of a contractor bidding package	 Contractor Monitor by: PPIU/PPCU/TA (Environment Specialist)

Potential	Generic /	Nature of impacts	Significance**	Duration	Mitigation Macauraa	Cont	Responsibilities
impacts	Specific		Significance	Duration	mitigation measures	COST	
		surveyors and construction supervisors. Since the works will be relatively small scale and expected to be completed within one year, large numbers of workers are not expected. However, safety and health impacts will be also expected.			during construction. Manager should educate his workers on health and safety projection.		
Conflict	- Generic	 Some workers will be recruited for construction activities and workers' camp will be constructed. These will include non-skilled workers, operators and drivers as well as surveyors and construction supervisors. Since the works will be relatively small scale and expected to be completed within one year, large numbers of workers are not expected. However, conflict will be also expected. 	2	Short Term	 A contractor should develop a guideline on staff management and policy. Manager should educate his workers to avoid any conflict may happen in advance. 	In contract of a contractor bidding package	 Contractor Local authority Monitor by: PPIU/PPCU/TA (Environment Specialist)

Potential impacts	Generic / Project Specific	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
	I I I I I I I I I I I I I I I I I I I						
Transmitted diseases	- Generic	 Some workers will be recruited for construction activities and workers' camp will be constructed. These will include non-skilled workers, operators and drivers as well as surveyors and construction supervisors with different gender. Hence, transmitted diseases, especially HIV, will be also expected. 	3	Short Term	 A contractor should develop a guideline on health and safety management during construction. Manager should educate his workers on health and HIV program. 	In contract of a contractor bidding package	 Contractor Monitor: PPIU/PPCU/TA (Environment Specialist)
Pollution from fuels and black oil	- Generic	 The impact is temporary, as the risk will be confined to the construction period. 	2	Medium Term	 Secure and controlled storage of all toxic and hazardous materials including fuels and black oil. Provide sanitation arrangements at work sites, to avoid no raw sewage released into drains or streams. Maintenance of vehicles and plant in sound operable condition, preventing oil leakages and excessive exhaust emissions. 	In contract of a contractor bidding package	 Contractor Monitor by: PPIU/PPCU/TA (Environment Specialist)

Potential	Generic /	Nature of impacts					Responsibilities
impacts	Project Specific		Significance**	Duration	Mitigation Measures	Cost	
	-				 Black oil should be stored for sale. 		
3. Environmental	Impacts during Op	eration		-			
Dust from machine operations.	- BOF, Rice Mills	 Adverse environmental impact could occur during the operation phase in case dust from machinery but is not likely significant. 	2	Short Term	 At project handover there will be key occupational health and safety shared with rice mill and BOF operators which includes the need to manage and mitigate presence of dust. 	In contract of a contractor bidding package	 Contractor / Mill & BOF Managers & Staff. Monitor: PPIU/PPCU/TA (Environment Specialist)
Solid waste	- BOF, Rice Mills, Vegetable Processing	 Solid waste will be generated during the operation but most may be organic waste. 	3	Medium Term	 Encourage proper waste segregation, collection and disposal Bio-digestion into gas and composting program is recommended, 	Included in Project Cost	 PPIU APGs, Mill, Veg Hub and BOF managers Monitor by: PPIU/PPCU/TA (Environment Specialist)
Odour	- BOF, Rice Mills, Vegetable Processing	 Processes, especially BOF may emit unpleasant odours 	2	Medium Term	 Ensure regular monitoring of emissions and ensure O&M manual and training for operators includes odour control measures 	Included in Project Costs	 PPIU APGs, Mill, Veg Hub and BOF managers Monitor by: PPIU/PPCU/TA (Environment Specialist)
Water pollution	- BOF, Rice Mills, Vegetable Processing	 Polluted discharges 	2	Medium Term	 Avoid discharge of polluted process/production water Ensure contaminated residues disposed of 	Included in Project Cost	 PPIU APGs, Mill, Veg Hub and BOF managers Monitor by: PPIU/PPCU/TA

Potential impacts	Generic / Project	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
	Specific				at registered facility and/or treated to appropriate standard prior to discharge.		(Environment Specialist)
Conflict of water utilization	- Irrigation	 This will occur between customers and workers or staff if improperly managed. 	2	Long Term	 (Reliable collection of information on water levels in the canal system, to enable sound planning of further water use and distribution among WUG. Mechanism developed for formal communication to resolve conflicts between upstream and downstream water users. 	Included in Capacity Building budget (for training)and associated investments	 PPIU/WUG/ Local Authority/TA Monitor by: PPIU/PPCU/TA WUG
4. Environmental	and Social Benefits			1			
Increasing agricultural activities and farmer's knowledge	- Generic	- The improved infrastructure and farmer extension support / knowledge based components will enable the communities to manage the post- harvest processing of higher value vegetables and rice for improved market values. Training will improve farmers' knowledge on	4+	Long Term	 Strengthen capacity of Farmers, APGs and local authority for management, business accompany and communication skill. 	Included in Capacity Building budget (for training) and associated investments	 PPIU APGs/Farmers Local authority Monitor by: PPIU/PPCU/TA (Environment Specialist)

Potential impacts	Generic / Project Specific	Nature of impacts	Significance**	Duration	Mitigation Measures	Cost	Responsibilities
		product processing and improved handling for transportation to markets.					
Employment	- Generic	 Through the enhancement of agricultural activities and local incomes, in-migrant employment will benefit to local communities who will migrate for job. Additionally, some of migrant employment will return home for improving their agriculture and will have a chance to find a job at the locality. 	3+	Long Term	N/A	N/A	 Monitor by: PPIU/PPCU/TA (Environment Specialist)

ADB = Asian Development Bank, APG = Agricultural Producer Group, BOF = biofertiliser factories, NPMO = National Project Management Office, PIC = project implementation consultants, PPIU = Provincial Project Implementation Unit, PPCU = Project Public Complaint Unit, TA = technical assistance, WUG = water user group.

** Significance: There is a range of numbers used from: 1 = little significance --- 4 – significant impact.

TERMS OF REFERENCE

Environment and Social Safeguards Officer

(National Project Management Office) Environmental Management duties (24 person-months)

Qualifications:

Tertiary degree from a recognized educational establishment

Experience

Minimum of three years' experience of working on a multilateral rural development / agriculture project, preferably funded by ADB.

Duties

The officer will have a detailed understanding of the environmental assessment and resettlement framework (EARF) and relevant laws and regulations and ADB requirements for initial environment examinations (IEEs) and reporting. Working closely with the Environment Expert and Specialist, the officer will:

- (i) assist the NPMO to implement the environmental screening and assessment provisions of the EARF for each subproject;
- (ii) provide training to provincial departments, water user groups and agricultural cooperative members to facilitate implementation of the EARF;
- (iii) assist NPMO to ensure that candidate Subprojects are correctly screened and comply with the selection criteria for environment;
- (iv) working with the PPIU to implement the project grievance redress mechanism (GRM), including: (a) instruct the PPIU and other project agencies on their responsibilities in the GRM; (b) establish a simple registry system, to document and track grievances received (including forms to record complaints and how they have been resolved); and (c) prepare reports on progress of the GRM for inclusion in the semi-annual environmental monitoring and progress reports to ADB; and
- (v) prepare quarterly environmental reports during subproject construction and semi-annual environmental progress reports otherwise for the NPMO to submit to ADB

TERMS OF REFERENCE

(International) Environment / Climate Change Safeguards Specialist (ECCS) (9 months - intermittent)

A. BACKGROUND

The Climate-friendly Agribusiness Value Chains Sector Project will invest in pro-poor, inclusive and climate resilient agricultural value chains in Lao PDR. The Project's impact will be enhanced productivity, quality, value addition and rural household income in the Project areas (Vientiane Province and Capital, Khammouane, Saravan, Savannakhet, Sekong, and Champasak Provinces).

The Project outcome will be more efficient resource utilization and climate resilience for competitive and inclusive agribusiness value chains in Lao PDR, through the provision of (i) improved critical production and post-harvest infrastructure; (ii) reducing energy costs by promoting renewable energy use; and (iii) offering targeted agribusiness policy and capacity support services.

B. QUALIFICATIONS

The ECCS will have appropriate tertiary qualifications in environmental science, natural resource management or a related discipline from a recognized institution.

C. EXPERIENCE

The ECCS will have more than eight years of experience working in the field of environmental management, environmental monitoring, for internationally funded development projects, some of which will have been undertaken in Lao PDR or elsewhere in the Mekong sub-region, and will be familiar with the laws of Lao PDR associated with the environment. The specialist(s) shall have experience in internationally funded development projects as an environmentalist and be familiar with ADB's safeguard requirements.

D. REPORTING

The ECCS will report direct to the Team Leader.

E. DUTIES

Very few environmental concerns were identified during subproject screening and subprojects with major environmental issues were excluded from the Project. The main role of the ECCS will thus be to undertake any due diligence required, prepare environmental guidelines for contractors and monitor that the guidelines are being followed during the construction period. The ECCS will guide the National ECC Specialist, who will have considerable experience in environmental monitoring and will be familiar with the laws of Lao PDR associated with the environment as well as having had experience in internationally funded development projects, preferably related to infrastructure development, as an environmentalist. Training skills would also be an advantage to the international and national specialists. Specific tasks of the ECCS will include the following:

- Review the Project scope, the range of subprojects and the nature of works planned, paying specific attention to any environmental issues identified during the screening process;
- (ii) Visit each proposed subproject and liaise with the Provincial Office for Natural Resources and the Environment to ensure that all environmental concerns of the subprojects have been identified and documented;
- (iii) Regarding the results of the field visits, revise and update the environmental documentation and requirements prepared during the PPTA;
- (iv) For subprojects with no environmental concerns prepare a due diligence report documenting the fact that no IEE will be required;
- Review subproject construction schedules with NPMO, prepare a schedule for IEE preparation for any subprojects where one will be required and undertake IEEs according to the schedule;
- (vi) Regarding the documentation prepared by the PPTA consultants, prepare an environmental management plan for the construction phase of the Project. The plan will include guidelines for contractors requiring good environmental management practices, the opportunity for input from participation beneficiaries and a grievance mechanism;
- (x) Periodically review construction activities during the construction phase to ensure compliance with the guidelines;
- (xi) Liaise with the PoNRE officers in each province and make spot checks during implementation to ensure that environmental plans are being properly implemented; and
- (xii) Assist in the preparation and implementation of training activities regarding the environmental aspects of the project.

F. TIMING AND DURATION

The ECCS's annual intermittent inputs to the project will be determined in advance by the NPMO according to the progress of Project implementation and prevailing circumstances.

G. DELIVERABLES

The ECCS will submit reports to the TL following each input to the project, contribute presentations on relevant subjects to Project workshops, and contribute to the Project's mandatory semi-annual, annual, mid-term reports, and, additionally as requested by the TL.

TERMS OF REFERENCE (National) Environment / Climate Change Specialist (18 months)

A. BACKGROUND

The Climate-friendly Agribusiness Value Chains Sector Project will invest in pro-poor, inclusive and climate resilient agricultural value chains in Lao PDR. The project's impact will be enhanced productivity, quality, value addition and rural household income in the project areas of Khammouane, Savannakhet, Champasak, Saravan, and Vientiane provinces.

The outcome will be more efficient resource utilization and climate resilience for competitive and inclusive agribusiness value chains in Lao PDR, through the provision of (i) improved critical production and post-harvest infrastructure; (ii) reducing energy costs by promoting renewable energy use; and (iii) offering targeted agribusiness policy and capacity support services.

B. QUALIFICATIONS & EXPERIENCE

Tertiary degree from a recognized educational establishment with minimum of 3 years' experience of working on a multilateral rural development / agriculture project, preferably funded by ADB.

C. TASKS

Working closely with the National Project Management Office (NPMO) and the Environmental Management Officer, and other relevant personnel and agencies, the consultant will assist in all aspects of the implementation of the project environmental assessment and review framework (EARF) and subproject initial environment examinations (IEEs). The consultant will:

- (i) In collaboration and under the direction of the International Climate Change and Environment Safeguards Specialist, ensure that the steps of the EARF covering environmental screening and impact assessment are followed by PPIUs;
- In collaboration and under the direction of the International Climate Change and Environment Safeguards Specialist, deliver training in (a) EARF procedures for screening, and assessing environmental impact (IEEs); and (ii) record-keeping and reporting;
- (iii) Prepare screening (REA checklists) and IEEs for all subprojects;
- (iv) Assist the PPIU to establish and publicize the grievance redress mechanism (GRM) for sub-projects, ensuring that the GRM publicity is appropriate to the scale and complexity of the sub-project and includes, as a minimum, the disclosure of all contact persons for lodging complaints;
- Assist the NPMO to prepare quarterly (during construction) and semi-annual project monitoring progress reports (otherwise) for submission to ADB within 2 months after each reporting period;
- (vi) Conduct surveys, feasibility studies, and prepare proposals on adaptation;
- (vii) Document local knowledge and best practices in mainstreaming and implementing climate change adaptation and DRR at the village level;
- (viii) Assist in developing guidelines on integrating climate change adaptation into village development plans and investment programs; and
- (ix) Organize capacity building events for relevant stakeholders at the provincial, district and village levels.

TERMS OF REFERENCE Surface Water Quality Monitoring

A. Background

Where proposed project activities intersect with surface water bodies, both within a project site as well as up-stream, the quality of surface and ground water can quite easily be contaminated or polluted such that it can threaten the ecology of associated aquatic life, be a threat to the health of livestock and humans, and be virtually useless for agricultural purposes for which it is equally important. It is therefore important to establish and maintain standards against which water quality can be monitored and maintained. Gathering baseline information regarding water quality is a pre-requisite for such an exercise.

B. Qualification

It will be necessary to sub-contract water quality testing to a suitably dedicated company with appropriate laboratory facilities. The company needs to be able to demonstrate competence in assaying water and delivering comprehensive written reporting. It is the responsibility of the company to offer documented evidence of its qualifications.

C. Tasks

The objective of the testing is to carry out an evaluation to identify, analyse and mitigate any potential adverse health risks and environmental impacts associated with the water system, and in particular to establish baseline information against which the site management during implementation of sub-projects can be monitored. While agricultural activity constitutes the major water use, it needs to be recognised that availability of clean and safe water is critical for livestock as well as some domestic use.

Sampling of water will take place for all subprojects where construction and implementation coincide with surface and ground water bodies. Water sample testing needs to be completed at the commencement of site works, and tested again at mid-way point of any construction activity, and then at the completion of works.

Provide clear documentation of the protocols followed for water sample collection including position from which test was taken, time of day and date, methodology and protocols for collection. Complete comprehensive assessment of surface water samples, specifically for the following: pH, SS, EC, NH_4+ , NO3-, PO4 3, DO, BOD5, COD, Oil & Grease, Coliforms (*E. Coli*).

REPRESENTATIVE SUBPROJECTS DUE DILIGENCE SITE VISITS AND CONSULTATION

1. Emphasis of the due diligence work was on an assessment of the key environmental issues associated with proposed activities, including improvement to the vegetable and rice value chains, the bio-organic fertilizer (BOF) factories as well as access roads.

- 2. Due diligence work undertaken fell into a number of categories:
 - (i) Actual sites and locations of potential representative subproject activities.
 - (ii) Government agencies with particular interests in specific project activities (e.g. extension, organics, BOF, and vegetable / export promotion). These meetings included discussion on potential collaboration at activity level;
 - (iii) Companies, and farming / public community involved in value-add production for rice, vegetable, BOF and coffee, as well as niche crops including organic pepper and asparagus; and
 - (iv) At produce and markets issues such as hygiene, energy efficiency, quality of produce, methods of production, inputs (pesticide, herbicide, fertilizer) were assessed as being of either very low in standard about which some simple changes in (i) facility and (ii) market understanding were interpreted as offering significant dividends.

Dates	Where	Who met	Contact	Issues
23-27	Champasak Province			
October				
2016			-	
24 Oct	Thonget (or Houayset village), Paksong district.	Mr. Saysamone, Farmer Group head, Mr. Laa, Farmer Group Vice head, Mr. Chanh, Vice head,	020 97866997 (Production) 020 58527566 (Marketing) 020 9571932 (Production)	Vegetable producer group for export outline their production and operational challenges for export of fresh vegetables. Proposed land options for packing sheds were visited and farmers were consulted. It was determined that this proposed subproject would have minimal impacts and would be classified as C for environment, impacts could be readily managed through
	4 kms west of Thonget. FAO funded Vegetable packing shed	The site was locked up and no project people around. We had previously visited and taken photos.		appropriate site management, guided by an environmental code of conduct (ECC). This shed, very similar to the one proposed for Thonget village, was established by FAO and used by a Peoples Republic of China (PRC) funded program. It was assessed as well built, and specified / detailed to withstand potential occurrence of uncharacteristic weather events. It was determined that this proposed subproject would have minimal impacts and would be classified as C for environment, impacts could be readily managed through appropriate site management, guided by an ECC.

Dates	Where	Who met	Contact	Issues
25 October 2016	Khammouane Province			
	Vanida rice mill, Laophokham village, Thakhek district.	Mr. Phetsamone Bouaphanthavong (President of Khammouane development rice miller group)	020 55650890, vanida_rice@yahoo.com	Mr Bouaphanthavong outlined the support needs of the mill and the way that this will assist rice production options for farmer groups. It was noted that proposed additions to the existing mill building are minor and with appropriate ECC approach, the project could have a Category C rating.
25 Sept	Colleague Phengkhouane Manivong visits candidate BOF in Champasak.	Mr Settapak and Mrs Sandrine Hardy.	0910.388.77	Colleague Phengkhouane Manivong clarified that this BOF is not making a consistent quality product and so was not given further consideration.
1 Oct	Interim Workshop Mecure Hotel, Vientiane.	Chaired by Vice Minister Parasak. (Agriculture)		Tabling of draft representative project activity to all government officials and ministries involved with considerable positive feedback.
20 Oct	BOF Factory – Dongxiengdee, Vientiane.	Mr. Lingkham Syharath, Director, Mr. Syvong Phomsy, Vice Director,	020 2220 4644 020 2200 2623	Life-cycle analysis report completed by ADB (TA7833) gave some independent indication as to potential. Good quality and consistent product. It was noted that what is proposed for the BOF site involved no civil works, only a proposed reorganisation of new equipment, possible rethinking the layout and operations logic of the site, and therefore minimal environmental impacts are anticipated. This subproject was classified as environment Category C (Photos below attached).
	Champasak Province	·	•	· · ·
	IDP Rice Mills			Well-resourced large European Union funded Rice mill which does not support small growers so was not given further consideration.
10 July	Vegetable Hub, Thai Border.	We travelled to meet the woman who owns the business but she was not available.		This existing vegetable hub had been developed privately for the business. It was rudimentary in its function, had no appreciable facilities given to occupational health and safety issues such as hygiene nor movement of trucks, buyers or workers safety. The assessment was that it would require huge funds to support detailed plans which could address the spectrum of issues and therefore it was excluded from further consideration.
C hales	Organic Asparagus - Bolivan	Ma Canadrina Ulandu	terreste e 070 @ errest!	
5 July	BOF factory – Champasak.	Mr Settapak Thongnaphat Mr Khamhing	tranglao276@gmail.com	source of very good peat as the main constituent for bio- fertilizer. However, it was determined that the end-

Dates	Where	Who met	Contact	Issues
				product was of variable quality so was excluded from
				further consideration.
	PRC development Project			The People's Republic of China have a project site which
				works as an ongoing "demonstration" 'market-garden' farm
				and supplies domestic markets. It is long established (12
				plus years) and has been run by one a very capable
				manager for the entire time. A previous ADB small-holder
				project had some synergy with this project but it was
				difficult to see how it could add value to the CFAVCS so
				was so was not given further consideration. (Photos of the
				meeting below).
	Vientiane Province	1		
12 July		Consultant, GIS,	<u>Chom.nak@spatialdimen</u>	Consulted on available data in Lao PDR.
		Land Administration	sion.com	
			Ph: +856 20 525 34762	
12 July		Mr Viengxay, Dept of Agri-	ptkoun@yahoo.com	Discussed opportunity of using extension to strengthen
		Cooperative and Extension		business understanding with farmers. Expressed concern
				that extension always needs more and more inputs in
				order to strengtnen delivery. Contirmed that they had
				previously developed and implemented a process with
12 1.1.1.		Dr. Ouders Dhenekhers		farmers to deliver the same.
13 July		Dr. Oudom Phoneknam	0000mp(@yanoo.com	He has worked directly or supported the involvement of his
		Dean of Agriculture	P11. 020 224 10999	colleagues in a range of survey and project
				implementation activities and is well respected for his
14 lubz	Vientiano	Mr Sinouk, Managing Director	sinouk@loondr.com	Contributions.
14 July	vientiarie	Sinouk Coffee	Dh: +856 21 312 150	outlets and export. He gave a strong picture of small
		Sinduk Conee.	http://www.sipouk	bolder peeds on Bolivan Plateau. As the scale and peeds
		Ex - President Lao coffee	cafe.com/	of his operation did not lend itself to the farming
		Association		communities we had met on the Bolivan and MAE
		Association		subsequently indicated that they wanted no involvement of
				CEAVCS in coffee so was so was not given further
				consideration
14 Julv		Mr Phouvong Korasack	Mittaphab Development	Large company with strong government ties looking to
		Mr Korasack (son)	Agriculture: 555 11 342	establish new "morning market in Vientiane. Promoting
				parachute rice planting technique. This project was
				obviously one that had some considerable support from
				government officials. It is a private venture and as it had
				already violated a large wetlands area by filling and

Dates	Where	Who met	Contact	Issues
				draining, it was considered inappropriate for further
				consideration.
15 July		James Peter Grindey.	James.aisp.lic@gmail.co	We met with James to discuss opportunities for project
		Team Leader, East West	<u>m</u>	synergies, particularly in access roads for small holder rice
		Investment Corridor Project (ADB	020 2220 8483	producers. The meeting determined that there could be
				some cross-fertilization of activities but this would be in
				addition and independent of the EWIC. Additions of small
				access roads was seen to be a possible activity.
15 th July		Mr Thavisith Boundyasouk	Thavisith Boundyasouk	Discussed the potential for BOF given direct GoL policy
-		Director of Organic Standards,	@yahoo.com	support. It was a positive discussion - one of the issues is
		Department of Agriculture		getting consistency in BOF product – many farmers have
				found that the nutrient levels vary considerably. The
				project could assist with improving this.

Note: Consultation at provincial level was seen as a team activity and thus the Environmental and Climate Change Specialist did not attend all meetings but was supported by others. The first major five-day trip to all target provinces was exploratory and no rice mills, vegetable groups nor BOF factories visited were considered appropriate candidates.



PLANER PROVIDENCE

Meeting with Vanida Rice Mill.



Staff at Vanida Rice Mill

PRC Chinese Development Project 6%/7



Lettuce - Bolivan Plateau



Organic pepper - Bolivan Plateau. 6#/7

Medium Rice Mill 7#/7

East West Corridor Project - Dam and Access Road



Village based rice mill.

Day market with wild 'forest' produce beside Hwy 1.

BOF Factory - Dongxiengdee - Vientiane.





Heavy Sacks (25kg), high levels of dust. Dongxiengdee - Vientiane layout can be greatly enhanced for health, safety and efficiency. However, it is high grade product.



Old laboratory equipment at BOF factory

Major market for BOF in city is for domestic fertilizer.