

KINGDOM OF CAMBODIA

CAMBODIA AGRICULTURAL SECTOR DIVERSIFICATION PROJECT (CASDP) ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

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List of Abbreviations

ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
MOWRAM	Ministry of Water Resources and Meteorology
MRD	Ministry of Rural Development
MAFF	Ministry of Agricultural Forestry and Fishery
GDP	Good Domestic Product
GNI	Gross National Income
GAP	Good Agricultural Practices
ODA	Official Development Assistance
RGC	Royal Government of Cambodia
GRM	Grievance Redress Mechanism
ECOPs	Environmental Code of Practices
EMP	Environmental Management Plan
MoE	Ministry of Environment
EIA	Environmental Impact Assessment
EPC	Environmental
IEIA	Initial Environmental Impact Assessment
EMF	Environmental Management Framework
IPM	Integrated Pest Management
ICM	Integrated Crop Management
EA	Environment Assessment
PIM	Project Implementation Manual
PAD	Project Appraisal Documentation
TA	Technical Assistance
PMP	Pesticide Management Plan
EMDP	Ethnic Minority Development Plan
RPF	Resettlement Policy Framework
RP	Resettlement Plan
NGO	Non-Government Organization
PCO	Project Coordination Office
GDR	General Department of Resettlement
IRC	Inter-Ministry Resettlement Committee
ESMP	Environment and Social Management Plan
WB	World Bank
SARD	Sustainable Agriculture and Rural Development
REA	Regional Environmental Assessment

FSs	Feasibility Studies
EHS	Environmental Health and Safety
NSDP	National Strategy Development Plan
BPI	Business Plan
BPr	Business Proposal
POs	Project Operation
SMA	Small and Medium Agri-Business
GHG	Greenhouse Gases
OP	Operation Policies
DP	Development Plan
PMU	Project Management Unit
E&S	Environmental and Social
IEE	Initial Environmental Examination
PAPs	Project Affective Persons
PASO	Provincial Agriculture and Forestry Offices
ESU	Environmental and Social Unit
CSC	Consultation Supervision Consultant
EMC	Environmental Management Consultant
TWGAW	Technical Working Group on Agriculture and Water
MoIH	Ministry of Industry and Handicraft
MOC	Ministry of Commerce
MOWA	Ministry of Women Affairs
MSF	Micro Finance Institution/Bank
RDB	Rural Development Bank
EU	Environmental Unit
SEO	Safety and Environment Officer
POM	Project Operation Manual
TNA	Training Need Assessment
TOR	Term of Reference
PAH	Project Affected Household
PAP	Project Affected People
IPDP	Indigenous People Development Plan
PRSC	Provincial Resettlement Sub-Committee Working Group
EMA	External Monitoring Agency
LACP	Lao Agriculture Commercialization Project
NTPP	Non-Timber Forest Products
DUC	Dam Under Construction
MSDS	Material Safety Data Sheets
PCR	Physical Cultural Resource

MTR	Midterm Term Review
ICR	Implementation Completion and Result Report
CASDP	Cambodia Agricultural Sector Diversification Project
AVCF	Agriculture Value Chain Facility
FAO	Food and Agriculture Organization
WTO	World Trade Organization
GDA	General Department of Agriculture
FT-PRR	Famer Training on Pesticide Risk Reduction
FFS	Famer Field School
IPM	Irrigated Pest Management

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Executive Summary

1. The Environmental and Social Management Framework (ESMF) was prepared by the project preparation team of the Ministry of Agriculture, Forestry and Fisheries (MAFF) with inputs from Ministry of Rural Development (MRD), Ministry of Water Resources and Meteorology (MOWRAM). The authors would like to express their gratitude to the World Bank tasks team for their support and guidance.
2. This ESMF was prepared as part of the Cambodia Agricultural Sector Diversification Project (CASDP) to be financed by the World Bank Group (WBG) through an International Development Association (IDA) loan and the Royal Government of Cambodia. It has been designed to ensure that Bank-financed projects do not result in adverse impacts to Environment and Social Safeguard during and after implementation. Project locations include both rural and urban provinces. An initial proposal for Project locations includes Battambang, Mondulhiri, Stoeun Treng, Ratanakiri, Preah Vihear, Siem Reap, Tboung Khmum, Kratie, Kampong Cham, Kandal, Kampong Speu, Kampong Chhnang, and Phnom Penh
3. This guidance aims at (1) Describe project background, (2) Rationale for the environmental and social management framework, purpose and scope of the framework, (3) Approach and methodology for developing the ESMF, and (4) Structure of the Environmental and Social Management Framework (ESMF). The goal of the guidance is to implement initial environmental impact assessment (IEIA), full environmental impact assessment (EIA), and to provide general guidelines and checklists. The Ministry of Environment is responsible for reviewing the EIA reports, the required follow-up, and monitoring. ESMF also aims at reducing the impacts of traditional agricultural farming practices (by promoting the application of Integrated Pest Management (IPM) and Good Agricultural Practice (GAP) and trialing more environmentally-friendly farming models.
4. Beside these major positive impacts, the project may also cause moderate negative impacts. The potential negative impacts have been assessed by means of site visits, discussions with local authorities and beneficiaries, and the use of secondary sources for information. The potential environmental issues and concerns identified were: (i) environmental effects of agricultural activities, (ii) infrastructure works, and (iii) solid waste management from agri-business processing.
5. The project/sub project screening report would identify the World Bank's environmental and social safeguard policies applicable to the project, also identifies when and how the Bank's Safeguard Policies are triggered or not triggered. This project triggers five environmental safeguard policies. Environmental Assessment (OP/BP 4.01), Pest Management (OP/BP 4.09), Physical Cultural Resources (OP/BP 4.11), Safety of Dams (OP/BP 4.37), and one legal policy, Projects on International Waterways (OP/BP 7.50) in which these safeguard policies are triggered due to the anticipated small-scale and potentially irreversible impacts from (i) technical assistance and civil works such as irrigation investments, farm to market roads, farm mechanization, infrastructure services and (ii) potential application of pesticides or chemicals for increase production.
6. Social risk for the project is currently classified as moderate. Various levels and magnitude of potential social impacts are expected from the implementation of sub-projects depending on their scale and location, which are yet to be detailed. Based on the initial consultations with the potential beneficiaries regarding possible investments, the Project will likely trigger the following two World Bank

social safeguard policies: Indigenous Peoples (OP/BP 4.10) and Involuntary Resettlement (OP/BP 4.12) and the following seven environmental safeguard policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Pest Management (OP 4.09), Physical Cultural Resources (OP/BP 4.11), Safety of Dams (OP/BP 4.37), and Projects on International Waterways (OP/BP 7.50).

7. The procedures for screening, review, clearance and implementation of sub-projects safeguard instruments are to ensure that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval, and implementation of subprojects. ESMF procedures are clearly linked to the project-defined subproject cycle that can be readily included in the *Project Operational Manual or Project Implementation Manual*.

8. There are 4 key steps in subproject preparation during project implementation: Step 1: Safeguard screening and impacts assessment; Step 2: Development of safeguard documents as required including development of mitigation measures and public consultation; Step 3: Safeguard clearance and information disclosure; and Step 4: Implementation, monitoring, and reporting. The safeguard screening includes two steps, eligibility screening and technical screening for assessment of potential impacts, policies triggered and instruments to be prepared.

9. To manage social and environmental risks, MAFF--in collaboration with MOWRAM and MRD has prepared a resettlement policy framework, an Indigenous Peoples Planning Framework based on a preliminary social assessment, as well as an Environmental and Social Management Framework. Furthermore, environmental and social safeguards focal persons have been appointed by MAFF, MOWRAM and MRD for the project preparation and implementation. The implementation of the environmental and social safeguards will follow the Project Implementation arrangement by following 'Government System', mainly guided/lead by Ministry of Agriculture, Forestry and Fisheries (MAFF), including units or agencies. Guidance on social and environmental safeguards will be provided by a high-level Project Steering Committee, chaired by MAFF. MAFF is the main implementing agency, collaborating with MoWRAM and MRD and their line departments as "co-implementers" of selective infrastructure. At central level, MAFF will be responsible for overall implementation and effectiveness, coordination with concerned ministries, including the environmental and social safeguards management.

10. The POM has sections on environmental issues/procedures, resettlement and compensation and ethnic minorities plans. These sections will provide links to: (i) subproject screening; (ii) appropriate mitigation actions and/or ECOP; (iii) practical pre-tested safeguard forms used at field subproject level; (iv) development of supplemental tools/guidance; (v) details on how monitoring and evaluation for safeguards will be undertaken; and(vi) definition and role of third party auditing.

11. Furthermore, this project established grievance redress committee(s) at the local (provincial, district, and commune) levels to be headed respectively by the Provincial Governor or Provincial Vice-Governor, Chief of District, and Chief of Commune. At the commune level, the membership of the GRM a representative from project affected households (PAH) who shall be chosen from among the project affected people (PAP). In the case of indigenous communities, village level committees will be established and subject to a process of free, prior and informed consultation and will build on the unique decision-

making structures of individual indigenous communities, as well as requirements for gender and intergenerational balance.

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1.0 Introduction to ESMF

1. This document is the Environmental and Social Management Framework (ESMF) for the proposed Cambodia Agricultural Sector Diversification Project (CASDP) prepared in conjunction with the Ministry of Agriculture Forestry and Fishery (MAFF), Ministry of Water Resources and Meteorology (MOWRAM), and Ministry of Rural Development (MRD) for possible financing by the World Bank (WB or Bank).

2. The guidance aims to describe project background (a short paragraph about the project, describing overall development objective of the project, its typology, and scope); ii) Rationale for the environmental and social management framework, purpose and scope of the framework; iii) Approach and methodology for developing the ESMF; and iv) Structure of the Environmental and Social Management Framework (ESMF). The term “Environmental Management Framework” (EMF) may also be used.

1.1 Purpose of ESMF

3. The purpose of the Environmental and Social Management Framework (ESMF) is to ensure that CASDP’s activities are screened for any negative social and environmental impacts and mitigating measures are taken into account in activity design and implementation. In other words, the ESMF is designed to ensure the CASDP’s investments do not create or result in significant adverse impacts on local livelihoods and the environment, and that potential impacts are identified, avoided or at least minimized. In particular, the ESMF attempts to lay out screening processes and environmental and social guidelines aiming at:

- (a) Preventing and/or mitigating any environmental and social impact that may be resulting from the proposed activities,
- (b) Ensuring the long term environmental sustainability of benefits from proposed activities by securing the natural resource base on which they depend, and
- (c) Facilitating, in a pro-active manner, activities that can be expected to lead to increased efficiency in the use and improved management of natural resources resulting in the stabilization and/or improvements in local environmental quality and human well-being as well.

2.0 The CASDP Project

2.1 Project Development Objectives

4. The proposed Project Development Objectives are to facilitate the development of a diversified and competitiveness agriculture sector in selected geographical areas in Cambodia, and to provide immediate and effective response in case of an eligible crisis or emergency. The achievement of the project development objective would be measured through the following indicators: (a) Increase in the value of gross sales at benefiting farm level; (b) increase in the value of gross sales of benefiting agribusiness.

2.2 Proposed Project Design and Components

5. **Project Description.** The CASDP comprises the following four components: (i) Enabling Agriculture Diversification; (ii) Improving Agriculture Information Systems and Quality Control Management; (iii) Project Management and Monitoring & Evaluation; (iv) Contingent Emergency Response.

6. The proposed project is designed to enhance market opportunities and the diversification of agriculture through an inclusive, beneficiary-led approach. The project will have three components, plus a fourth zero-allocation component for the case of an eligible crisis or emergency. The first component represents the large part of the investments, and will be modular and scalable and adaptable to geographical areas and commodity/value chains. The second component focuses on institutional strengthening and is supposed to enhance the impact of the investments made under the first component in the medium and long term, ensuring sustainability and expansion of benefits across Cambodia.

7. The compilation of value chain support, including TA, infrastructure and financial services under component 1 emphasizes the project's close ties between direct support to farmers, producer groups, and SMAs and the investments in roads and irrigation infrastructure. All infrastructure investments will be implemented as parts of support to eligible subprojects linked to specific productive alliances.

8. **Component 1: Enabling Agriculture Diversification.** Component 1 will use a holistic value chain approach that is market and demand driven to build diversified competitive value chains, in which POs and its members can access lucrative domestic and international markets, and small and medium agribusinesses (SMAs) can have access to better quality raw material on a consistent basis, while increasing their absorption capacity and achieving the quality standards that the markets require. This component is private sector driven, with the Government having mainly a facilitating role. It would also support government/public actors providing needed services such as market-linked agricultural extension, where private sector services are not available or accessible.

9. **Subcomponent 1.1: Preparation and Implementation Support for Diversification Plans.** This subcomponent aims at making the project known to all stakeholders, support the formation of teams, the identification of business opportunities and their translation into comprehensive Diversification Plans, including viable Business Proposals (BPr) and Business Plans (BPI) and their evaluation and selection, and finally strengthen the capacity of selected POs and their members, as well as SMAs. The subcomponent would finance: (a) awareness raising campaigns and teaming up of stakeholders; (b) support for the preparation and evaluation of viable Diversification Plans and profitable BPr; and (c) support for the preparation and evaluation of full Diversification Plans, including BPI for selected BPr; and (d) BPI implementation support.

10. **Subcomponent 1.2: Financing Agriculture Diversification.** To facilitate the financing of the productive investments and TA identified in the approved BPI, the project will set up a matching grant facility and a credit line, with the objective to financing on-farm investments, such as farming equipment, fixed infrastructure and other related inputs farm level irrigation infrastructure, as well as productive investments at PO and SMA level. The credit line will not be restricted to SMAs with selected BPIs, and will further promote SMAs operating in Cambodia's agri-food sector and enhance their competitiveness, increase production and quality, and improve technologies.

11. **Subcomponent 1.3: Public Infrastructure.** The project will support public infrastructure, off-farm irrigation infrastructure and rural roads, to improve the PO's ability to diversify crop production through

improved and on-demand water availability and to transport produce to the markets in an efficient manner that speeds up delivery and minimizes losses.

(a) Irrigated Agriculture. Many of the POs are expected to develop agricultural areas in existing irrigation schemes. The project will finance selective rehabilitation or upgrading of irrigation water conveyance and distribution systems identified in the Diversification Plan prepared under subcomponent 1.1. The project will not invest in large-scale irrigation infrastructure and investment support will be provided only in combination and coordination with other value chain diversification measures. Thus, investments under the project will be limited to selective canal lining, construction of control structures, installation of new gates, etc., to ensure that the water can reach the irrigation blocks of the POs on a demand rather than supply-driven basis. It will also include the TA and training to water user communities and municipalities to strengthen their capacity to operate and maintain the financed irrigation infrastructure, and will finance consulting services as needed to design and supervise the infrastructure investments. Finally, the project will support MoWRAM and MAFF with the introduction of modern technologies such as remote sensing, drones, etc., to improve irrigation water management and its monitoring.

(b) Agriculture Roads. The project will support enhancing connectivity through improving farm to market roads (rural roads). Existing rural roads will be improved, either paved or unpaved, to increase the impact on productivity and market access of investments delivered as part of subcomponent 1.2, and to contribute to the overall competitiveness of the agriculture sector. It is estimated that 330 km of road will be improved under the project that will link the production areas with all-weather roads. The subcomponent will also finance consulting services for design and construction supervision.

12. **Component 2: Improving Agriculture Information Systems and Quality Control Management.** The objective of Component 2 is to strengthen foundational knowledge, data analysis capacities, and regulatory delivery systems within the public sector and their implementation and enforcement. These will contribute to broad and transparent knowledge and improved decision-making of public sector and private actors, with impacts reaching beyond the supported PA subprojects. Agriculture information and quality management systems will benefit direct stakeholders as well as farmers, PO, and SMAs, that operate in other than project communes and provinces. The component will also fund analytical and policy advisory work to guide government investments in support of agriculture sector development.

13. **Subcomponent 2.1: Agriculture Information System.** Funding will be provided for investments in the further development and improved use of soil/agro-ecological maps, agricultural early warning systems, food production and agricultural statistics/census data (agricultural market intelligence and marketing information systems) and potentially others. New technologies in ICT will be promoted to ensure broadest dissemination and best use of available data and information for public and private sector stakeholders' planning and decisions regarding production, processing, marketing of agriculture products and services and support will be given for market intelligence to identify medium and long-term opportunities for suitable products. The project will also fund technical strengthening and dissemination of information from and through MoWRAM's Water Accounting Framework.

14. The subcomponent will also fund analytical and policy planning works through the Supreme National Economic Council (SNEC) and in collaboration with MAFF. Support will include the funding of

studies, policy planning and consultation workshops. Specific research and studies will include a study on the identification of Cambodia's medium and long-term competitive and comparative advantage for agriculture value chains/products and production systems; and the preparation of a feasibility study for the establishment of a wholesale market for quality controlled products in Phnom Penh.

15. **Subcomponent 2.2 Quality Management.** Investments to strengthen the effectiveness of plant protection and phytosanitary, animal health and food safety surveillance, reporting and inspectorate systems, and systems to enforce agricultural input regulations will be supported. This will include support for the development of certification, licensing and other quality control and management services, and the development and application of regulations on good agricultural practices (GAP) and organic products, good animal husbandry practices (GAHP), use of geographic indicators, etc.

16. **Component 3: Project Management and Monitoring & Evaluation.** MAFF will be the main executing agency for implementation and the overall coordination arrangements. MAFF will closely cooperate with the technical units of the Ministry of Rural Development (MRD) and the Ministry of Water Resources and Meteorology (MoWRAM) as implementing partners that will take responsibility for the construction of rural infrastructure. Support will be provided for the establishment of a MAFF-led project coordination and implementation support team, attached to the (Secretariat of the) Technical Working Group on Agriculture and Water (TWGAW). The establishment of a high-level Steering Committee is envisaged to advise on and deal with emerging cross-sectoral issues.

17. The component will provide support for the operation of Coordination and Project Team Offices in MAFF, MRD, MoWRAM, and MEF with respect to the management and coordination of their respective parts of the project, including: (i) payment of incremental operating costs; (ii) provision of office equipment and materials; (iii) provision of training and carrying out of knowledge sharing and peer-to-peer learning activities; (iv) provision of consulting services for safeguards monitoring, monitoring and evaluation of the Project, etc.; (v) development and implementation of a communication strategy; and (vi) managing a grievance redress mechanism.

18. **Component 4: Contingent Emergency Response Component.** The objective of the contingent emergency response component, with a provisional zero allocation, is to allow for the reallocation of financing in accordance with the IDA Immediate Response Mechanism in order to provide an immediate response to an eligible crisis or emergency, as needed. An Emergency Response Manual (ERM) will be developed for activities under this component, detailing streamlined FM, procurement, safeguard, and any other necessary implementation arrangements. In the event that the component is triggered, the results framework would be revised through formal restructuring to include appropriate indicators related to the emergency response activities.

2.3 Project Beneficiaries and Locations

19. **Beneficiary targeting.** The project's direct beneficiaries are small and medium farmers, organized in producer organizations or cooperatives, and showing potential and interest to develop their farming business; and small and medium agribusinesses (SMA) that are interested in a direct cooperation with farmers to jointly develop their business/value chain. Additional indirect beneficiaries are all users of improved infrastructure improvements in market linkages, roads, and irrigation water. Improvements in data and information availability and access; and in quality assurance mechanisms (regulatory framework, infrastructure) will have sector-wide benefits.

20. **Geographical Targeting.** The project will operate in 12 provinces, plus in Phnom Penh. The provinces have been chosen for their suitable agroecological conditions for high-value products, with Phnom Penh as the location of many potentially participating SMAs. The locations include: Battambang, Mondulhiri, Stoeug Treng, Ratanakiri, Preah Vihear, Kampong Cham, Tbong Khmum, Kratie, Siem Reap, Kandal, Kampong Speu, Kampong Chhnang and Phnom Penh. Within the provinces, eligible project sites are expected to be located in areas with (i) existing, organized and active producer groups; (ii) with reliable multi-season water availability, and (iii) with existing tracks with a length of maximum 10km to an all-weather road.

3.0 Policy, Legal, and Administrative Framework

21. This section describes relevant national environmental and social management requirements, the Bank safeguards policies applicable to the Project and its subprojects, and the gap analysis between the government and the Bank policy requirements and measures for filling the gap.

3.1 Applicable National Laws and Regulations

22. This section describes the applicable national laws, decrees, circulars, decisions, and national technical regulations and standards. It is equally important that sector specific regulations (e.g., energy, rural, health sectors) on environment and social related to the project are described in this section.

23. Overall management of the environment is under the responsible of the Ministry of Environment (MoE), which was created in 1993. The MoE is responsible for implementation of the Law on Environmental Protection and Natural Resources Management. At the provincial and city levels, there are corresponding provincial/city environment departments. These local departments have the responsibility of enforcing the environmental legislation coming under the competence of the MoE. However, the daily operation functions of these departments would normally be under the direct control of the provincial authorities.

24. The framework law calls for an initial environmental impact assessment (IEIA) or full environmental impact assessment (EIA), depending on type and activity and the site of the project (Sub-Decree on IEIA/EIA process (article 1 and 2 of Sub-Decree of IEIA/EIA process), to be conducted for every private or public project, to be reviewed by the MoE before submission to the Government for a final decision. All proposed and existing activities are to be covered under this requirement. Recently, the Declaration on General Guidance, N 376 BRK.BST, for conducting initial and full environmental impact assessment has been signed and enacted on September 02, 2008 by the Minister of Environment. The goal of the guidance is to implement initial environmental impact assessment (IEIA), full environmental impact assessment (EIA), and to provide general guidelines and checklists. IEIA or EIA is required for every project, depending on type and activity and the site of the project (Sub-Decree on IEIA/EIA process (article 1 and 2 of Sub-Decree of IEIA/EIA process). The Ministry of Environment is responsible for reviewing the EIA reports, the required follow-up, and monitoring.

Environmental Protection and Natural Resource Management Law.

25. The Environmental Protection and Natural Resources Management Law was enacted by the National Assembly and launched by the Preah Reach Kram/NS-RKM-1296/36. It was enacted on November 18, 1996. This law has the following objectives:

- (a) To protect and promote environment quality and public health through prevention, reduction and control of pollution,
- (b) To assess the environmental impacts of all proposed projects prior to the issuance of a decision by the Royal Government,
- (c) To ensure the rational and sustainable conservation, development, management and use of the natural resources of the Kingdom of Cambodia,
- (d) To encourage and provide possibilities for the public to participate in the protection of environment and the management of the natural resources, and
- (e) To suppress any acts that cause harm to the environment.

26. Under this law the developers or project owners need to prepare an IEIA or EIA report for their proposed or existing development projects.

Environmental Impact Assessment Process Sub-Decree

27. The sub-decree No 72 ANRK.BK on Environmental Impact Assessment Process dated 11 August 1999. The key relevant articles are as follows: The main objectives of this sub-decree are:

- (a) To determine an Environmental Impact Assessment (EIA) upon every private and public project or activity, it must be reviewed by the Ministry of Environment (MoE), prior to the submission for a decision from the Royal Government.
- (b) To 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.
- (c) 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.

Water Pollution Control Sub-Decree

28. The sub-decree No 27 ANRK.BK on Water Pollution Control is dated 6 April 1999. The purpose of this sub-decree is to regulate water pollution control in order to prevent and reduce the water pollution of public water areas so that the protection of human health and the conservation of bio-diversity will be ensured, Article 1.

29. This sub-decree applies to all sources of pollution and all activities that cause pollution of public water areas, Article 2. The sub-decree also gives the pollution types, effluent standards, and water quality standards in different areas. Concerning the project some water quality standard for the public water areas will be applied.

Solid Waste Management Sub-Decree

30. The sub-decree No 36 ANRK.BK on Solid Waste Management is dated 27 April 1999. The purpose of this sub-decree is to regulate solid waste management in a proper technical manner and safe way in order to ensure the protection of human health and the conservation of bio-diversity.

31. This sub-decree applies to all activities related to disposal, storage, collection, transport, recycling, dumping of garbage and hazardous waste.

Air Pollution Control Sub-Decree

32. The sub-decree NO 42 ANRK.BK on Air Pollution Control and Noise Disturbance dated July 10, 2000. This sub-decree has a purpose to protect the environment quality and public health from air pollutants and noise pollution through monitoring, curb and mitigation activities. This sub-decree applies to all movable sources and immovable sources of air and noise pollution.

National IPM Program, 1993

33. The Integrated Pest Management (IPM) in Cambodia was established in 1993 after conducting a national workshop on "Environment and IPM". The overall goal of National IPM program is to promote food security in Cambodia by enhancing the sustainability of intensified crop production system through the promotion of integrated crop management (ICM) skills at farm level. The objectives of this program are:

- (a) to reduce dependence on agricultural chemical, especially pesticides, in agricultural production and to minimize hazards to the human health, animals and environment,
- (b) to develop the capacity of farmers and agricultural technical officers in conducting training and experiments so that they are able to identify problems occurring in agricultural production and find appropriate solution to deal with the problem by themselves,
- (c) to educate farmers on agricultural technology by enhancing their knowledge on field ecology and by developing skills among farmers in monitoring and analyzing field situations that enable them to manage crops properly.

3.2 World Bank Safeguards Policies Triggered

34. ***This section should describe the applicable/relevant World Bank safeguard policies.*** The project/sub project screening report would identify the World Bank's environmental and social safeguard policies applicable to the project, also identifies when and how the Bank's Safeguard Policies are triggered or not triggered. The World Bank environmental assessment (EA) category assigned to the Project, and the key environmental and social issues identified under the safeguard policies are also discussed in this section. For each World Bank safeguards policy triggered by the project, a brief description is provided to explain why the policy is triggered, what the requirements of the policy are, and how the project will comply with these requirements. All safeguards policies triggered under the project need to be addressed.

35. ***The project triggers five environmental safeguard policies.*** Environmental Assessment (OP/BP 4.01), Pest Management (OP/BP 4.09), Physical Cultural Resources (OP/BP 4.11), Safety of Dams (OP/BP 4.37), and one legal policy, Projects on International Waterways (OP/BP 7.50). These safeguard policies are triggered due to the anticipated small-scale and potentially irreversible impacts from (i) technical assistance and civil works such as irrigation investments, farm to market roads, farm mechanization,

infrastructure services and (ii) potential application of pesticides or chemicals for increase production under Components 1 and 2.

36. **Environmental Assessment (OP/BP 4.01).** This policy is triggered. due to technical assistance and potential adverse impacts under Component 1. competitive value change, Component 3. cross-cutting institutional strengthening, and Component 2. Public infrastructure investments including diversifying agricultural systems, increasing productivity and developing processed and high value food product markets; providing supporting infrastructure, including tertiary road and irrigation structure rehabilitation and upgrade laboratories. Since locations are unknown, the project will prepare site-specific instrument (e.g. ESMP or ESIA) based on the project-ESMF once sub-projects are identified. Interim Guidelines on the Application of safeguard Policies to Technical Assistance (TA) Activities under the Bank-Financed Projects will be applied for in the terms of references for interventions in technical assistance, infrastructure and financial services designed under the project.

37. **Performance Standards for Private Sector Activities (OP/BP 4.03)** is not triggered; however, the matching grant facility and credit line financing on-farm investments, agribusiness and enterprises are required to manage environmental and social risks through the project ESMF and other relevant safeguard instruments. See also Annex 10 on due diligence of exiting agribusiness and enterprises for matching grant and credit line.

38. **Natural Habitats (OP/BP 4.04).** This policy is not triggered since civil works such as irrigation and road rehabilitation will be within agricultural areas or new areas that are anticipated to affect or encroach into any known natural habitats.

Forests (OP/BP 4.36). This policy is not triggered since civil works such as irrigation and road rehabilitation will be within agricultural areas or new areas that are anticipated to affect or encroach into any known natural habitats.

39. **Pest Management (OP/BP 4.09).** This policy is triggered because the project involves the usage or promotion of the purchase of pesticides, fertilizers, or chemical substances for the agricultural production. Although, MAFF policies have promoted organic farming and non-pesticide based agriculture, the borrower has included pesticide management plan (PMP) in the project-ESMF to address any potential risks from pesticide-related activities. See the Pest Management Plan (PMP) in Annex 8. The PMP is prepared based on Integrated Pest Management (IPM) principles, describing the national regulatory framework, status of pest and disease control, monitoring and supervision mechanism. The PMP is comprised of three parts: (i) application of government regulation on pesticide control; (ii) training of the integrated pesticides concept and/or other approaches for the safe use of pesticides; and (iii) monitoring. The PMP specifies a range of actions to strengthen integrated pest management practices and awareness and includes capacity building and monitoring program to facilitate implementation. It is anticipated that there will be no procurement of pesticides under the project and that pesticide use, overall, will decline as a result with the introduction of Good Agricultural Practices (GAP). That said, pesticides are being used by farmers in the project area, so this plan will be applied to the project activities involving any changes in agricultural practices and/or rehabilitation of or development of existing irrigation schemes that may prompt farmers to increase their use of pesticides if no training or monitoring is provided. The plan is comprised of three parts: (i) application of government regulation on pesticide control; (ii) training of the integrated pesticides concept and/or other approaches for the safe use of pesticides; and (iii) monitoring.

40. **Physical Cultural Resources (OP/BP 4.11).** This policy is triggered as the project funds rural infrastructure such as road and irrigation rehabilitation, which can impact on unknown, physical cultural resources as defined by OP/BP 4.11. A chance find procedure of physical cultural resources has been integrated in Annex 4 of the ESMF and will be included in the construction contracts as preventive measures.

41. **Safety of Dams (OP/BP 4.37).** This policy is triggered as the project finances irrigation rehabilitation are classified as "small dams" defined under OP 4.37. The rehabilitation of small irrigation schemes not more than 15 meters in height and will not expect to include medium to large scale dams. The project-ESMF includes generic dam safety measures to be adopted in the design and implementation of rehabilitation/ improvement of irrigation structures in accordance with OP/BP4.37. The borrower agreed to incorporate generic dam safety measures in the irrigation design with the Support and supervision of the dam safety measures to be provided by senior irrigation engineer (or qualified irrigation specialist) of the World Bank.

42. **Projects on International Waterways (OP/BP 7.50).** This policy is triggered since the project funds rehabilitation of the existing irrigation water delivery structures such as tertiary and quaternary canals, which will likely abstract water from tributaries of international waters or link or flow into international waterways (e.g. Tonle Sap River and Mekong River) that forms boundary between the water body or surface water that flows through two or more riparian countries. However, the abstraction of water from international rivers will not increase because the project exclusively funds existing irrigation schemes and introduces more efficient irrigation system. In this case, an exemption letter from the RVP has been approved.

43. **Project in Disputed Areas OP 7.60.** The project is not triggered. The project does not involve activities any disputed area.

44. The project should also consider the World Bank Group Environmental, Health, and Safety Guidelines¹ (known as the "EHS Guidelines"). The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice. The EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank Group and are generally considered to be achievable in new facilities at reasonable costs by existing technology. The environmental assessment process may recommend alternative (higher or lower) levels or measures, which, if acceptable to the World Bank, become project- or site-specific requirements.

45. When the Bank's safeguards policies on Involuntary Resettlement (OP/BP 4.12) and Indigenous People (OP/BP 4.10) triggered, it is very important that this section link to the RPF, EMPF, or Process Framework, if any are identified for the project. Although these frameworks and other related social safeguard instruments, short description of these frameworks is given in the box 2 below.

¹ The EHS Guidelines can be consulted at www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines.

Box 2. Social Safeguards Frameworks

Ethnic Minority Planning Framework (EMPF)*: The Indigenous Peoples policy (OP/BP 4.10) is designed to ensure that the development process fully respects the dignity, human rights, economies and cultures of Indigenous Peoples. When the Bank’s screening indicates that Ethnic Minority Peoples are likely to be present in, or have collective attachment to the project area, but their presence or collective attachment cannot be determined until the programs or subprojects are identified, the borrower prepares an EMPF, prior to appraisal. These measures need to be defined within an identifiable Ethnic Minority Development Plan (EMDP). The EMDP should be part of, or included with, the subproject application. In any case, an acceptable EMDP is required before a subproject can be finally approved and implemented.

Resettlement Policy Framework (RPF):** The Involuntary Resettlement policy (OP/BP 4.12) seeks to prevent severe long-term hardship, impoverishment, and environmental damage to the affected peoples during involuntary resettlement. When a project involves land acquisition and any changes in access to resources due to the project this policy applies. The Bank’s policy requires a RPF to be prepared and submitted by the borrower prior to appraisal, conforming to the policy. The purpose of the RPF is to clarify resettlement principles, organizational arrangements, and design criteria to be applied to subprojects. The Bank’s policy also requires a Resettlement Plan (RP) for any subproject that involuntarily displaces people from land or productive resources, and the displacement results in: i) relocation, the loss of shelter, the loss of assets or access to assets important to production; ii) the loss of income sources or means of livelihood; or iii) the loss of access to locations that provide higher incomes or lower expenditures to businesses or persons.

3.3 Gap Analysis

46. This section focuses on identification of gaps between the national safeguard system and relevant Bank safeguards. There are a number of differences the two systems which need some designed gap filling measures to be included in the ESMF. Section III - Relationship Between the World Bank and Government Requirements. A detailed gap analysis between RGC existing laws and regulation to the Bank safeguard policies is described in Annex 1. Table 1 provides an example of a gap analysis between RGC’s EIA sub-degree and the Bank O.P.4.01.

Table 1. Gap analysis between the RGC legal/regulatory framework and the World Bank OP4.01 on environmental assessment policy.			
Subjects	OP 4.01	RGC	Gap/Project Measures
1. EA Process			
1.1 An EA considers natural and social aspects in an integrated manner that considers national and international	Assess the adequacy of the applicable legal and institutional framework, including applicable international environmental agreements, and confirm	Law on Environmental Protection and Natural Resource Management: <ul style="list-style-type: none"> Article 6 – An environmental impact assessment shall be done on every project and activity, private or public, and shall be reviewed and evaluated by the Ministry of Environment 	OP 4.01 Policy Procedures will be applied to ensure the sub-projects do not contravene any obligations, treaties or agreements whether or not an EA is a

Table 1. Gap analysis between the RGC legal/regulatory framework and the World Bank OP4.01 on environmental assessment policy.

Subjects	OP 4.01	RGC	Gap/Project Measures
obligations, treaties and agreements	that they provide that the cooperating government does not finance project activities that would contravene such international obligations.	before being submitted to the Royal Government for decision. Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999): <ul style="list-style-type: none"> Article 1 – An environmental impact assessment (EIA) shall be done on every project and activity, private or public, and shall be reviewed by the Ministry of Environment before being submitted to the Royal Government for decision. Article 6 – The Project Sponsor shall conduct Initial Environmental Impact Assessment (IEIA) for the project required EIA as listed in an Annex of this Sub-Decree. 	requirement under national regulations.
1.2. Assessment of project alternatives.	Provide for assessment of feasible investment, technical, and siting alternatives, including the "no action" alternative, potential impacts, feasibility of mitigating these impacts, their capital and recurrent costs, their suitability under local conditions, and their institutional, training and monitoring requirements associated with them.	Not included.	OP 4.01 Policy Procedures will be implemented to ensure that the assessment of the Project potential impacts review possible alternatives including the option of "no action".
1.3 Retention of project advisors.	The borrower should normally engage an advisory panel of independent, internationally recognized environmental specialists to advise on all aspects of the project relevant to the EA.	Not included.	OP 4.01 Policy Procedures will be implemented to provide guidance should the borrower be advised that independent, internationally recognized environmental specialists be engaged to provide advice on the Project review.
2. Public Consultation and Disclosure			
2.1. The EA process must include public consultation and disclosure.	The Bank may, if appropriate, require public consultation and disclosure.	Law on Environmental Protection and Natural Resource Management: <ul style="list-style-type: none"> Article 1 – The purposes of this law are: 	OP 4.01 Policy Procedures will be implemented to provide guidance on public consultation and disclosure such that

Table 1. Gap analysis between the RGC legal/regulatory framework and the World Bank OP4.01 on environmental assessment policy.

Subjects	OP 4.01	RGC	Gap/Project Measures
	<p>The borrower consults project affected groups and local nongovernmental organizations (NGOs).</p>	<ul style="list-style-type: none"> o to encourage and enable the public to participate in environmental protection and natural resource management. ▪ Article 16 – The Ministry of Environment, following a request from the public, shall provide information on its activities, and shall engage public participation in environmental protection and natural resource management. <p>Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999):</p> <ul style="list-style-type: none"> ▪ Article 1 – Foster public participation in the environmental impact assessment process in recognition that their concerns should be considered in the project decision-making process. 	<p>project affected groups and local NGOs are informed.</p>
3. Monitoring & Evaluation			
<p>3.1 Internal and external independent monitoring are required</p>	<p>During project implementation, the borrower reports on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP.</p>	<p>Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999):</p> <ul style="list-style-type: none"> ▪ Article 3 – The Ministry of Environment shall: b/ take appropriate administrative, conduct surveillance and monitor to ensure that the Environmental Management Plan during project construction, operation, and closure, which contained in an approved EIA report be implemented by the Project Sponsor. 	<p>OP 4.01 Policy Procedures will be implemented. The Project Coordination Office (PCO) in close coordination with GDR-IRC will conduct internal monitoring on resettlement implementation and reporting requirements for the ESMMP implementation. The monitoring will include progress reports, status of the RP implementation, information on location and numbers of people affected, compensation amounts paid by item, and assistance provided to PAHs. The report of monitoring results will be prepared by MRD and submitted to IRC and WB on a quarterly basis.</p>

3.4 Good Agricultural Practices (GAP)

47. GAP in Cambodia is currently focused on food safety, sustainability for the environment, and economic sustainability. A multiplicity of Good Agricultural Practices (GAP) codes, standards and regulations have been developed in recent years by government, the food industry and producers' organizations, who have all aimed to codify agricultural practices at farm level for a range of commodities. Their purpose varies from fulfilment of trade and government regulatory requirements (with particular regard to food safety and quality), to more specific requirements of specialty or niche markets. The objective of these GAP codes, standards, and regulations include (to a varying degree):

- ensuring safety and quality of produce in the food chain
- capturing new market advantages by modifying supply chain governance
- improving natural resources use, workers' health and working conditions, and/or
- creating new market opportunities for farmers and exporters in developing countries.

48. Good Agricultural Practices are "practices that address environmental, economic and social sustainability for on-farm processes, and result in safe and quality food and non-food agricultural products" (FAO COAG 2003 GAP paper). These four 'pillars' of GAP (economic viability, environmental sustainability, social acceptability and food safety and quality) are included in most private and public sector standards, but the scope which they actually cover varies widely. The concept of Good Agricultural Practices may serve as a reference tool for deciding, at each step in the production process, on practices and/or outcomes that are environmentally sustainable and socially acceptable. The implementation of GAP should therefore contribute to Sustainable Agriculture and Rural Development (SARD).

49. At present, agricultural farming in Cambodia is still largely subsistent or low input - low output. According to the government's NSDP, the future push of the agriculture sector is to increase agricultural growth to around 5% per annum through enhancement of the agricultural productivity, diversification and commercialization based on land-use planning, focusing on rice export promotion, and aiming to increase yields of key prioritized commodities for domestic consumption and export. This is the current trend and it will be accelerated in the coming years. However, agriculture commercialization in a country where 41.5% (2015) of the labor force is employed by the agriculture sector with majority landholdings below 1 hectares is not straightforward. This requires nuanced efforts to ensure the expected efficiency, equitability, and sustainability. Lessons learned from neighboring countries in the region indicated that increased use of inputs in farming do not necessarily result in increase in profits and incomes for farmers. Lessons from rice farming Vietnam showed that farmers used certified seeds and adopted sustainable farming practices (i.e. reduced fertilizers, pesticides, postharvest losses, and water use) could obtain higher profits about 20-30% thanks to higher quality of paddy, increased yield by 5-10 percent, and reduced production costs by 20-30 percent. Therefore, investments and efforts to improve quality and value of agricultural products and reduce postharvest losses and production costs for farmers should be the right direction to enhance competitiveness of farmers and sustainability of the agriculture sector in the long run.

4.0 Potential Impacts and Mitigation Measures

50. For the projects that do not have all subprojects identified during project preparation, there are some ways that potential positive and adverse impacts and mitigation measures can still be determined for the preparation of ESMF.

51. In addition, the EHS Guidelines of the World Bank Group, which contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs, can also be used as technical reference for identifying project impacts and mitigation measures. Furthermore, Cambodia Environmental Impact Assessment Website² provides regulation and general guidelines on EIAs that can be used for predicting impacts and mitigation measures of various project investments. Impacts that occur during different project phases must be identified. A good practice is to create a table of impacts before construction, during construction, operation, and decommissioning. Impact should include biophysical, health, gender, resettlement, ethnic minorities, cultural resources, potential for cumulative impacts.

52. The section on project potential impacts can be divided into three subsections: i) Potential positive impacts; ii) Potential negative impacts; iii) Potential cumulative impacts if relevant. Likewise, the section on project mitigation measures should also address all the impacts identified including enhancement opportunities.

4.1 Potential Environmental Impacts

53. The project is expected to bring about major positive impacts as the overall objectives of Project activities are to increase the competitiveness of agricultural products and create better access to more stable markets for farmers, thus improving income security for farmers. Project activities aim at reducing the impacts of traditional agricultural farming practices by promoting the application of IPM and GAP.

54. Beside these major positive impacts, the project may also cause moderate negative impacts. The potential negative impacts have been assessed by means of site visits, discussions with local authorities and beneficiaries, and the use of secondary sources for information. This section summarizes the potential environmental impacts and required mitigation, which will be incorporated into Environmental Management Plans prepared for any subprojects, as required. The potential environmental issues and concerns identified were: (i) environmental effects of agricultural activities, (ii) infrastructure works, and (iii) solid waste management from agri-business processing. Each of these concerns are detailed below.

Step 1. Safeguard Screening and Impact Assessment

4.1.1 Eligibility screening

55. The principle of avoidance usually applies for subprojects that can create significant loss or damage to nationally important physical cultural resources, critical natural habitats, and critical natural forests. These subprojects would not likely be eligible for financing under the project. MAFF and the concerned ministries (PTs) is responsible for eligibility screening of subprojects. In any cases, ineligibility criteria and screening should not be used to avoid triggering the policy. The purpose of eligibility screening is to avoid adverse social and environmental impacts that cannot be adequately mitigated by project or that are prohibited by a Bank policy, or by international conventions. Ineligibility criteria, which vary from

² Cambodia EIA website is available at <http://www.moe.gov.kh/>

project to project, could include: (i) prohibition under the Bank policy, e.g., significant degradation or conversion of critical natural habitats, critical natural forests, etc.; (ii) contravention of the country obligations under relevant international environmental treaties and, e.g., Montreal Protocol or Stockholm Convention, etc.; (iii) environment and social impacts so complex and adverse that are beyond the capacity of the MAFF and the concerned ministries (PTs) to manage. A subproject that fall under one of the ineligibility criteria will not be eligible for project financing. Screening will be based on an assessment of project components and site sensitivity. List of non-eligible activities is in **Annex 2.1**.

4.1.2 E&S Screening checklist (Determination of sub-project Category and Safeguard Instrument Requirement)

56. After subprojects are determined to be eligible for financing, a E&S impact screening will be carried out. The purposes of the E&S screening are to: (i) identify the World Bank safeguard policies triggered; (ii) classify subprojects into B or C categories as per site sensitivity matrix in Table 19 and Guidance to classify level of impact from the sub-project activities; and (iii) to determine if the safeguard instrument needs to be prepared for the sub-project.

57. The screening also provides brief descriptions of the nature and extent of potential negative impacts on natural and environmental resources and local people related to land acquisition, resettlement, land donation, and/or involvement with ethnic minority. For the Category C sub-project, no safeguard instrument will be required and Table 3 form in Annex 5 will be filled up as an attachment to the sub-project proposal. For the sub-project type that requires IEE, it is likely to be classified as Category B sub-project. However, it is unlikely that the proposed sub-project activities i.e. irrigation canal improvement, rice mill and its storage facilities improvement, vegetable packaging facilities improvement and agriculture farming will be required IEE. **Table 1 Annex 5** will be used to screen agriculture farming sub-project category and assess the project and identify type of safeguard instrument needs to be prepared and implemented by the sub-project. **Table 2 Annex 5** will be used to screen project category for the proposed improved value-added facilities such as rice mill, storage facilities and vegetable packaging facilities.

58. The ES screening checklist of each subproject is intended for the use of MAFF and the concerned ministries (PTs) so that they can determine the appropriate type of safeguards documentation that will be required by the World Bank for the subproject, in conformance with the ESMF for the Project. The MAFF and the concerned ministries (PTs) is encouraged to send this checklist to the World Bank Task Team Leader (TTL) to ensure that the Bank agrees with the results of the screening prior to the Client's hiring of consultants to prepare safeguard documents. subproject screening checklist is in **Annex 2.2**.

Step 2. Development of mitigation measures and public consultation

59. After an E&S screening was conducted and the sub-project Category was identified, the sub-project category B detailed impact assessment will be carried out. The purpose of the impact assessment is to identify from the level of the impact and determine the type of safeguard instrument that needs to be prepared for the subproject (e.g. EIA or IEE, or EMP or ECOP). The impact assessment will be used as an input to set scope of mitigation measures. The impact assessment will give the environment and social issues due importance in the decision-making process by clearly evaluating the environmental and social consequences of the proposed sub-project before action is taken. Early identification and characterization

of critical environmental and social impacts allows the public and the government to form a view about the environmental and social acceptability of a proposed development sub-project and what conditions should apply to mitigate or minimize those risks and impacts. The scope of the impact assessment will depend on the screening results. Data collection, field survey, and consultation with local communities and affected population will be carried out.

60. As the project activities are small scale in nature, it is unlikely that the proposed sub-project activities will be classified as Category A of which will require EIA.

61. The key steps of impact assessment are: planning, scoping, impact assessment and consultation. The impact assessment will clarify: (i) how will the subproject activity give rise to an impact? (ii) how likely is it that an impact will occur? (iii) what will be the consequence of each impact? and (iv) what will be the spatial and temporal extent of each impact? The assessment of impacts largely depends on the extent and duration of change, the number of people or size of the resource affected and their sensitivity to the change. Potential impacts can be both negative and positive (beneficial), and the methodology defined in Step 3 will be applied to define both beneficial and adverse potential impacts and propose mitigation measures.

62. Appropriate mitigation measures (of negative impacts) should be identified according to the nature and extent of the potential negative impacts for each phase of the subproject, pre-construction, construction, operation and decommissioning where pertinent.

63. **The World Bank Requirements:**

- ✓ For a category A project, a full EA, which is normally an EIA, is needed in accordance with the specific requirements of the Bank's EA policy and procedure for Category A projects. EA for a Category A project examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" situation), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. The scope of EA for a Category B project may vary from project to project, but it is narrower than that of Category A EA. Like Category A EA, it examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. Beyond screening, no further EA action is required for a Category C project.
- ✓ **Environmental management plan (EMP):** A project's EMP consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. EMPs are essential elements of EA reports for Category A projects; for many Category B projects, the EA may result in a management plan only. To prepare a management plan, the borrower and its EA design team (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

64. **Preparation of Environmental Management Plan (EMP) and public consultation.** An EMP describes the basic principles and activities to be carried out to mitigate potential negative impacts. EMP will briefly describe the subproject description; environmental and social background of the subproject area, including a good map showing locations of the subproject and site-specific activities and/or process as appropriate; the potential impacts and proposed mitigation measures; and the implementation and monitoring arrangement and budget. A generic outline of an EMP is provided in Annex C of OP 4.01 and is included in Annex 4. Public consultation is to be carried out as part of the EMP preparation. For each subproject, the EMP will clearly define actions to assess and mitigate associated risks as well as to mitigate potential impacts during site clearance and construction and to reduce the risks during operation. At a minimum the EMP will include a standard ECOP (Annex 5) and site-specific mitigation measures, including environmental monitoring program. Technical guidelines for the preparation and example of an EMP are provided in Annex 4.

Component 1: Enabling Agriculture Diversification.

65. Component 1 will use a holistic value chain approach that is market and demand driven to build diversified competitive value chains, in which POs and its members can access lucrative domestic and international markets, and small and medium agribusinesses (SMAs) can have access to better quality raw material on a consistent basis, while increasing their absorption capacity and achieving the quality standards that the markets require. This component is private sector driven, with the Government having mainly a facilitating role. It would also support government/public actors providing needed services such as market-linked agricultural extension, where private sector services are not available or accessible.

66. **Subcomponent 1.1: Preparation and Implementation Support for Diversification Plans.** This subcomponent aims at making the project known to all stakeholders, support the formation of teams, the identification of business opportunities and their translation into comprehensive Diversification Plans, including viable Business Proposals (BPR) and Business Plans (BPI) and their evaluation and selection, and finally strengthen the capacity of selected POs and their members, as well as SMAs. The subcomponent would finance: (a) awareness raising campaigns and teaming up of stakeholders; (b) support for the preparation and evaluation of viable Diversification Plans and profitable BPR; and (c) support for the preparation and evaluation of full Diversification Plans, including BPI for selected BPR; and (d) BPI implementation support.

67. **Subcomponent 1.2: Financing Agriculture Diversification.** To facilitate the financing of the productive investments and TA identified in the approved BPI, the project will set up a matching grant facility and a credit line, with the objective to financing on-farm investments, such as farming equipment, fixed infrastructure and other related inputs farm level irrigation infrastructure, as well as productive investments at PO and SMA level. The credit line will not be restricted to SMAs with selected BPIs, and will further promote SMAs operating in Cambodia's agri-food sector and enhance their competitiveness, increase production and quality, and improve technologies.

68. *Subcomponents 1.1 and 1.2 would not have adverse impacts. Interim Guidelines on the Application of safeguard Policies to Technical Assistance (TA) Activities will be applied for in the terms of references for planning and prioritization interventions to promote positive impacts under this ESMF.*

69. **Subcomponent 1.3: Public Infrastructure.** The project will support public infrastructure, off-farm irrigation infrastructure and rural roads, to improve the PO's ability to diversify crop production through improved and on-demand water availability and to transport produce to the markets in an efficient manner that speeds up delivery and minimizes losses.

(a) Irrigated Agriculture. Many of the POs are expected to develop agricultural areas in existing irrigation schemes. The project will finance selective rehabilitation or upgrading of irrigation water conveyance and distribution systems identified in the Diversification Plan prepared under subcomponent 1.1. The project will not invest in large-scale irrigation infrastructure and investment support will be provided only in combination and coordination with other value chain diversification measures. Thus, investments under the project will be limited to selective canal lining, construction of control structures, installation of new gates, etc., to ensure that the water can reach the irrigation blocks of the POs on a demand rather than supply-driven basis. It will also include the TA and training to water user communities and municipalities to strengthen their capacity to operate and maintain the financed irrigation infrastructure, and will finance consulting services as needed to design and supervise the infrastructure investments. Finally, the project will support MoWRAM and MAFF with the introduction of modern technologies such as remote sensing, drones, etc., to improve irrigation water management and its monitoring.

(b) Agriculture Roads. The project will support enhancing connectivity through improving farm to market roads (rural roads). Existing rural roads will be improved, either paved or unpaved, to increase the impact on productivity and market access of investments delivered as part of subcomponent 1.2, and to contribute to the overall competitiveness of the agriculture sector. It is estimated that 330 km of road will be improved under the project that will link the production areas with all-weather roads. The subcomponent will also finance consulting services for design and construction supervision.

70. Beside the positive impacts associated with infrastructure, construction and operations of the proposed facilities will have some potential negative socio-environmental impacts and risks. The objects that may be affected by construction or operational activities could be:

- Land acquisition (voluntary land donation)
- Planning capacity
- The air environment: dust, noise, odor, vibration
- Water bodies: changes in turbidity, sediment, dissolved and undissolved pollutants coming into water
- Soil, land: erosion and wastewater
- Biological resources: grass/vegetation cover, shrubs, trees, plants, animals, forest, etc.
- Landscape, topography: slope, hills
- Cultural objects, structures such as monuments, statues, graves, artefacts, sacred trees, temples, church, etc.
- Existing facilities at the site, such as roads, water supply, drains, etc.
- etc.

Table 6.1: Potential negative environmental impacts of infrastructure services

	Potential Impacts/ Risks	Description of the issues/risks	Typical activities that cause the potential impacts/risks
CONSTRUCTION PHASE			
1.	Damages or loss of vegetation cover and trees	Vegetation cover and/or trees at the construction site (road, drainage system, etc.) or any other location to be used by the Project may be removed or disturbed during construction phase. This impact can be avoided, minimized or mitigated.	<ul style="list-style-type: none"> • site clearance for construction site, camps, • construction material exploitation and/or storage
2.	Loss or degradation of valuable natural/ ecological resources	<ul style="list-style-type: none"> • If sand, gravel and stones from river bed is extracted, flowing pattern of river may be seriously affected. The river may scour around bridge piers and abutments and endanger their stability. The river may erode other sections of the river beds and banks and thereby cause serious problems elsewhere • Some sites may be very important to local communities in cultural/religious/historical/archaeological aspects. • If construction takes place at or nearby such sensitive socio-environmental features, threats or serious/ permanent damages may be caused to such sites. • Human access to undisturbed area may cause damages to (from plant collection/removal, wildlife catching, hunting, fire setting, littering, etc.) damage to vegetation cover as habitats of wildlife or cause fire risks. 	<ul style="list-style-type: none"> • Site clearance • Construction • Extraction natural resource for construction materials at important sites particularly gravel from river beds, etc.
3.	Degrade existing landscape	These impacts may occur when vegetation cover/top soil is removed, or a man-made structures are introduced into least disturbed nature, or when new structures obstruct view to existing beautiful landscape	<ul style="list-style-type: none"> • Site clearance • Construction of new facilities in areas with beautiful/valuable landscape
4.	Unsuccessful land acquisition	Small amounts of land may need to be acquired either by donation or through compensation for agriculture, livestock and fisheries activities as well as small-scale productive infrastructure (e.g. post-harvest processing equipment, storage facilities and poultry shed, etc.).	<ul style="list-style-type: none"> • Presence of contractor at the work site • Construction commencement or ongoing activity
5.	Physical Cultural Resources are present at a sub-project location	During the planning or construction of a sub-project, physical, cultural, and religious resources are identified	<ul style="list-style-type: none"> • site clearance for construction site, camps, construction material exploitation and/or storage
6.	Solid Waste generation	Excavation works generate waste Waste is also be generated from unused materials: timber/glass/metal, packaging materials or by the workers: lunch containers, leftover food, etc.	<ul style="list-style-type: none"> • Excavation • Construction • Workers daily domestic activities
7.	Wastewater generation	<ul style="list-style-type: none"> • Wastewater generated by workers from washing and toileting. 	<ul style="list-style-type: none"> • Excavation • Use of construction materials

	Potential Impacts/ Risks	Description of the issues/risks	Typical activities that cause the potential impacts/risks
		<ul style="list-style-type: none"> Uncontrolled generation of wastewater may cause environmental pollution, nuisance, and health concerns to workers and the public 	<ul style="list-style-type: none"> Workers domestic activities at the sites
8.	Chemicals, hazardous wastes generation	Used Oil, paints, lubricant, batteries, and asbestos-containing materials are toxic. Some of the solid waste may be cross-contaminated with oil, paints, etc. that may be toxic and pose public health risk	<ul style="list-style-type: none"> Site clearance Vehicle maintenance Painting
9.	Dust, air pollution	Exposure to high level of dust and smoke may have health impact: affect respiratory system, eyes	<ul style="list-style-type: none"> Site clearance Excavation Running engine Machinery Construction material loading and unloading
10.	Noise and Vibration	Noise disturb hearing/listening activities and may cause stress/headaches Vibration may cause cracks /damages to existing structures	<ul style="list-style-type: none"> Pile driving Soil compaction
11.	Increased erosion risks/siltation/ sedimentation	<ul style="list-style-type: none"> Slope become less stable when ground surface is disturbed; water can run faster and can erode the soil on bare slop where vegetation cover does not exist. Therefore, erosion, land slide risks would be increase if a building is located on a hilly slope or construction activities disturb slops. The eroded top soil will end up at downslope then being wash down further by rain water causing highly turbid water and river bed/stream siltation/sedimentation 	<ul style="list-style-type: none"> Site clearance excavation activities create unsealed/barren area without vegetation cover during and after construction Construction works carried out on steep and/or weak slops
12.	Water quality degradation	<ul style="list-style-type: none"> Waste and wastewater, construction materials from construction may be leaked or disposed of into water sources nearby construction sites or downstream of construction sites. Water quality in streams and rivers may also be degraded if soil from slopes in the catchment run into water bodies due to erosion/landslide initiated by earthworks at the sites. Careless water use activities by workers, for example washing working tools directly at water sources. Oil, fuel or any other liquid substance used during construction, including on-site machinery maintenance, may be leaked or spilled into the soil. Then rainwater may wash such contaminant to nearby water bodies 	<ul style="list-style-type: none"> Construction of bridges on streams, river beds Construction waste and waste water discharge Tools and machinery washing and maintenance
13.	Impacts Cultural sites such as church, historical site, grave yard, etc.	Cultural sites may be affected with dust, noise from material and waste loading/disposals Some artefacts may expose during execution of earthworks at the sites	<ul style="list-style-type: none"> Dust and noise generated activities

	Potential Impacts/ Risks	Description of the issues/risks	Typical activities that cause the potential impacts/risks
			<ul style="list-style-type: none"> Loading/unloading construction materials and wastes
14.	<p>Social disturbance to local community:</p> <ul style="list-style-type: none"> ✓ traffic/ transportation ✓ water supply ✓ irrigation ✓ farming ✓ Community meetings events/ etc. 	<ul style="list-style-type: none"> If the works are carried out on or near existing road or drainage system, construction activities may disturb or disrupt traffic on the existing roads. Excavation may also cause loss to vegetation cover or disturbance to the ground Excavation works may disrupt the operations thus the services provided by local existing facilities such as water supply, drainage, power supply etc. if the pipes/lines cross excavated areas Stockpiles formed from excavated materials If construction activities takes place near farming area, access to farm land may be interrupted; materials, waste, and wastewater from construction sites may enter farms causing productivity reduction and social conflicts If a construction site is located near community center, material loads or noise from material cutting, drilling, welding, may block access to community centers or disturb hearings in public meetings. 	<ul style="list-style-type: none"> Site clearance Excavation Machinery operation Temporary blockage of rivers/streams/ existing irrigation canal for construction Temporary block of road for construction of connection section to new alignment
15.	Health/ sanitation /hygiene in local community	<ul style="list-style-type: none"> Stagnant water formed from disturbed area at construction site is favor for mosquito breeding, which is a vector of water-borne diseases Waste generated from workers staying at the site may attract vermin and insects Wastewater generation may cause nuisance and health risks to human 	<ul style="list-style-type: none"> Excavation create holes or low laying spots
16.	Safety risk to community	Construction-related activities may cause safety risks for local community, particularly children if they access to open holes or present at the site during materials transports/loading/unloading.	<ul style="list-style-type: none"> Transportation of materials/wastes Materials loading/unloading Excavated holes Machinery operations
17.	Workers health and safety	Unprotected holes at the sites, exposure to traffic at road side, improperly installed electrical wires, operating and handling of construction plants, machinery and tools may cause safety risks to workers	<ul style="list-style-type: none"> General construction activities, operations of tools and plants
OPERATION PHASE			
1.	Water/soil pollution	Leakage or discharge of wastes and wastewater generated from the facilities provided	Water use activities taking place at buildings/ shelters
2.	Water/soil pollution	<ul style="list-style-type: none"> Effluent from septic tank can pollute groundwater or surface water, particularly if piped to an open drain Partly treated effluent from septic tank can easily pollute the groundwater in the dug well, even after many years; 	Sanitation facility

	Potential Impacts/ Risks	Description of the issues/risks	Typical activities that cause the potential impacts/risks
		<ul style="list-style-type: none"> Polluted surface water from around the septic tank may percolate into the groundwater 	
3.	Visual impacts	if the facility outstands in public area and degrade the surrounding landscape value	Sanitation/ drainage facilities
4.	Nuisance, odor, Unhygienic condition, public health risks	<ul style="list-style-type: none"> Septic tank effluent is smelly thus may cause nuisance to the public when being felt/seen Septic tank effluent is only partially treated thus can spread infection and disease thus pose health risk. Lack of proper drain around public taps create muddy mess around the tap or in the yard. Standing water become mosquito breeding ground and cause inconvenience for water users Open or missing facet can spill a lot of water in a day. Valuable water that other users may need is wasted 	Sanitation
6.	Unhygienic condition, public health risks	Muddy condition/siltation at public tap lead to unhygienic conditions and/or mosquitoes breeding	Water supply
7.	Conflict with downstream water demands	When inflow water is partly stored at upstream of a water source by one group of water users, other groups may have less access to the water they need and that may need to social conflict between different community groups.	Water supply
8.	Weather extreme events/natural disasters such as storms.	<ul style="list-style-type: none"> Weather extreme events or natural disasters can damage the facilities provided by the project or interrupt the services provided by these facilities. In some cases, weather extreme events such as cyclones may not directly cause damages to the facilities but damages the objects in the surroundings and these objects cause damages to the facilities provided by the Project, for example tree fallings into water towers 	Torrential rain

Component 2: Cross-cutting Institutional Strengthening

71. **Component 2: Improving Agriculture Information Systems and Quality Control Management.** The objective of Component 2 is to strengthen foundational knowledge, data analysis capacities, and regulatory delivery systems within the public sector and their implementation and enforcement. These will contribute to broad and transparent knowledge and improved decision-making of public sector and private actors, with impacts reaching beyond the supported PA subprojects. Agriculture information and quality management systems will benefit direct stakeholders as well as farmers, PO, and SMAs, that operate in other than project communes and provinces. The component will also fund analytical and policy advisory work to guide government investments in support of agriculture sector development.

72. **Subcomponent 2.1: Agriculture Information System.** Funding will be provided for investments in the further development and improved use of soil/agro-ecological maps, agricultural early warning systems, food production and agricultural statistics/census data (agricultural market intelligence and marketing information systems) and potentially others. New technologies in ICT will be promoted to ensure broadest dissemination and best use of available data and information for public and private sector stakeholders' planning and decisions regarding production, processing, marketing of agriculture products and services and support will be given for market intelligence to identify medium and long-term opportunities for suitable products. The project will also fund technical strengthening and dissemination of information from and through MoWRAM's Water Accounting Framework.

73. The subcomponent will also fund analytical and policy planning works through the Supreme National Economic Council (SNEC) and in collaboration with MAFF. Support will include the funding of studies, policy planning and consultation workshops. Specific research and studies will include a study on the identification of Cambodia's medium and long-term competitive and comparative advantage for agriculture value chains/products and production systems; and the preparation of a feasibility study for the establishment of a wholesale market for quality controlled products in Phnom Penh.

74. **Subcomponent 2.2 Quality Management.** Investments to strengthen the effectiveness of plant protection and phytosanitary, animal health and food safety surveillance, reporting and inspectorate systems, and systems to enforce agricultural input regulations will be supported. This will include support for the development of certification, licensing and other quality control and management services, and the development and application of regulations on good agricultural practices (GAP) and organic products, good animal husbandry practices (GAHP), use of geographic indicators, etc.

75. Subcomponents 2.1, 2.2 would not have adverse impacts. Interim Guidelines on the Application of safeguard Policies to Technical Assistance (TA) Activities will be applied for in the terms of references for planning and prioritization interventions to promote positive impacts under this ESMF.

4.2 Potential Social Impacts

76. **Ethnicity in Cambodia.** Based on the latest population survey (Ministry of Planning 2013), there are 24 groups of indigenous minorities in Cambodia. The predominant dwelling areas of the indigenous populations are in the extremities of sparsely populated areas of the north and northeast of Cambodia: Kratie (Stieng, Kraol, Mel, Phnong, Kuoy, Thmaun), Mondulkiri (Phnong, Stieng, Kraol, Roong, Rhade), Ratanakiri (Tampuon, Jarai, Kreung, Brao, Lun, Kravet, Kachac), Stung Treng (Kuy, Phnong, Kravet, Kreung, Khmer Khe, Lun, Brao), Preah Vihear (Kuy), and Kampong Thom (Kuy); as well as the mountainous massifs in Koh Kong (Poar), Pursat (Poar), Kampong Speu (Suoy) and Sihanoukville (Saoch). These areas are mainly along the national borders of Viet Nam, Lao People's Democratic Republic (Lao PDR), and Thailand. In contrast, the central areas and the banks of the Mekong River are the domain of the Khmer. The lack of population studies leads to a difficult situation in quantifying the number of ethnic groups in Cambodia. MRD stated that indigenous ethnic minorities may either live in their own communities within the broader Khmer communities or have fully integrated into Khmer communities but still retain some of their ethnic character and in some cases language. Fieldwork in potential provinces confirmed that those who self-identified as indigenous stated that they can communicate using the predominant Khmer language while still are able to use their indigenous language. Most of them stated that they have been living in the broader Khmer communities for more than a generation.

77. As found in the population census, the Government stated that 264,600 people belonged to ethnic minority groups living in the country, or about 4% of the population. The Cham, also named Khmer Islam, were the second largest ethnic community in Cambodia after the Khmer majority. The Chinese community, with a population of 34,500, was the third largest group, and somewhat surprisingly, the fourth largest group was the highland ethnic peoples called the Phnong or Mnong. The Vietnamese community was classified as the seventh largest group. Until 1992, the ethnic Chinese and Vietnamese were classified as ethnic Cambodian groups alongside the indigenous minorities and the Cham.

78. Except for Phnom Penh, all proposed project provinces are areas where MRD recognized the presence of ethnic minority households, either living within or maintaining separate communities or agricultural lands within the broader Khmer communities. It is therefore very likely that during project implementation, some sub-project activities will include some ethnic minority households. However, given the nature of proposed project interventions and the livelihood patterns of ethnic minorities in the project provinces, potential social risks related to them are considered minor, and mainly relate to the need to consult on civil works and to adapt and translate training materials on issues such as pesticide use, agricultural related information as well as the various awareness raising packages.

79. Agricultural Sector in Cambodia. In realizing the importance of agricultural sector in supporting economic growth, ensuring equity and food security, and enhancing rural economic development, the government has adopted a three-pronged strategy: (1) productivity enhancement, diversification and agricultural commercialization through implementing a package of interrelated measures which include infrastructure building and enhancement (roads, irrigation, energy/ electricity, and Information and Communication Technologies; (2) improvement in the provision of extension services; and (3) improved agricultural inputs, land management reform, finance, marketing, farmer organization, and institutional building and coordination. The Agricultural Sector Strategic Development Plan 2014-2018 highlighted the government's goals of enhancing agricultural productivity, diversification and commercialization.

80. The Ministry of Planning and MAFF published the Census of Agriculture of the Kingdom of Cambodia in 2015. The report found that 2.2 million households are engaged in agricultural activities. Of these households, 85% (1.87 million) were reported to be growing crops in agricultural holdings. The agriculture sector contributes 34% of national GDP and employs 63% of the entire labor force (8.2 million persons). Total agricultural land (arable and permanent) is estimated at 4.5 million ha: 3.99 million of arable land and 0.51 million of permanent crops. The production areas of most crops (rice, vegetables, maize, black pepper) have increased continuously, with rubber and cassava tripling. The production areas of sugarcane, oil palm, rambutan, durian and maize have also markedly expanded, while some crops, such as sweet potato, mung bean, sesame, jute, coffee and guava have declined.

81. The cropping systems in Cambodia have been recorded mainly for rice, which is planted in both wet and dry seasons. Wet-season rice (2,567,723 ha) is mainly rainfed lowland (80%), upland (2%) and deep-water/floating (2%). Dry-season rice (484,697 ha, 16%) is planted largely in low-lying areas where irrigation is available, particularly in the areas flooded by the Mekong River (including the Tonle Sab Lake Zone). Cambodian farmers also plant other crops in the rice-based cropping systems—vegetables, legumes, fruit trees and so on—as part of crop rotation, mixed cropping and individual. Rice-mung bean or mung bean-rice is the common rotation practiced by farmers in Kampong Speu, Takeo, Kandal and Kampong Chhnang. In the plateau and mountainous areas, there are industrial crops and fruit trees such

as rubber tree, oil palm, sugarcane, black pepper, cassava, mango, rambutan, longan. At the early stage of growing rubber trees, farmers intercrop some legumes, particularly soybean, mung bean and peanut, which are also planted largely in the plateau area.

82. To improve productivity and diversification, there is still a large need for both technical and financial support, as well as the participation of all concerned stakeholders in order to promote and increase the access to agricultural extension services, irrigation systems, climate resilient seeds and cultivation techniques and appropriate uses of agricultural input supplies and credit supports. The selected 10 varieties of rice seed for productivity enhancement piloted by MAFF have not been extended comprehensively to all farmers. In addition, the quantity of those 10 rice seed varieties is still not sufficient for supplying to the farmers. MAFF aims to overcome this over time by state research farms supplying seed to Seed Producer Groups who will supply farmers.

83. Cambodia suffers from frequent natural disasters, mainly floods, drought and severe storms, which claim lives and destroy infrastructure, houses and harvests. From 2010 to 2013, as many as 452,211 ha (equivalent to 15% of the rice crop) was destroyed by drought, flood and insects (MAFF 2006-2013). In 2011, Cambodia experienced the worst floods of the last decade. It was reported by the FAO (2012) that 60,000 households (roughly 25%) of flood affected families in 18 provinces were made food insecure, which was manifested in high levels of chronic and acute child malnutrition. In 2009, typhoon Ketsana hit Cambodia between September 29 and October 5. Fourteen out of 24 provinces were affected by the storm and subsequent flash floods. The typhoon left 43 people dead and 67 people severely injured. It destroyed the homes and livelihoods of some 49,000 families (about 1.4% of Cambodia's total population). The value lost due to this typhoon was around US\$ 56.5 million. Finally, the coastal area of Cambodia, located in the western part of the country (Kampot, Sihanoukville and Koh Kong provinces) where rice and other crops are grown, is experiencing the rising level of salinity in their soil resulting in the reduction of water uptake (like the effect of drought). Furthermore, the increase in sea level as a result of climate change means that more coastal rice fields will be exposed to sea water, which will also affect the production of other local crops.

84. Women in Agriculture. As reported in the 2015 Census, agriculture is an important source of employment for the large group of men and women (75% women) who are mainly engaged in subsistence production in small farms. The majority of rural Cambodian women work in agriculture on their own land or carry out unpaid agricultural work. There are 2.3 million agricultural households in Cambodia, of which 80% (1,618,588) are male headed and 20% female headed (412,510). Women farmers play a crucial role in the translation of the products of the agriculture sector into food and nutritional security for their households. Women are responsible for food production, selection and preparation and for the care and feeding of children and are the key to food security for their households. Women are increasingly involved in commercially-oriented agricultural production particularly in the horticulture value chain. Women in Cambodia are also central in wholesale and retail marketing of agricultural products. They are involved as collectors and/or traders and are the principal retail sellers, working in markets at local, provincial and national levels. In addition, women are active partners in input supply agro-business, dealing directly with clients, providing information and knowledge on use of inputs, fertilizers and pesticides.

85. Document reviews and interviews conducted confirmed that gender-based constraints to land registration comprise: problems accessing information about the land titling process, difficulties for female headed household to obtain paperwork that prove their single status hinder their ability to register

land, gender imbalance in control and decision making. The 2015 Census found that around 85% of the total agricultural households in Cambodia have access to agricultural land, with an average area of agricultural land per agricultural household of 1.637 hectares. Men account for 1.4 million or 73% of all holders while women holders stand for 0.5 million or 27%.

86. The agricultural census also found that women farmers increasingly supply local markets with traditional and high-value produce. However, compared to men, women still face disadvantages, including lower mobility, lower level of literacy, less access to training, less access to market information, and less access to productive resources. Lower financial literacy of women than men and travel safety are identified as main gender gaps in Cambodia to access to markets for women. Evidences also suggest that men may take over production and marketing when it becomes financially lucrative to do so. To market their produce, women farmers in Cambodia need timely, reliable and accessible market information. Loan finance and credit are also essential so that women smallholder farmers can pay for inputs, improve farming, and develop small business enterprises to empower themselves economically and support their families. Collective action can play a significant role for women stallholder farmers to increase productivity and access to markets. Furthermore, initiatives to facilitate access to market need to take account of and address the gender specific constraints on women smallholder farmers and agro-business entrepreneurs. Hence, strengthening their access to markets requires targeted value chain analysis and interventions.

87. Traditionally, the first stages of rice cultivation are male-designated and the latter stages are female designated. Men generally perform land preparation tasks, while seedling preparation and weeding are commonly assigned to women. Other activities - harvesting, uprooting, transplanting and marketing- are generally shared tasks. These roles are presently changing with the adoption of mechanized farming and migration of young men out of rural areas. Women therefore are increasingly more involved in all farming tasks such as land preparation, irrigation, threshing, and recruitment of labor, farm management and trading. Women farmers' contribution to growing secondary crops such as vegetables and raising livestock is even greater. Grown and raised mainly in-home gardens, these crops and livestock provide essential nutrients and contribute to households' food security. Hence, local markets increasingly offer a good opportunity to women to earn income through small scale sales of vegetable crops and livestock.

88. Indigenous People in Agricultural Sector. According to MRD, one of the most distinct characteristic of an ethnic indigenous community is their livelihood strategy, which is based on agricultural production, comprising slash-and-burn (swidden) cultivation, wetland rice cultivation, pig and chicken raising, gathering food from the forest, hunting, and fishing. They also undertake a little manufacture and sale of goods and labor work. Most indigenous farmers in northeastern Cambodia are still using their traditional farming technique: semi-nomadic, slash-and-burn cultivation. Although some of them began lowland rice farming after the integration process in the 1960s, they still keep swidden fields where they farm upland rice and other crops as a form of food security. Very few crops are grown inside the village because it is difficult to protect them from domestic animals, which are usually allowed to roam free. Rice is the central staple crop of the swidden system, but other crops are also grown for subsistence use within the household, including vegetables, root crops, gourds, fruits, and non-food crops like tobacco and cotton. Animal raising, usually cattle, pigs, and chickens, is done either for sacrifices, income generation, or food.

89. During the Khmer Rouge period, indigenous people learned that the lowland rice farming technique of their neighboring lowland Khmer provided higher yields and required less work than their

highland technique. Some villagers have been developing lowland rice fields with help from NGOs or by imitating others. After 1979 some of them reverted to swidden agriculture because of technical or other problems. The indigenous communities have also been seeking other livelihood alternatives, such as growing fruit trees and other high-demand cash crops like coffee, cashew nuts, green beans, jackfruit, and durian. However, poor road infrastructure and market support have dampened their motivation.

90. Fieldwork in potential provinces found that access to water is top of the list in terms of challenge for farmers, both local communities and indigenous people. Other challenges identified by representatives of indigenous people in interviews include:

- a. Intensive forms of agricultural technology are replacing indigenous people's traditional farm practices. There has also been a rapid shift from common-property to private land ownership, usually catalyzed by private companies and influential personalities. This problem is also the result of the lack of indigenous people's participation in these decision-making processes; their communities not being aware of their rights as stated in the Cambodian laws and relevant international conventions.
- b. In terms of agricultural value chain: lack of understanding of the market and value of their produce (ie. Rice is normally 1,200 Riel per kg, but indigenous people often sell it for 700 Riel per kilo); meeting market requirement in terms of produce (i.e. not the right size, color, etc.) and thus cheaper price for produce; literacy (most indigenous people are illiterate and thus not able to access to market information – propose solution, use radio); inability to make plan.
- c. Debt is highlighted many times as the major threat for indigenous people across Cambodia at the moment. Debt from micro-finance comes with 3% interest rate per month, much higher the standard 1.8% per month. Indigenous people are often not aware of this due to their inability to read contracts (illiteracy), they think 3% is low. Some indigenous people borrow from middle-men (loan shark), with the interest up to 15 to 20% a month. They often repay the middle-men with their produce at whatever price that is determined by the middlemen or with their lands, resulting in them moving further into the forest areas.

5.0 Procedures for Screening, Review, Clearance, and Implementation of Sub-Project Safeguard Instruments

91. Using the major steps outlined below, this section of the ESMF describes the process for ensuring that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval, and implementation of subprojects. ESMF procedures are clearly linked to the project-defined subproject cycle that can be readily included in the *Project Operational Manual or Project Implementation Manual*.

92. This section of the ESMF can be broken into the following subsections: i) Safeguard screening and impact assessment; ii) Development of mitigation measures and public consultation; iii) Review, Approval, and Disclosure of Subproject Safeguards Instruments; and iv) Implementation, monitoring, supervision, and reporting.

93. There are 4 key steps in subproject preparation during project implementation are safeguard screening and impact assessment. The safeguard screening includes two steps, eligibility screening and technical screening for assessment of potential impacts, policies triggered and instruments to be prepared.

Step 1: Safeguard screening and impacts assessment;

Step 2: Development of safeguard documents as required including development of mitigation measures and public consultation;

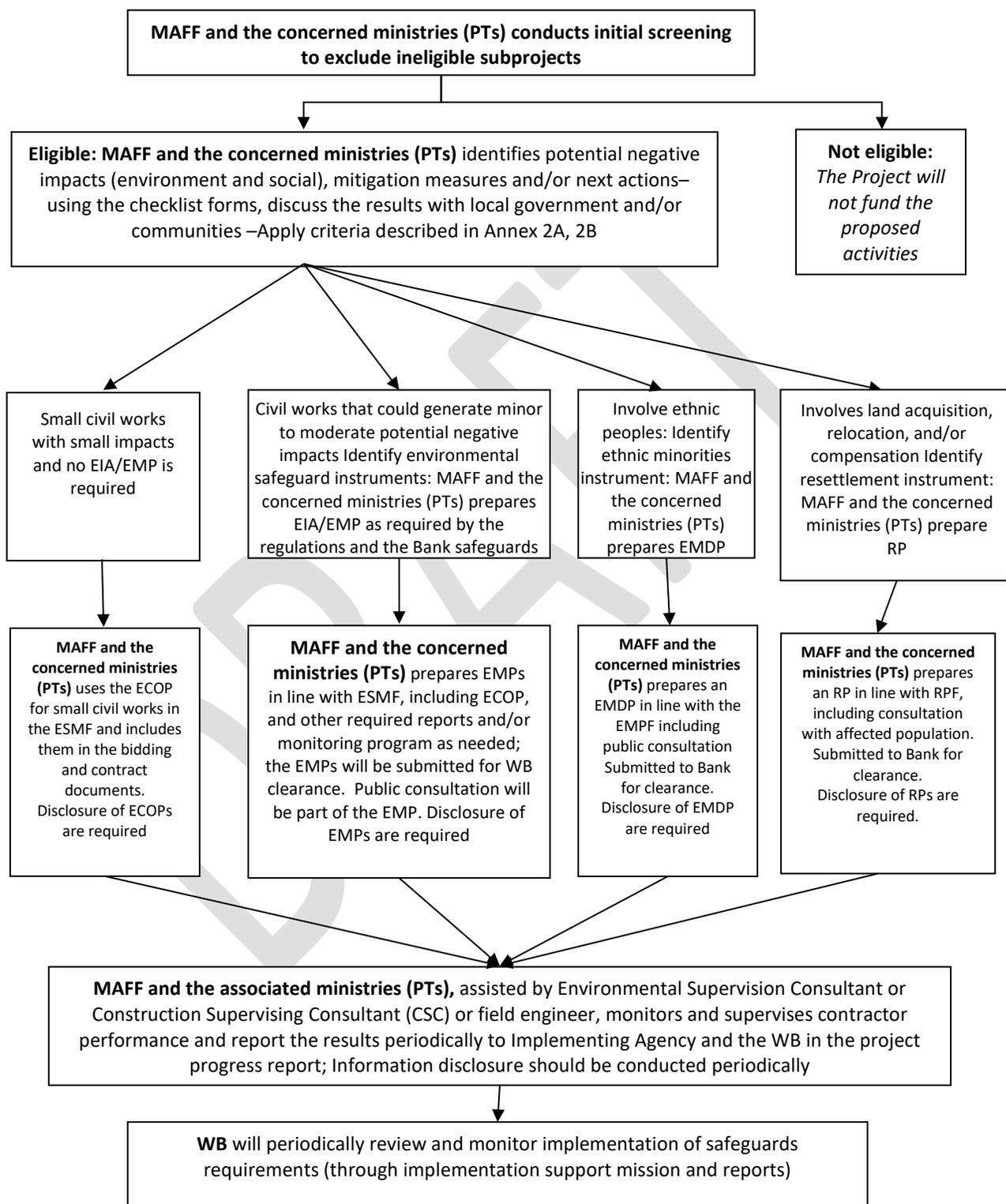
Step 3: Safeguard clearance and information disclosure; and

Step 4: Implementation, monitoring, and reporting.

94. Typical safeguard actions to be taken during the ESMF process are illustrated in the flow chart Figure 3-1 below:

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Figure 3-1 Schematic Flowchart for Safeguard Actions for Subprojects



Step 3. Review, Approval, Public Consultation, and Disclosure of Subproject Safeguards Instruments

95. Review and Approval of Safeguards Instruments

96. *Government's review and approval.* If a subproject requires review and approval according to the government EA sub-degree and guidelines, the subproject owner will prepare and submit the EA report as required for review and secure their approval by relevant government authorities before subproject appraisal.

97. *Bank's review and clearance.* The procedures for the Bank's safeguards review and clearance of subprojects prepared during implementation must also be clearly described in the ESMF. These procedures may vary from project to project depending on client capacity and complexities of issues involved in the sub-project. The ESMF consultant and MAFF and the concerned ministries (PTs) should consult with the Bank environmental specialist of these processes. These procedures must cover: (a) screening of sub-projects for their potential social and environmental impacts; (b) assignment of environmental category to each sub-project using the criteria stated in OP 4.01; (c) development of relevant safeguards instruments in accordance with Bank policies and national laws; (d) implementation arrangements and institutional capacity needed to implement safeguards instruments; and (e) roles of client and the Bank for review and clearance of safeguards instruments.

98. Public Consultation:

99. Preparation and implementation of the subproject safeguards documents during project preparation need to follow the Bank requirements for public consultation under OP 4.01. The objectives of consultation are to generate public awareness by providing information about a sub-project to all stakeholders, particularly the sub-projects affected persons (PAPs) in a timely manner and to provide opportunity to the stakeholders to voice their opinions and concerns on different aspects of the project. Consultation would help facilitate and streamline decision making whilst fostering an atmosphere of understanding among individuals, groups and organizations, who could affect or be affected by the subprojects.

100. Consultation is a continuous process by which opinion from public is sought on matters affecting them. The opinions and suggestions of the stakeholders would assist PAFO in taking appropriate decisions for effective environmental and social management of the sub-projects. It would help facilitate and streamline decision making whilst fostering an atmosphere of understanding among individuals, groups and organizations, who could affect or be affected by the sub-projects. The specific objectives of public consultation are:

- To keep stakeholders informed about the sub-projects at different stages of implementation,
- To address the environmental and social concerns/impacts, and device mitigation measures considering the opinion/ suggestions of the stakeholders,
- To generate and document broad community support for the sub-projects,
- To improve communications among interested parties; and
- To establish formal complaint submittal/resolution mechanisms.

101. At least 2 stages consultation with the project affected people, project beneficiary and relevant stakeholders will need to be carried out. The first stage consultation for environmental and social impact assessment is required during the subproject E&S screening level. And second level consultation should be carried out once the impacts are clearly identified and draft management plan are prepared. If required, more than two consultations should be carried out. The following are the guidelines for carrying out consultation

102. Disclosure of safeguard instruments

103. EAs/EMPs, RPs and EMDPs of all subprojects prepared during project implementation must be disclosed locally in a timely manner, before approval of these subprojects, in an accessible place and in a form and language understandable to key stakeholders. Sub-project-specific Category A EAs, RPs, and EMDPs in English must be disclosed in the Bank Infoshop and in the country (e.g. websites of implementing agencies). An Executive Summary of the EIA for a Category A subproject (covering all safeguard instruments produced for the sub-project) should also be prepared and disclosed in both English and the national language. The Executive Summaries of EAs for Category A subprojects must also be distributed to the Board of Executive Directors before the departure of the appraisal mission.

Step 4. Implementation, Supervision, Monitoring, and Reporting

104. Depending on design, a project may have two levels of implementation, at project and subproject level

105. At Project Level

106. MAFF and their concerned ministries (PTs) assigned to take the lead in overseeing and monitoring of the implementation of subprojects and this unit will periodically supervise and monitor the safeguard implementation performance and include the progress/results in the Project Progress Report. The MAFF and their concerned ministries (PTs) will report on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP, as set out in the project documents; (b) the status of mitigative measures; and (c) the findings of monitoring programs.

107. The MAFF and their concerned ministries (PTs) will set up an Environmental and Social Unit (ESU) responsible for effective and timely implementation of safeguard activities and assign one senior staff and at least one full time safeguard staff to be responsible for managing and monitoring of the environmental and social impacts of subprojects throughout the project period. Main responsibilities of an ESU will include, but will not be limited to, (a) enforcing compliance, including supervision and monitoring, of all environment and social aspects; (b) representing the subproject owner for all matters related to the project safeguards; and (c) be responsible for overall coordination of subproject EMP implementation. Information regarding the safeguard measures and performance should be periodically disclosed to the public. Depending on the capacity of PCO, an Environmental Management Consultant (EMC) may be hired to assist ESU in performing its tasks.

108. At Subproject Level

109. During project implementation, the subproject owner is responsible for each subproject will be responsible for ensuring effective implementation of safeguard measures (EMPs/ECOP, water quality monitoring etc.) in close consultation with local authorities and local communities. The subproject owner will assign at least one full time staff (as the safeguard focal point) to be responsible for forging effective implementation of EMP/ECOPs of subproject. The subproject owner will be responsible for incorporating EMPs/ECOPs into included in bidding and contractual documents. During construction, the subproject owner will assign the Environmental Supervision Consultant or Construction Supervising Consultant (CSC) or field engineer to be responsibility for monitoring and supervision of EMP/ECOPs implementation by contractor on a daily basis (see Terms of References in Annex 9). The results will be part of the subproject progress report and the safeguard focal point will be responsible for ensuring proper documentation of safeguard activities.

6.0 Implementation Arrangement

6.1. Responsibility for ESMF Implementation

110. To manage social and environmental risks, MAFF--in collaboration with MOWRAM and MRD-- has prepared a resettlement policy framework, an Indigenous Peoples Planning Framework based on a preliminary social assessment, as well as an Environmental and Social Management Framework. Furthermore, environmental and social safeguards focal persons have been appointed by MAFF, MoWRAM and MRD for the project preparation and implementation.

111. The implementation of the environmental and social safeguards will follow the Project Implementation arrangement by following 'Government System', mainly guided/lead by Ministry of Agriculture, Forestry and Fisheries (MAFF), including units or agencies. Guidance on social and environmental safeguards will be provided by a high-level Project Steering Committee, chaired by MAFF. MAFF is the main implementing agency, collaborating with MoWRAM and MRD and their line departments as "co-implementers" of selective infrastructure. At central level, MAFF will be responsible for overall implementation and effectiveness, coordination with concerned ministries, including the environmental and social safeguards management.

112. **The Steering Committee**³ will deal with policy issues, legal and regulatory framework issues and decisions including social and environmental safeguards. The SC will be the last resort for solving conflicts and complaints about social and environmental safeguard implementation and reporting that cannot be resolved by technical project teams or through the intervention of the Project Management Team. Steering Committee meetings will be supported by the Project Management Team and its secretarial support services.

113. **MAFF and the concerned ministries (PTs)**, supported through the TWG Secretariat, will be responsible for the overall coordination of social and environmental safeguard implementation and reporting, including the agreed reporting to World Bank. The MAFF and the concerned ministries (PTs)

³ 51. *Steering Committee under MAFF leadership includes, Ministry of Water Resources and Meteorology (MoWRAM), Ministry of Rural Development (MRD), Ministry of Economy and Finance (MEF), and TWGAW Co-Chair. Where and as needed, coordination and implementation support and advise could and would be requested from Development Partner's donor facilitator, Ministry of Industry and Handicraft (MoIH), Ministry of Commerce (MoC), Ministry of Women Affair (MoWA), Microfinance Institution (MFI)/banks, and Rural Development Bank (RDB) representation.*

will be led by a Coordinator from MAFF. The MAFF and the concerned ministries (PTs) will also include members from the main technical units involved in project implementation, including social and environmental safeguard focal points. The MAFF and the concerned ministries (PTs) will work under direct guidance of the Project Director appointed by MAFF.

114. MAFF’s social and environmental safeguard focal points and consultants will be responsible for implementing social and environmental safeguards of the technical advisory services in coordination and collaboration with other line ministries and departments, and with management and advisory support from the TWGAW (Secretariat).

115. MoWRAM’s social and environmental safeguard focal points and consultants of MoWRAM are responsible for integrating social and environmental safeguards into the detailed planning and implementation of irrigation works as part of the approved business plans.

116. MRD’s social and environmental safeguard focal points and consultants social and environmental safeguard focal points and consultants are responsible for integrating social and environmental safeguards into rehabilitation and upgrading works on farm to market roads, and where decided, including markets/market infrastructure.

117. An Environmental and social safeguards budget (400,000US\$ - to be confirmed) is allocated by the project for the safeguards consultants and to further safeguards capacity building activities to the focal persons. The Environmental and social consultants, who will work closely with MAFF, MRD and MoWRAM to provide support to prepare E&S screening of each sub-project and prepare appropriate sub-project safeguard instruments such as ESMP.

Table 7-1. Institutional responsibilities for the Project and Subproject safeguard implementation.

Community/ agencies	Responsibilities
Project Implementing Agency (IA) and PTs	<ul style="list-style-type: none"> - The IA will be responsible for overseeing the project implementation including ESMF implementation and environmental performance of the project. - MAFF and the concerned ministries, representative of the IA (PTs), will be responsible for monitoring the overall project implementation, including environmental compliance of the project. MAFF and the concerned ministries (PTs) will have the final responsibility for ESMF implementation and environmental performance of the project during both the construction and operational phases. - MAFF and the concerned ministries (PTs) will: i) closely coordinate with local authorities in the participation of the community during project preparation and implementation; ii) monitor and supervise EMP implementation including incorporation of EMP into the detailed technical designs and bidding and contractual documents; iii) ensure that an environmental management system is set up and functions properly; iv) be in charge of reporting on EMP implementation to the IA and the World Bank. - In order to be effective in the implementation process, MAFF and the concerned ministries (PTs) will establish an Environmental Unit with at least two environmental staff to help with the environmental aspects of the project.

Environmental Unit EU (EU) under PTs	<ul style="list-style-type: none"> - The EU is responsible for monitoring the implementation of WB’s environmental safeguard policies in all stages and process of the project. Specifically, this unit will be responsible for: i) screening subprojects against eligibility criteria, for environment and social impacts, policies triggered and instrument/s to be prepared; ii) reviewing the subproject EIAs/EPCs and EMPs prepared by consultants to ensure quality of the documents; iii) helping MAFF and the concerned ministries (PTs) incorporate EMPs into the detailed technical designs and civil works bidding and contractual documents; iv) helping MAFF and the concerned ministries (PTs) incorporate responsibilities for EMP monitoring and supervision into the TORs, bidding and contractual documents for CSC and IEMC; v) providing relevant inputs to the consultant selection process; v) reviewing reports submitted by the CSC and IEMC; vi) conducting periodic site checks; vii) advising MAFF and the concerned ministries (PTs) on solutions to environmental issues of the project; and viii) preparing environmental performance section on the progress and review reports to be submitted to the Implementing Agency and the Bank.
subproject owner IAs	<ul style="list-style-type: none"> - As the subproject owner, MAFF and the concerned ministries (PTs) is responsible for implementation of the all the EMP activities to be carried out under the Project, including fostering effective coordination and cooperation between contractor, local authorities, and local communities during construction phase. MAFF and the concerned ministries (PTs) will be assisted by the environmental staff, and CSC/or field engineer.
Construction Supervision Consultant (CSC) and/or Field Engineer	<ul style="list-style-type: none"> - The CSC, collaborating with the assigned environmental safeguards focal points, will be responsible for routine supervising and monitoring all construction activities and for ensuring that Contractors comply with the requirements of the contracts and the EMP. The CSC shall engage sufficient number of qualified staff (e.g. Environmental Engineers) with adequate knowledge on environmental protection and construction project management to perform the required duties and to supervise the Contractor’s performance. - The CSC also assists MAFF and the concerned ministries (PTs) in reporting and maintaining close coordination with the local community.
Contractor	<ul style="list-style-type: none"> - Based on the approved EMP and environmental specifications/requirements in the bidding and contractual documents, the Contractor is responsible for establishing a site-specific EMP for each construction site area, submit the plan to the subproject owner/implementing agency and CSC for review and approval before commencement of construction. In addition, it is required that the Contractor get all permissions for construction (traffic control and diversion, excavation, labor safety, etc. before civil works) following current regulations. - The contractor is required to appoint a competent individual as the contractor’s on-site <i>Safety and Environment Officer (SEO)</i> who will be responsible for monitoring the contractor’s compliance with the EMP requirements and the environmental specifications. - Take actions to mitigate all potential negative impacts in line with the objective described in the EMP. - Actively communicate with local residents and take actions to prevent disturbance during construction. - Ensure that all staff and workers understand the procedure and their tasks in the environmental management program.

	<ul style="list-style-type: none"> - Report to the MAFF and the concerned ministries (PTs) on any difficulties and their solutions. - Report to local authority and MAFF and the concerned ministries (PTs) if environmental accidents occur and coordinate with agencies and keys stakeholders to resolve these issues.
Local community	<ul style="list-style-type: none"> - Community has the right and responsibility to routinely monitor environmental performance during construction to ensure that their rights and safety are adequately protected and that the mitigation measures are effectively implemented by contractors and the MAFF and the concerned ministries (PTs)/SUBPROJECT OWNER. In case of unexpected problems, they will report to CSC/ MAFF and the concerned ministries (PTs)/SUBPROJECT OWNER.
Sub-national level: Province and District	<ul style="list-style-type: none"> - Liaise with contractor and national implementing agency to disseminate mitigation measures and coordinate for complaints from local community people regarding EMP implementation.

6.2 Reporting Arrangements

118. Reporting on ESMF implementation is not done separately. The safeguard performance will be included in subproject and project progress reports. MAFF and the concerned ministries (PTs) with assistance from the CSC will include safeguard performance at subproject level to MAFF and the concerned ministries (PTs) periodically. At the project level, MAFF and the concerned ministries (PTs) will prepare safeguard performance report twice per year to be included in the progress report describing the project compliance with the ESMF and other safeguard requirements.

6.3 Incorporation of ESMF into Project Operational Manual

119. For smooth planning, implementation and supervision, a Project Operational Manual (POM) will be prepared before the inception of the Project. The POM will have sections on environmental issues/procedures, resettlement and compensation and ethnic minorities plans. These sections will provide links to: (i) subproject screening; (ii) appropriate mitigation actions and/or ECOP; (iii) practical pre-tested safeguard forms used at field subproject level; (iv) development of supplemental tools/guidance; (v) details on how monitoring and evaluation for safeguards will be undertaken; and (vi) definition and role of third party auditing. The consultant responsible for preparing the ESMF will ensure that the above areas are well covered in the POM. A concern across many projects requiring an ESMF is that the subproject implementers (SUBPROJECT OWNER) are often at a decentralized field level - provincial and district level, and they usually have never seen the ESMF. The rules of engagement for all these subnational implementation agencies are most often embedded in the Project Operational Manual (POM). **Therefore, it is critically important not to assume that because these sections are in the POM that they will be read or used by those who need to use them.**

120. It is imperative to look at POM with frameworks (both in the country and for other similar Bank projects) and identify those POM that have practical safeguard related components. The POM should have sections on environmental issues/procedures, resettlement and compensation and ethnic minorities plans. These sections should provide links to: (i) subproject screening; (ii) appropriate mitigation actions and/or checklists; (iii) practical pre-tested safeguard forms used at field subproject level; (iv) development

of supplemental tools/guidance; (v) details on how monitoring and evaluation for safeguards will be undertaken; and (vi) definition and role of third party auditing.

7.0 Capacity Building, Training, and Technical Assistance

121. To ensure that the ESMF is effectively implemented, the Implementing Agencies (IA) should be assessed for its capacity to manage environmental and social impacts and risks and to implement national laws and the World Bank's requirements. This may require the IA to either delegate the responsibility to supervise the project to either the supervision consultants or to develop in-house capacity to manage the day-to-day supervision of the implementation of the ESMF. Mechanisms and measures for capacity building should be developed and integrated in project design and documented in the ESMF.

122. To ensure that capacity for safeguard planning and implementation, it is vital that a project allocates sufficient resources to training, capacity building and technical assistance, especially in the early years. These efforts will not only benefit the Bank project, but will also build local capacity to undertake other development initiatives funded locally or by other donors.

123. This section of the ESMF describes the capacity building, training, and technical assistance included in the Project to ensure effective implementation of the ESMF.

7.1 Institutional Capacity Assessment

124. An assessment of the existing institutional capacity to implement the ESMF is presented in this section. It focuses on the adequacy of country institutions identified in Sections II and III above (local, regional and national) to carry out their ESMF responsibilities. It assesses, at a minimum, the adequacy of:

- ✓ the national institutional structure, and its authorities at all relevant levels, to address environmental and social management issues specific to the project and subprojects;
- ✓ existing laws, policies and regulations for environmental and social management, including those for administering permits and licenses;
- ✓ the number and qualifications of staff (civil servants, community organizations, external consultants) to carry out their ESMF responsibilities;
- ✓ budget resources to support staff in their work.

125. The assessment results in an institutional development plan (e.g. additions or revisions to policies, regulations, and administrative procedures) designed to facilitate implementation of the ESMF.

7.2 Training

126. The section describes the training needs and plan for the various participants involved in implementing the ESMF based, in part, on the institutional assessment described above. The objective of the training under the ESMF is to:

- ✓ support MAFF and the concerned ministries (PTs)/SUBPROJECT OWNER, contractors, consultants, representatives and leaders of community groups to fully understand the ESMF and associated environmental management of the project, identify, prepare, implement, and manage the environmental and social aspects of their subprojects;
- ✓ ensure that the POM and its requirements are understood;
- ✓ ensure that local MAFF and the concerned ministries (PTs) have the capacity to prepare subproject proposals, and to appraise, approve and supervise the implementation of subprojects; and
- ✓ strengthen local NGOs and other service providers to provide technical support (including basic EMPs, RPs, EMDPs, and PMPs) to MAFF and the concerned ministries (PTs) in safeguard implementation.

127. The ESMF specifies that, as part of project preparation, a training needs assessment (TNA) may be carried out (see outline TOR for ESMF preparation in Annex 1). The TNA will consider all participants who will have responsibilities for implementing the ESMF. It will distinguish among their different training needs in terms of raised awareness, sensitization to the issues, and detailed technical training:

- **Awareness-raising** for participants who need to appreciate the significance or relevance of environmental and social issues.
- **Sensitization to the issues** for participants who need to be familiar enough with the issues that they can make informed and specific requests for technical assistance; and
- **Detailed technical training** for participants who will need to analyze potentially adverse environmental and social impacts, to prescribe mitigation approaches and measures, and to prepare and supervise the implementation of management plans. This training will address such matters as community participation methods; environmental analysis; using the ESMF checklist; preparing EMPs, RPs, PMPs, EMDPs. etc.; ESMF reporting; and subproject supervision and monitoring.

128. MAFF and the concerned ministries (PTs) has planned to organize for the three training needs. MAFF and the concerned ministries (PTs) will provide a detailed agenda and specification of resource needs (venue, trainers, materials, etc.) for each type of training activity. It also accounts for the extent of project by planning to implement the training schedule.

8.0 ESMF Implementation Budget

129. This section of the ESMF consolidates and presents the estimated budget needed by MAFF and the concerned ministries (PTs) to implement the ESMF. As the technical details of sub-projects have not yet been finalized for the project investments, an estimated lump sum amount has been designated to address the potential number of IEE, ECOP which will have to be prepared as well as monitoring requirements for the ESMF. The ESMF implementation budget includes:

- Institutional development activities.
- The training program for MAFF and the concerned ministries (PTs), consultants, communities and local authorities to implement their ESMF responsibilities.

- Technical assistance to local authorities if needed.
- Allowances for the preparation of subproject EMPs, RPs, EMDPs, etc. (The costs of implementing these plans is included in the subproject budgets).
- Monitoring and site visits
- Semi-annual reports to be sent to the Bank

130. ESMF implementation cost will include the development of the specific site-specific safeguards instruments, including staff costs, travel, consultation workshops, translation and trainings. The total indicative cost reviewed by the World Bank and MRD is estimated at 400,000 USD (Table 1), which will be supported by a combination of IDA and counterpart financing, from the project management component.

Table 1 ESMF implementation costs.

No.	Description	Indicative Cost (USD)
1.	National Environment Safeguards Specialist/consultant	102,000
2.	National Social Safeguards Specialist/consultant	102,000
3.	National Travel to 9 provinces	25,000
4.	National Travel for public consultation on Safeguard in Provinces	10,000
5.	Translation of Safeguard Documents	10,000
6.	National Training Workshop in Phnom Penh	8,000
7.	National Training workshop in provinces	9,000
8.	Contingency (10%)	39,000
TOTAL		400,000

9.0 Grievance Redress Mechanism (GRM)

131. The section should describe the mechanism to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the project's performance, including concerning environmental and social impacts and issues. The grievance mechanism should address affected people's concerns and complaints promptly, using a transparent process that is responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism should not impede access to the country's judicial or administrative remedies. The redress mechanism should be communicated to the communities and included in relevant project documents (e.g. Project Operational Manual).

132. For this project, the project will establish grievance redress committee(s) at the local (provincial, district, and commune) levels to be headed respectively by the Provincial Governor or Provincial Vice-Governor, Chief of District, and Chief of Commune. At the commune level, the membership of the GRM a representative from project affected households (PAH) who shall be chosen from among the project affected people (PAP). In the case of indigenous communities, village level committees will be established and subject to a process of free, prior and informed consultation and will build on the unique decision-making structures of individual indigenous communities, as well as requirements for gender and intergenerational balance. These committees will receive, evaluate and facilitate the resolution of PAP

and PAH concerns, complaints and grievances. The grievance redress committees will function, for the benefit of PAP and PAH, during the entire life of the sub-project(s), including the defects liability periods.

133. Grievances from PAP and PAH in connection with the implementation of the RP will be handled through negotiation with the aim of achieving consensus. Complaints have the option of passing through four stages before potentially being elevated to a court of law as a last resort. In addition to the mechanisms below, and at the prerogative of the PAP and PAH, grievances may be taken to other mediating bodies, such as a council of elders, monks at a local pagoda, or any other dispute resolution body recognized by the PAP and PAH.

134. First Stage, Village Level. An aggrieved PAH may bring his/her complaint to village complaints committee established under the IPDP. The committee should attempt to resolve the complaint within 15 days following the lodging of the complaint by the aggrieved PAH. The composition of the group will vary depending on the village, and be subject to a process of free, prior and informed consultation, will build on the unique decision making structures of individual indigenous communities, as well as requirements for gender and intergenerational balance. If after 15 days the aggrieved PAH does not hear from Village or if the PAH is not satisfied with the decision taken during the first stage, the complaint may be brought to the District Office either in writing or verbally.

135. Second Stage, Commune Level. An aggrieved PAH may bring his/her complaint to the commune leader. The commune leader will call for a meeting of the group to decide on a course of action to resolve the complaint within 15 days, following the lodging of complaint by the aggrieved PAH. The group meeting should consist of the commune leader, representative(s) from Provincial Resettlement Sub-Committee Working Group (PRSC-WG) district offices, and the aggrieved PAH. The commune leader is responsible for documenting and maintaining files of all complaints that are processed. If after 15 days the aggrieved PAH does not hear from Village or Commune authorities, or if the PAH is not satisfied with the decision taken during the first stage, the complaint may be brought to the District Office either in writing or verbally. In the case of PAH from indigenous making a complaint, they will be accompanied by a facilitator paid for by the project, who is conversant in the relevant language, and who will serve as an advocate for the aggrieved PAH during the process.

136. Third Stage, District Office. The District office has 15 days within which to resolve the complaint to the satisfaction of all concerned. If the complaints cannot be solved in this stage, the district office will bring the case to the Provincial Grievance Redress Committee. In the case of PAH from indigenous community making a complaint, they will be accompanied by a facilitator paid for by the project, who is conversant in the relevant language, and who will serve as an advocate for the aggrieved PAH during the process.

137. Fourth Stage, Provincial Grievance Redress Committee. The Provincial Grievance Redress Committee, which consists of the Provincial Governor or Deputy Governor as the committee chairman and Directors of relevant Provincial Departments as members (which will be established in each province prior to DMS), meets with the aggrieved party and tries to resolve the complaint. The Committee may ask the PRSC-WG for a review of the DMS by the External Monitoring Agency (EMA). Within 30 days of the submission of the grievance to the Provincial Grievance Redress Committee a written decision must be made and a copy of the decision sent to IRC, MRD and the PAH. In the case of PAH from indigenous community making a complaint, they will be accompanied by a facilitator paid for by the project, who is

conversant in the relevant language, and who will serve as an advocate for the aggrieved PAH during the process.

138. Final Stage, the Court Procedures. If the aggrieved PAH is not satisfied with proposed remedies developed by the Provincial Grievance Redress Committee based on agreed policies in the RF-RP, the committee shall file administrative procedures against the PAH with the participation of provincial prosecutors. The case will be brought to the Provincial Court and the same will be litigated under the rules of the court. At the same time, the PAH can bring the case to the Provincial court. During litigation of the case, RGC will ask the court that the project proceed without disruption while the case is being heard. If any party is not satisfied with the ruling of the provincial court, that party can bring the case to a higher court. The RGC shall implement the decision of the court.

10.0 ESMF Consultation and Disclosure

139. **Consultation during ESMF preparation.** This section describes the consultation process, consultation methods used during the preparation of the ESMF, the concerns and issues raised during the consultation, and incorporation of these issues and concerns in the ESMF. Specific dates and locations of the consultation events should also be indicated.

140. The consultation process and its results should be documented in the ESMF. It should: (i) cover country laws and regulations relevant to the consultation and disclosure process; (ii) include methods (newspapers, pamphlets, community papers, interviews, community meetings and consultations, participatory tools) and means (radio broadcast, local TV, internet) used to inform and involve the affected people and other stakeholders in the environmental and social process; (iii) summarize response and highlight issues raised by various stakeholders; (iv) include mechanism for future consultations; and (v) document public meetings and interviews, including dates, names, gender, topics, details of discussion, and important outcomes. If OP 4.10 is triggered the EMPF (whether stand alone or integrated into the ESMF) will describe the particular arrangements for free, prior and informed consultations during sub-project preparation and implementation.

141. **Disclosure of the ESMF.** This section describes where the ESMF will be disclosed before the project appraisal. Like other environmental safeguard instruments, before commencement of appraisal, ESMF will be submitted to the WB for disclosure. Public disclosure of these documents in the country and the subproject areas are also be required.

Annex 1: Gap analysis between the RGC legal/regulatory framework and the World Bank

Subjects	World Bank OP 4.01	Royal Government of Cambodia (RGC)	Gap/Project Measures
1.EA Process			
<p><i>1.1 An EA considers natural and social aspects in an integrated manner that considers national and international obligations, treaties and agreements</i></p>	<p><i>Assess the adequacy of the applicable legal and institutional framework, including applicable international environmental agreements, and confirm that they provide that the cooperating government does not finance project activities that would contravene such international obligations.</i></p>	<p>Law on Environmental Protection and Natural Resource Management: Article 6 – An environmental impact assessment shall be done on every project and activity, private or public, and shall be reviewed and evaluated by the Ministry of Environment before being submitted to the Royal Government for decision. Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999):</p> <ul style="list-style-type: none"> ▪ Article 1 – An environmental impact assessment (EIA) shall be done on every project and activity, private or public, and shall be reviewed by the Ministry of Environment before being submitted to the Royal Government for decision. ▪ Article 6 – The Project Sponsor shall conduct Initial Environmental Impact Assessment (IEIA) for the project required EIA as listed in an Annex of this Sub-Decree. 	<p>OP 4.01 Policy Procedures will be applied to ensure the sub-projects do not contravene any obligations, treaties or agreements whether or not an EA is a requirement under national regulations.</p>
<p><i>1.2. Assessment of project alternatives.</i></p>	<p><i>Provide for assessment of feasible investment, technical, and siting alternatives, including the "no action" alternative, potential impacts, feasibility of mitigating these impacts, their capital and recurrent costs, their suitability under local conditions, and their institutional, training and monitoring requirements associated with them.</i></p>	<p>Not included.</p>	<p>OP 4.01 Policy Procedures will be implemented to ensure that the assessment of the Project potential impacts review possible alternatives including the option of "no action".</p>
1.EA Process			
<p><i>1.3 Retention of project advisors.</i></p>	<p><i>The borrower should normally engage an advisory panel of independent, internationally recognized environmental specialists</i></p>	<p>Not included.</p>	<p>OP 4.01 Policy Procedures will be implemented to provide guidance should the borrower be advised that</p>

Subjects	World Bank OP 4.01	Royal Government of Cambodia (RGC)	Gap/Project Measures
	to advise on all aspects of the project relevant to the EA.		independent, internationally recognized environmental specialists be engaged to provide advice on the Project review.
2. Public Consultation and Disclosure			
2.1. The EA process must include public consultation and disclosure.	<p>The Bank may, if appropriate, require public consultation and disclosure.</p> <p>The borrower consults project affected groups and local nongovernmental organizations (NGOs).</p>	<p>Law on Environmental Protection and Natural Resource Management:</p> <p>Article 1 – The purposes of this law are:</p> <ul style="list-style-type: none"> ○ to encourage and enable the public to participate in environmental protection and natural resource management. <p>Article 16 – The Ministry of Environment, following a request from the public, shall provide information on its activities, and shall engage public participation in environmental protection and natural resource management.</p> <p>Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999):</p> <ul style="list-style-type: none"> ▪ Article 1 – Foster public participation in the environmental impact assessment process in recognition that their concerns should be considered in the project decision-making process. 	OP 4.01 Policy Procedures will be implemented to provide guidance on public consultation and disclosure such that project affected groups and local NGOs are informed.
3. Monitoring & Evaluation			
3.1 Internal and external independent monitoring are required	During project implementation, the borrower reports on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP.	Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999): Article 3 – The Ministry of Environment shall: b/ take appropriate administrative, conduct surveillance and monitor to ensure that the Environmental Management Plan during project construction, operation, and closure, which contained in an approved EIA report be implemented by the Project Sponsor.	OP 4.01 Policy Procedures will be implemented. The PCO in close coordination with GDR-IRC will conduct internal monitoring on resettlement implementation and reporting requirements for the ESMMP implementation. The monitoring will include progress reports, status of the RP implementation, information on

Subjects	World Bank OP 4.01	Royal Government of Cambodia (RGC)	Gap/Project Measures
			location and numbers of people affected, compensation amounts paid by item, and assistance provided to PAHs. The report of monitoring results will be prepared by MRD and submitted to IRC and WB on a quarterly basis.

Table 2 Gap analysis between the RGC legal/regulatory framework and the World Bank OP4.04.

Subjects	OP 4.04	RGC	Gap/Project Measures
1.Promote Environmentally Sustainable Development			
<i>1.1 Use a precautionary approach to ensure environmentally sustainable development.</i>	<i>The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development.</i>	<p>Law on Environmental Protection and Natural Resource Management: Article 1 – The purposes of this law are:</p> <ul style="list-style-type: none"> ○ to ensure the rational and sustainable conservation, development, management, and use of the natural resources of the Kingdom of Cambodia. ○ to suppress any acts that cause harm to the environment. <p>Article 3 – The National Environmental plan is a plan of environmental protection and sustainable natural resource management for implementation throughout the Kingdom of Cambodia.</p>	OP 4.04 Policy Procedures will be implemented to apply a precautionary approach that complements the national regulation that ensures the rational and sustainable conservation, development, management, and use of the natural resources.
<i>1.2 Avoid significant conversion or degradation of critical natural habitats.</i>	<i>The Bank does not support projects that, in the Bank’s opinion, involve the significant conversion or degradation of natural habitats.</i>	<p>Law on Environmental Protection and Natural Resource Management: Article 8 – Natural resource protected areas, which include national parks, wildlife sanctuaries, protected landscape areas, (and) multiple use areas, shall be determined by Royal Decree.</p>	Though critical habitats are not proposed to be within the sub-project footprints, OP 4.04 Policy Procedures will be implemented to provide guidance on avoiding the conversion or degradation of critical natural habitats which could be directly or indirectly affected by the sub-projects.

Subjects	OP 4.04	RGC	Gap/Project Measures
<i>1.3 Using lands already converted from natural habitats to minimize impacts.</i>	<i>Wherever feasible, Bank-financed projects are sited on lands already converted.</i>	Not included.	OP 4.04 Policy Procedures will be implemented to ensure that the sub-projects are designed to be sited on converted lands.
<i>1.4 Provide for the use of appropriate expertise for the design and implementation of mitigation and monitoring plans.</i>	<i>If there are potential institutional capacity problems, the project includes components that develop the capacity of national and local institutions for effective environmental planning and management. The mitigation measures specified for the project may be used to enhance the practical field capacity of national and local institutions.</i>	Not included.	OP 4.04 Policy Procedures will be implemented to provide guidance should the borrower be advised that independent, internationally recognized environmental specialists be engaged to provide advice on the Project review.
2. Public Consultation and Disclosure			
<i>2.1 Consult key stakeholders and NGOs as well as disclose draft mitigation plan in a timely manner, before appraisal formally begins, in an accessible place and in a form and language understandable to key stakeholders.</i>	<i>The Bank expects the borrower to take into account the views, roles, and rights of groups, including local nongovernmental organizations and local communities, affected by Bank-financed projects involving natural habitats, and to involve such people in planning, designing, implementing, monitoring, and evaluating such projects.</i>	<p>Law on Environmental Protection and Natural Resource Management:</p> <p>Article 1 – The purposes of this law are:</p> <ul style="list-style-type: none"> ○ to encourage and enable the public to participate in environmental protection and natural resource management. <p>Article 16 – The Ministry of Environment, following a request from the public, shall provide information on its activities, and shall engage public participation in environmental protection and natural resource management.</p> <p>Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999):</p> <ul style="list-style-type: none"> ▪ Article 1 – Foster public participation in the environmental impact assessment process in recognition that their concerns should be considered in the 	OP 4.01 Policy Procedures will be implemented to provide guidance on public consultation and disclosure such that project affected groups and local NGOs are informed.

Subjects	OP 4.04	RGC	Gap/Project Measures
		project decision-making process.	

Table 3 Gap analysis between the RGC legal/regulatory framework and the World Bank OP4.11.

Subjects	OP 4.11	RGC	Gap/Project Measures
1.Preservation of Physical Cultural Resources			
<i>1.2 As part of the EA, as appropriate, conduct field based surveys, using qualified specialists to consult concerned government authorities, relevant non-governmental organizations, relevant experts and local people in documenting the presence and significance of Physical Cultural Resource (PCR).</i>	<i>To develop the TORs for the EA, the borrower, in consultation with the Bank, relevant experts, and relevant project-affected groups, identifies the likely physical cultural resources issues, if any, to be taken into account by the EA.</i>	The Constitution of the Kingdom of Cambodia: Article 69 – The State shall preserve ancient monuments and artifacts and restore historic sites. Law on the Protection of Cultural Heritage: Article 7 – Listing in the inventory consists of keeping a record of public and private cultural property which, while not necessarily requiring immediate classification, is nonetheless of some importance from a scientific, historical, artistic or religious point of view.	OP 4.11 Policy Procedures will be implemented to ensure that qualified specialists are engaged in the site assessments to identify likely PCR issues.
<i>1.2 For materials that may be discovered during project implementation, provide for the use of "chance find" procedures in the context of the PCR management plan or PCR component of the environmental management plan.</i>	<i>The borrower develops a physical cultural resources management plan that includes measures for avoiding or mitigating any adverse impacts on physical cultural resources, provisions for managing chance find, any necessary measures for strengthening institutional capacity, and a monitoring system to track the progress of these activities.</i>	Law on the Protection of Cultural Heritage: Article 37 – When construction work or any other activity brings to light cultural property such as monuments, ruins, ancient objects, remains of inhabited sites, ancient burial sites, engravings or any property likely to be of interest in the study of prehistory, history, archaeology, ethnology, paleontology or other branches of science dealing with the past or of human sciences in general, the person finding the property and the owner of the site where it was discovered are obliged to stop the	OP 4.11 Policy Procedures will be implemented to guide the preparation of a PCR management plan should cultural resources be discovered during sub-project construction activities.

Subjects	OP 4.11	RGC	Gap/Project Measures
		<p>construction work and immediately make a declaration to the local police, who shall transmit it to the Governor of the province without delay. The Governor shall in turn inform the competent authority and shall take the measures necessary to ensure the protection of the objects and the site.</p>	
2. Public Consultation and Disclosure			
<p>2.1 Disclose draft mitigation plans as part of the EA or equivalent process, in a timely manner, before appraisal formally begins, in an accessible place and in a form and language that are understandable to key stakeholders.</p>	<p>As part of the public consultations required in the EA process, the consultative process for the physical cultural resources component normally includes relevant project-affected groups, concerned government authorities, and relevant nongovernmental organizations in documenting the presence and significance of physical cultural resources, assessing potential impacts, and exploring avoidance and mitigation options.</p> <p>The findings of the physical cultural resources component of the EA are disclosed as part of, and in the same manner as, the EA report.</p>	<p>Law on Environmental Protection and Natural Resource Management: Article 1 – The purposes of this law are:</p> <ul style="list-style-type: none"> ○ to encourage and enable the public to participate in environmental protection and natural resource management. <p>Article 16 – The Ministry of Environment, following a request from the public, shall provide information on its activities, and shall engage public participation in environmental protection and natural resource management.</p> <p>Sub-decree #72 ANRK.BK on Environmental Impact Assessment Process (1999):</p> <ul style="list-style-type: none"> ▪ Article 1 – Foster public participation in the environmental impact assessment process in recognition that their concerns should be considered in the project decision-making process. 	<p>OP 4.01 Policy Procedures will be implemented to provide guidance on public consultation and disclosure such that project affected groups and local NGOs are informed.</p>

Annex 2.1: Non-Eligible List

The following activities are prohibited under the LACP (ineligible or the “Non-eligibility list”) in order to avoid adverse irreversible impacts on the environment and people, the following activities are explicitly excluded from funding:

- (i) Relocation and/or demolition of any permanent houses or business.
- (ii) Use of LACP investment or subproject as an incentive and/or a tool to support and/or implement involuntary resettlement of local people and village consolidation.
- (iii) Land acquisition that affect more than 200 persons or 20 households.
- (iv) New settlements or expansion of existing settlements inside “Total Protected Zone” as defined in a government decree.
- (v) Likely creation of adverse impacts on ethnic groups within the village and/or in neighboring villages or unacceptable to ethnic groups living in an ethnic homogenous village or a village of mixed ethnic composition.
- (vi) Imposing ideas and changing priorities identified by the community and endorsed at the Kumban level meeting without community consultation, prior review and clearance from the PMT.
- (vii) Damage or loss to cultural property, including sites having archeological (prehistoric), paleontological, historical, religious, cultural and unique natural values.
- (viii) Resources access restriction that could not be mitigated and will result in adverse impacts on the livelihoods of ethnic groups and disadvantage peoples.
- (ix) New roads, road rehabilitation, road surfacing, or track upgrading, new irrigation system, of any kind inside natural habitats and existing or proposed protected areas.
- (x) Purchase of guns; chain saws; asbestos, dynamites, destructive hunting and fishing gears and other investments detrimental to the environment.
- (xi) Purchase of banned pesticides, insecticides, herbicides and other unbanned pesticides, unbanned insecticides and unbanned herbicides and dangerous chemicals exceeding the amount required to treat efficiently the infected area. However, if pest invasion occurs, small amount of eligible and registered pesticides in Lao PDR is allowed if supplemented by additional training of farmers to ensure pesticide safe uses in line with World Bank’s policies and procedures (Bank clearance is needed). And no pesticides, insecticides and herbicides will be allowed in the buffer zone of protected area, protected forest and natural habitats.
- (xii) Forestry operations, including logging, harvesting or processing of timber and non-timber forest products (NTFP).
- (xiii) Unsustainable exploitation of natural resources.
- (xiv) Introduction of non-native species, unless these are already present in the vicinity or known from similar settings to be non-invasive.
- (xv) Significant conversion or degradation of natural habitat or where the conservation and/or environmental gains do not clearly outweigh any potential losses.
- (xvi) Production or trade in any product or activity deemed illegal under Lao PDR laws or regulations or international conventions and agreements, or subject to international bans.

- (xvii) Labor and working conditions involving harmful, exploitative, involuntary or compulsory forms of labor, forced labor⁴, child labor⁵ or significant occupational health and safety issues.
- (xviii) Trade in any products with businesses engaged in exploitative environmental or social behavior.
- (xix) Subprojects that will use or induce the use of hazardous materials (including asbestos) or any banned chemicals.

Preference list

- (i) promote rotation farming and sustainable agriculture practices
- (ii) promote conservation of water resources
- (iii) promote utilization of natural/organic pesticide from herb instead of chemical pesticide as well as IPM
- (iv) promote skill development to increase income revenue
- (v) promote improvement of rice mill equip with dust control system

⁴ Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

⁵ Harmful child labor means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.

Annex 2.2: Environmental and Social Screening Checklist for Subproject

This subproject screening checklist is intended for the use of MAFF and the concerned ministries (PTs) and SUBPROJECT OWNER so that they can determine the appropriate type of safeguards documentation that will be required by the World Bank for the subproject, in conformance with the ESMF for the Project.

The MAFF and the concerned ministries (PTs) or SUBPROJECT OWNER is encouraged to send this checklist to the Task Team Leader (TTL) to ensure that the Bank agrees with the results of the screening prior to the Client's hiring of consultants to prepare safeguard documents.

NAME OF PROJECT

Subproject Name:

Subproject Location: (e.g. region, district, etc.)

Type of activity: (e.g. new construction, rehabilitation, periodic maintenance)

Subproject Owner and Address:

Environmental Category of the Main Project: (e.g., A or B)

1. Eligibility Screening

1. Eligibility screening is conducted to determine if a subproject is eligible for funding under the project. To avoid significant adverse environmental and social impacts, some projects may include criteria for ineligibility or have an ineligible activity list to screen out subprojects. These criteria or the ineligible list are included in the ESMF and during the project implementation subprojects are screened against these criteria.

2. An example of criteria for ineligible subprojects under the Coastal Resources for Sustainable Development Project is given in Box X of the Toolkit.

3. In addition, there are certain types of projects that the Bank does not fund at all (consult the Bank safeguards policies). Please note that the owner of the subproject is expected to comply with all national legislation and standards and with obligations (standards, restrictions or similar) of the country under international conventions, treaties, agreements and protocols.

2. Technical Environmental Screening

4. The technical environmental screening of each proposed subproject is to determine the appropriate extent and type of EA. The outcome of this screening is used to classify the subprojects into one of three categories, depending on the type, location, sensitivity, and scale of the subproject and the nature and magnitude of its potential environmental impacts (OP 4.01, paragraph 8).

- (a) Category A: A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.

- (b) Category B: A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - 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 mitigatory measures can be designed more readily than for Category A projects.
- (c) Category C: A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

2.1 Category A Screening Criteria

5. The following set of screening questions is intended to determine if the subproject has the potential to cause significant adverse impacts (i.e., is the subproject a Category A).

Table 1. Category A Screening Criteria			
Screening Questions	Yes	No	Remarks
1. Does the subproject have the potential to cause significant adverse impacts to natural or critical natural habitats?			
Leads to loss or degradation of sensitive Natural Habitats defined as: land and water areas where (i) the ecosystems' bio-logical communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the area's primary ecological functions. Important natural habitats may occur in tropical humid, dry, and cloud forests; temperate and boreal forests; mediterranean-type shrub lands; natural arid and semi-arid lands; mangrove swamps, coastal marshes, and other wetlands; estuaries; sea grass beds; coral reefs; freshwater lakes and rivers; alpine and sub alpine environments, including herb fields, grasslands, and paramos; and tropical and temperate grasslands.			Indicate location and type of natural habitat and the kind of impacts that could occur, e.g, loss of habitat and how much, loss of ecosystem services, effects on the quality of the habitat. State why these impacts are or are not significant. Note that the Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs.
Leads to loss or degradation of Critical natural habitat, i.e., habitat that is legally protected, officially proposed for protection, or unprotected but of known high conservation value. Critical habitats include existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications, areas initially recognized as protected by traditional local communities (e.g., sacred groves), and sites that maintain conditions vital for the viability of these protected areas. Sites may include areas with known high suitability for bio-			Note that the Bank cannot fund any projects that result in significant conversion or degradation of critical natural habitats. Indicate location and type of critical natural habitat and state why they are or are not significant.

diversity conservation; and sites that are critical for rare, vulnerable, migratory, or endangered species.			
2. Does the subproject have the potential to cause significant adverse impacts to physical cultural resources?			
Leads to loss or degradation of physical cultural resources, defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. They may be located in urban or rural settings, above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community.			Describe location and type of cultural resources and the kind of impacts that could occur. State the level of protection (local, provincial, national or international). Are any of these sites considered important to preserve in situ, meaning that the resources should not be removed from their current location? State why impacts are or are not significant.
Potentially results in a contravention of national legislation, or national obligations under relevant international environmental treaties and agreements, including the UNESCO World Heritage Convention or affect sites with known and important tourism or scientific interest.			Describe any impacts that might contravene national or international legislation concerning cultural resources. If considered not significant, explain why.
3. Does the subproject have the potential to cause significant adverse impacts on the lands and related natural resources used by ethnic minorities?			
Potentially result in impacts on lands or territories that are traditionally owned, or customarily used or occupied, and where access to natural resources is vital to the sustainability of cultures and livelihoods of minority peoples. Potentially impact the cultural and spiritual values attributed to such lands and resources or impact natural resources management and the long-term sustainability of the affected resources.			Describe the type and extent of impacts and the significance of alterations to the resources of the affected minorities. Note that an Ethnic Minority Development Plan will also be required in accordance with World Bank OP 4.10.
4. Does the subproject have the potential to cause significant adverse effects to populations subject to physical displacement?			
Leads to physical displacement of populations dependent upon lands or use of specific use of resources that would be difficult to replace or restore? Otherwise lead to difficult issues in the ability of the subproject to restore livelihoods?			Indicate the numbers of households affected and the resources that will be difficult to replace in order to achieve livelihood restoration. Note that a Resettlement Action Plan will need to be prepared in accordance with World Bank OP 4.12.
5. Does the subproject entail the construction of a large dam?			
Does the subproject require construction of a dam that is: <ul style="list-style-type: none"> • 15 meters or more in height • between 10 and 15 meters in height with special design complexities--for example, an unusually 			Describe the issues and note the requirements of OP 2.37 concerning the appointment of an Independent Panel of Experts.

<p>large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, or retention of toxic materials.</p> <ul style="list-style-type: none"> under 10 meters in height but expected to become large dams during the operation of the subproject? 		
<p>Does the operation of the subproject rely on the performance of:</p> <ul style="list-style-type: none"> an existing dam or a dam under construction (DUC); power stations or water supply systems that draw directly from a reservoir controlled by an existing dam or a DUC; diversion dams or hydraulic structures downstream from an existing dam or a DUC, where failure of the upstream dam could cause extensive damage to or failure of the new Bank-funded structure and irrigation or water supply projects that will depend on the storage and operation of an existing dam or a DUC for their supply of water and could not function if the dam failed. 		<p>If yes, this may not always mean that a Category A EIA is required, but special care must be taken, because the Bank has specific requirements to ensure the safety of the performance of the existing dam or dam under construction. Bank requires inspection and evaluation of dam or DUC, its performance and operation and maintenance procedures, and recommendations for any remedial work or safety-related measures; previous assessments can also be evaluated.</p>
<p>6. Does the subproject entail the procurement or use of pesticides?</p>		
<p>Do the formulations of the products fall in World Health Organization classes IA and IB, or are there formulations of products in Class II?</p>		<p>If yes, this may not always mean that a Category A EIA is required, but special care must be taken. The Bank will not finance such products, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.</p>
<p>7. Does the subproject have the potential to cause irreversible impacts or impacts that are not easily mitigated?</p>		
<p>Leads to loss of aquifer recharge areas, affects the quality of water storage and catchments responsible for potable water supply to major population centers.</p>		<p>Name the water bodies affected and describe magnitude of impacts.</p>
<p>Leads to any impacts such that the duration of the impacts is relatively permanent, affects an extensive geographic area or impacts have a high intensity.</p>		<p>Describe any impacts considered to be permanent, affecting a large geographic area (define) and high intensity impacts.</p>
<p>8. Does the subproject have the potential to result in a broad diversity of significant adverse impacts?</p>		

Multiple sites in different locations affected each of which could cause significant losses of habitat, resources, land or deterioration of the quality of resources.			Identify and describe all affected locations.
Potential, significant adverse impacts likely to extend beyond the sites or facilities for the physical works.			Identify and describe the types of impacts extending beyond the sites or facilities of the physical works.
Transboundary impacts (other than minor alterations to an ongoing waterway activity).			Describe the magnitude of the transboundary impacts.
Need for new access roads, tunnels, canals, power transmission corridors, pipelines, or borrow and disposal areas in currently undeveloped areas.			Describe all activities that are new that are required for the main activity to function.
Interruption of migratory patterns of wildlife, animal herds or pastoralists, nomads or semi-nomads.			Describe how migrations of people and animals are affected.
9. Is the subproject unprecedented?			
Unprecedented at the national level?			Describe why and what aspects are unprecedented.
Unprecedented at the provincial level?			Describe why and what aspects are unprecedented.
10. Is the project highly contentious and likely to attract the attention of NGOs or civil society nationally or internationally?			
Considered risky or likely to have highly controversial aspects.			Describe perceived risks and controversial aspects
Likely to lead to protests or people wanting to demonstrate or prevent its construction.			Describe the reasons that subproject is highly unwelcome.

6. If the answer is yes to any of the above screening questions, the subproject is likely to be considered a Category A and an EIA meeting World Bank standard, including an EMP, will be required. The PCO is advised to discuss the results of this screening with the TTL, before starting environmental and social studies of the subproject. There are some differences in the Bank and the government requirements for a Bank category A project in terms of preparation of TORs, consultation, content and structures of the EIA report. Two separate EIAs to satisfy the Bank and the government requirements will be needed.

7. **Note:** If the main project has not been categorized as a Category A, then any subproject where the answer is “yes” to the screening questions cannot be done.

2.2 Category C Screening Criteria

8. The following set of screening questions is intended to determine if the subproject has the potential to cause minimal or no adverse impacts (i.e., is a Category C).

Screening Questions	Y	N	Remarks
1. Subproject activities are limited to training, technical assistance and capacity building.			Describe activities.
2. Training, technical assistance and capacity building do not require use of chemicals, biological agents, pesticides.			Support this statement.
3. There is no infrastructure to be demolished or built.			Support this statement.
4. There are no interventions that would affect land, water, air, flora, fauna or humans.			Support this statement.
5. If scientific research is being performed, the research is of such a nature that no hazardous or toxic wastes are created and the research does not involve recombinant DNA or other research that would create dangerous agents should they be released from contained, laboratory conditions			If yes, discuss with the World Bank environmental specialists.

2.3 Category B Screening

9. Many of the subprojects to be proposed will be Category B. They may have similar types of impacts to Category A, but the impacts are not irreversible and they are less extensive, less intensive, less adverse, more easily mitigated, not likely controversial and not unprecedented.

10. After the screening for Category A and Category C are applied and if the conclusion is reached that the subproject is not A and is not C, then the subproject should be categorized as B.

11. Category B also requires an EIA or other EA instrument in accordance with the WB OP 4.01. The PCO will apply the criteria of the national regulation to determine whether to prepare an EIA or an EPC in according with the Law on Environmental Protection and associated EA Decree and Circular. In most cases, an EMP consistent with World Bank policy will be required (see Annex 4). For other case, a simplified EMP or an ECOP should suffice.

12. The issues that may need to be addressed in a Category B safeguards document are variable and will depend upon the type of subproject, its location and surrounding land uses and the kinds of construction and operational procedures that will be used.

2.4 Environmental and Social Impact Checklist

13. Table 3 presents a checklist, the purpose of which is to assist the borrower in preparing the EA instrument, including the EMP.

Table 3. Potential Environmental and Social Impacts to be Addressed							
	Does the subproject entail these environmental impacts?	No	Low	Medium	High	Not known	Remarks
1.	Encroachment on historical/cultural areas						
2.	Encroachment on an ecosystem (e.g. natural habitat sensitive or protected area, national park, nature reserve etc....)						<i>Describe and briefly assess impact's level</i>
3.	Disfiguration of landscape and increased waste generation						
4.	Removal of vegetation cover or cutting down of trees during clearance for construction						
5.	Change of surface water quality or water flows (e.g. Increase water turbidity due to run- off, waste water from camp sites and erosion, and construction waste) or long-term.						<i>Indicate how and when this occurs.</i>
6.	Increased dust level or add pollutants to the air during construction						<i>Indicate how and when this occurs</i>
7.	Increased noise and/or vibration						<i>Indicate how and when this occurs</i>
8.	Resettlement of households? If yes, how many households?						
9.	Use of resettlement site that is environmentally and/or culturally sensitive						<i>Briefly describe the potential impacts</i>
10.	Risk of disease dissemination from construction workers to the local peoples (and vice versa)?						<i>Note estimated number of workers to be hired for project construction in the commune/district and what kind of diseases they might introduce or acquire.</i>
11.	Potential for conflict between construction workers and local peoples (and vice versa)?						
12.	Use of explosive and hazardous chemicals						

13.	Use of sites where, in the past, there were accidents incurred due to landmines or explosive materials remaining from the war						
14.	Construction that could cause disturbance to the transportation, traffic routes, or waterway transport?						
15.	Construction that could cause any damage to the existing local roads, bridges or other rural infrastructures?						
16.	Soil excavation during subproject's construction so as to cause soil erosion						
17.	Need to open new, temporary or permanent, access roads?						<i>Estimate number of and length of temporary or permanent access roads and their locations</i>
18.	Separation or fragmentation of habitats of flora and fauna?						<i>Describe how.</i>
19.	Long-term impacts on air quality						
20.	Accident risks for workers and community during construction phase						
21.	Use of hazardous or toxic materials and generation of hazardous wastes						
22.	Risks to safety and human health						<i>Describe how.</i>
Does the subproject entail land acquisition or restriction of access to resources?							
23.	Acquisition (temporarily or permanently) of land (public or private) for its development						<i>List land areas for permanent and temporary land acquisition, type of soils, duration and purpose of acquisition</i>
24.	Use land that is currently occupied or regularly used for productive purposes (e.g., gardening, farming, pasture, fishing locations, forests)						
25..	Displacement of individuals, families or businesses						
26.	Temporary or permanent loss of crops, fruit trees or household infrastructure						

27.	Involuntary restriction of access by people to legally designated parks and protected areas						
<p><i>If the answer to any of the questions 23-27 is “Yes”, please consult the ESMF; preparation of a Resettlement Plan (RP) is likely required.</i></p>							
<p>Does the subproject entail effects on ethnic minority peoples?</p>							
28.	Ethnic minority groups are living within the boundaries of, or nearby, the subproject.						
29.	Members of these ethnic minority groups in the area potentially could benefit or be harmed from the project.						
<p><i>If the answer to questions 28 or 29 is “Yes”, please consult the ESMF; and preparation of an Ethnic Minority Development Plan (EMDP) is likely required.</i></p>							
<p>Does the subproject entail construction of or depend upon a dam?</p>							
30.	Involve the construction of a large dam?						See Table 1 for definition of a large dam.
31.	Depend on water supplied from an existing dam or weir or a dam under construction?						Describe the functional relationship between the subproject and the existing dam or a dam under construction.
<p><i>If the answer to question 30 or 31 is “Yes”, please consult the ESMF; a Dam Safety Report (DSR) will likely be required.</i></p>							
<p>Does the subproject entail procurement or use of pesticides?</p>							
32.	What is the World Health Organization’s classification of the formulation of the specific pesticides to be used?						See Table 1 for additional information on pesticides. To deal with this issue, one must know the types of pesticides proposed.
<p><i>If the answer to question 32 is yes, please consult the ESMF; a Pest Management Plan (PMP) will likely be required.</i></p>							

14. MAFF and the concerned ministries (PTs) needs to submit the screening report to the World Bank for review regarding the categorization.

A. Introduction

1. An Environmental Management Plan (EMP) is a part of the Environmental Assessment (EA) process in Bank-financed projects. The procedures in OP 4.01, Annex C, which describes the EMP, are mandatory. The definition of an EMP is:

2. “A project's environmental management plan (EMP) consists of the set of **mitigation, monitoring, and institutional** measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures.”

3. Below is an example of EMP for infrastructure, developed during the environmental workshop for implementing agencies in May 2018.

Subcomponents/Investments	Negative Environmental Impacts	Mitigation Measure/Good Practices
Road improvement	1- Noisy disturbance 2- Dusty 3- Wasting disposal	1- 1 Prior notification (Information dissemination) 1-2 Working time management (Construction) 2- Frequently watering 3- 1: Solid Wastes Management Plan <ul style="list-style-type: none"> - Regular collection and disposal of wastes, - Garbage bins and temporary storage facilities for construction wastes, domestic solid wastes and segregated wastes are provided within the project site. - Waste separating (hazardous, non-hazardous, and reusing) is practiced. - Wastes are not burned and dumped into watercourses, agricultural land and surrounding areas
Irrigation rehabilitation	1- Noisy disturbance 2- Air Quality (Dust and	1-1 Prior notification (Local Community, Contractors) 1-2 Construction Schedule (Working time management) 2-1 Frequently watering 2-2 Vehicles and equipment are regularly well maintained in good condition.

	Gaseous Emissions)	3-1 Toilet construction 3-2 Proper storage of construction materials 3-3 Maintenance shops, fuel and oil depot into Safety container and impermeable flooring with sump 3-3 Proper Cooking area arrangement 4.1. signage/fences around borrow-pit areas
	3- Polluted materials (Soil and Groundwater Contamination) 4. borrow pits	

4. The EMP provides an essential link to different instruments in conjunction with EIAs for category A, B, and FI projects, or the ESMF when subprojects are not known in advance; the link between the impacts predicted and mitigation measures specified within an EIA and construction and operational activities. The EMP outlines the anticipated environmental impacts of projects, the measures to be undertaken to mitigate these impacts, responsibilities for mitigation, time scales, costs of mitigation, and sources of funding. Furthermore, EMP lays the framework for continued assessment of potential impacts through the application of monitoring and auditing and consideration of the institutional measures appropriate to accomplish the EMP.

5. This guidance aims to provide a reference for preparing EMPs for a range of types and scales of development projects/subprojects in different biophysical, social, economic and governance contexts. This guidance identifies the policy framework for preparing EMPs for Bank-financed activities, outlines the main components of EMPs, and discusses means to ensure that commitments within the EMP are carried through to implementation and operation. This guidance is not intended to replace any WB safeguards policy or government regulation.

6. This guidance is directed at project implementing agencies including MAFF and the concerned ministries (PTs), environmental impacts assessment consultants, environmental specialists, project proponents, financial institutions and other parties interested in or affected by EMP processes.

B. When an EMP is needed (Category A, B, FI)

7. The government EIA regulation does not require project proponents to prepare a separate EMP but an Environmental Management and Monitoring Program (EMMP) as a part of an EIA. The EMMP includes project implementation phases, project activities, associated environmental impacts, mitigation measures, cost for mitigation measures, timeline for implementation measures, implementation arrangement, and responsibility for supervision. The EMMP also includes a monitoring program for monitoring of waste emission, ambient environment quality, and other impacts caused by project. An EMMP is not specifically required for an environmental protection commitment (EPC), but a set mitigation measures, waste treatment facilities, and an environmental monitoring program are required.

8. The Bank’s Environmental management plan (EMP) is an instrument that details: a) all anticipated adverse environmental impacts (including those involving indigenous people or involuntary resettlement); b) the mitigation measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; c)

monitoring objectives and type of monitoring with linkages to the impacts assessed in the EA report and the mitigation measures described in the EMP; d) the actions needed including institutional arrangements to implement these measures; e) capacity development and training to support timely and effective implementation of environmental project components and mitigation measures; and f) implementation schedule and cost estimates for implementing the EMP, and g) integration of the EMP with project. In comparison with the government EMMP, components of EMP are expressed in more detail; include capacity building, and forging EMP integration into the project's overall planning, design, budget, and implementation.

9. The EMP is an integral part of Category A EAs (irrespective of other instruments used). EAs for Category B projects may also result in an EMP. The EMP is a valuable tool to: i) define details of who, what, where and when environmental management and mitigation measures are to be implemented; ii) provide government agencies and their contractors, developers and other stakeholders better on-site environmental management control over the life of a project; iii) allow a proponent to ensure their contractors fulfill environmental obligations on their behalf, and; iv) demonstrate due diligence. In addition, the EMP is often required as part of tendering for projects.

10. Typically, use of an EMP only applies to smaller projects not affecting environmentally sensitive areas, which present issues that are narrow in scope, well defined, and well understood. For small and very small subprojects with very limited and narrow environmental impacts, using simple general mitigation measures such as an environmental code of practice (ECOP) (see Annex 5 for such a kind of ECOP) alone should suffice for addressing environmental impacts. ECOP can also be used in conjunction with EMP for addressing general limited construction impacts.

11. The EMP is a “living document” that should be focused on continual improvement and should be updated when there are changes in project design or emerging environmental issues.

C. Objectives of EMP

12. The EMP outlines the mitigation, monitoring, and institutional measures to be taken during project implementation and operation to avoid or control adverse environmental impacts, and the actions needed to implement these measures. It provides the link between alternative mitigation measures evaluated and described within the EIA/EPC report, and ensuring that such measures are implemented. While project design should incorporate environmental sustainability to the extent possible, the EMP deals with environmental issues that cannot be avoided through design. Therefore, the objectives of an EMP should include:

- ✓ Ensuring compliance with the applicable provincial, national, laws, regulations, standards, and guidelines;
- ✓ Ensuring that there is sufficient allocation of resources on the project budget for implementation of EMP-related activities;
- ✓ Ensuring that environmental risks associated with a project property managed;
- ✓ Responding to emerging and unforeseen environmental issues not identified in the project EIA; and
- ✓ Providing feedback for continual improvement in environmental performance.

13. The EMP is a basis for negotiation and reaching agreement between the Bank and borrowers on a project's key social and environmental performance. Its implementation becomes a legal obligation of the Borrower (in Loan Agreement) and contractors (in contracts).

14. An EMP can be a site or project-specific plan developed to ensure that appropriate environmental management practices are followed during a project construction or operation phase. A project EMP is developed by the client, while a site-specific EMP or a construction EMP is usually prepared by contractors, in accordance with requirements of bidding documents (to which it is good practice to attach the project EMP). This guidance covers project EMP.

D. Who Should Prepare an EMP

15. A project proponent retains primary responsibility for the environmental performance of its projects. As such, the proponent is responsible for ensuring the preparation and implementation of an acceptable project EMP whether for construction or operation. In most cases, during the project preparation, the Bank would provide both the MAFF and the concerned ministries (PTs) and an EMP consultant with technical assistance for preparation of the EMP. During appraisal, the Bank reviews the EMP with the borrower, to assess the adequacy of the institutions responsible for environmental management, to ensure that the EMP is adequately budgeted, and to determine whether the mitigation measures are properly addressed in project design and economic analysis.

16. During project implementation, subproject EMPs or ECOPs will be prepared in accordance with the guidelines and requires of the project ESMF. The project ESMF details and explains the role and necessity of preparing a subproject EMP during implementation.

17. During a project construction and/or operation, implementation of a project or subproject EMP is often passed on to contractor by a contract specification or a requirement. While an EMP may be implemented by a contractor, the responsibility for implementing the conditions of approval of the project (i.e., the EIA needs to be approved by relevant authority as a condition for approval of the project) lies with the proponent.

18. During project implementation, the Bank bases supervision of the project's environmental aspects on the findings and recommendations of the EA, including measures set out in the loan agreement, the EMP, and other project documents. For low-risk projects, the Bank may conduct post review of subproject EMPs during implementation.

E. Components of EMP

19. In order to achieve the above objectives, the generic scope of an EMP should include the following:

- ✓ Definition of the environmental management objectives to be realized during the life of a project (i.e. pre-construction, construction, operation and/or decommissioning phases) in order to enhance benefits and minimize adverse environmental impacts.
- ✓ Description of the detailed actions needed to achieve these objectives, including how they will be achieved, by whom, by when, with what resources, with what monitoring/verification, and to

what target or performance level. Mechanisms must also be provided to address changes in the project implementation, emergencies or unexpected events, and the associated approval processes.

- ✓ Clarification of institutional structures, roles, communication and reporting processes required as part of the implementation of the EMP.
- ✓ Description of the link between the EMP and associated legislated requirements.
- ✓ Description of requirements for record keeping, reporting, review, auditing and updating of the EMP.

20. There is no standard format for EMPs. The format needs to fit the circumstances in which the EMP is being developed and the requirements which it is designed to meet. For each mitigative measure, it can often be useful to summarize these in a table that shows for each who is responsible, the location or part of project to which the measure applies, the timing, the budget and the monitoring to verify that the measure is achieving its intended target. There are also additional monitoring needs (unrelated to whether mitigative measures are working as intended). These also can be put into a summary table showing who is responsible, the reason for the measure and part of project to which it applies, the timing, the reporting related to the monitoring and the costs. The level of detail in the EMP may vary from a few pages for a project with low environmental risks, to a substantial document for a large-scale complex category A project with potentially high environmental risks.

21. The EMP should be formulated in such a way that it is easy to use. References within the plan should be clearly and readily identifiable. Also, the main text of the EMP needs to be kept as clear and concise as possible, with detailed information relegated to annexes. The EMP should identify linkages to other relevant plans relating to the project, such as plans dealing with resettlement or indigenous peoples issues.

22. Although the scope and content of an EMP will be a function of both the significance of a project's potential impacts and also a project's site, there are common elements that should be included in all EMPs. These elements, which are suggested for a medium to high risk project, are described in detailed below:

Box 1. Common elements of an EMP and its content

23. **Introduction** - provide brief but concise information on

- (i) the EMP context: describe how the EMP fits into the overall planning process of the project, listing project/subproject environmental studies such as EIA/EPC, approval documentation.
- (ii) the EMP's connection with the ESMF (if relevant) and the Project
- (iii) the objectives of the EMP: describe what the EMP is trying to achieve. The objective should be project specific, not broad policy statements. The project-specific EMP shall form part of the project contract specifications.

24. **Policy, legal and administrative framework**

- 2.1 GOV's regulations - provide brief description of GOV regulations related to EIA and technical regulations and standards applied to the subproject.

- 2.2 WB's safeguard policy – list WB safeguard policies triggered.

25. **Project description** – project/subproject objective and description should be provided in enough detailed to define the nature and scope of the project. These include:

- (i) project location: site location should be described with location of the activities provided including location maps showing location in the project area as well as details at the subproject level.
- (ii) Construction/operation activities: the description may include a brief description of construction and operation processes; working or operating hours, including details of any activities required to be undertaken outside the hours; employment numbers and type; the plant and equipment to be used; the location and site facilities and worker camps; bill of quantities for civil works.
- (iii) Timing and scheduling: anticipated commencement and completion dates should be indicated. If the project is to be completed in stages then separate dates for each stage should be provided.

26. **Baseline data** – provide key information on the environmental background of the subproject as well as its connection with the project area, including maps. Focus should be given to provide clear data on topography, major land use and water uses, soil types, flow of water, and water quality/pollution. Brief description on socioeconomic condition and EM (if relevant) should also be provided. Photos showing existing conditions of project sites should be included.

27. **Potential impacts and mitigation measures.** This section summarizes the predicted positive and negative impacts associated with the proposed project/subproject, particularly those presenting impacts of medium to high significance. A summary should be provided of the predicted positive and negative impacts associated with the proposed project that require management actions (i.e. mitigation of negative impacts or enhancement of positive impacts). The necessary information for this section should be obtained from the EIA process, including the EIA and EPC reports.

28. The impacts should be described for pre-construction, construction, and operation phases. Using a matrix format could help understanding connection between the impacts and mitigation better. Cross-referencing to the EIA/EPCs reports or other documentation is recommended, so that additional detail can readily be referenced. While commonly-known social and environmental impacts and risks of construction activities can be addressed through Environmental Codes of Practices (ECOP), specific mitigation measures should also be proposed to address sub-project specific impacts predicted based on site-specific conditions and typology of investments. Some measures can be proposed for incorporation into engineering design to address potential impacts/risks and/or bring about added values of the works provided (e.g. road/access path improvement combined with canal lining). Mitigation measures should include communication program and grievance redress mechanism to address social impacts. Make sure that this section response to appropriate suggestions and adequately addresses the issues and concerns raised by communities as recorded in the consultation summary presented in Section 8. See Table 1 for a sample mitigation measures matrix.

Table 1: Example of a Mitigation measure matrix

<i>Phase</i>	<i>Issue</i>	<i>Mitigation Measure</i>	<i>Locations for mitigation measures</i>	<i>Applicable Standard (e.g. country, WB, EU)</i>	<i>Cost of Mitigation</i>	<i>Responsible party</i>	<i>Verification Required to determine effectiveness of measures</i>
Design/Pre-Construction							
Construction							
Operation							
Decommissioning							

Depending on impacts of a project, Physical Cultural Resources (OP 4.11) or Pest Management (OP 4.09) may be triggered and physical cultural resources and pest management plans may need to be developed and included in the EMP.

29. **Monitoring** – Monitoring of EMP implementation would encompass environmental compliance monitoring and environmental monitoring during project implementation as described in detail below:

- (i) Environmental compliance monitoring includes a system for tracking environmental compliance of contractors such as checking the performance of contractors or government institutions against commitments expressed in formal documents, such as contract specifications or loan agreements.
- (ii) The objectives of environmental monitoring is: a) to measure the effectiveness of mitigating actions (e.g. if there is a mitigating action to control noise during construction, the monitoring plan should include noise measurements during construction); b) To meet Borrower’s environmental requirement; and c) to respond to concerns which may arise during public consultation (e.g. noise, heat, odor, etc.), even if the monitoring is not associated with a real environmental issue (it would show good faith by the Borrower). The monitoring program should clearly indicate the linkages between impacts identified in the EA report, indicators to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions, and so forth. The cost of environmental monitoring should be estimated and included in sub-project’s total investment costs. One cannot overemphasize the importance of monitoring and collecting data that is useful and will actually be used. There is no value in spending money to collect data that is not properly analyzed, that is not reported and even if reported, no actions can or will be taken. It is a good rule of thumb to know the kinds of analysis to which the data will be subjected before collecting the data to ensure that one can do the anticipated analyses.

30. See Table 2 below for an example of how monitoring is structured.

Table 2: An example of monitoring plan

Phase	What parameter is to be monitored? (Note if it is against a set standard)	Where is the parameter to be monitored?	How is parameter to be monitored/ type of monitoring equipment?	When is parameter to be monitored/ frequency of measurement or continuous?	Responsible party
Pre-construction					
Construction					
Operation					
Decommissioning					

31. **EMP Implementation arrangements:** *The following subsections are recommended.*

- (a) Responsibility for EMP implementation: Describes how the implementing agency plans to assign responsibilities to assure proper flow and use of environmental information for efficient and effective environmental management. For a Bank financed project, the stakeholders involved in EMP implementation and monitoring usually include the project implementing agency, the PCO, construction contractors, construction supervision consultant (CSC), independent environmental monitoring consultant (IEMC), local environmental management authorities, NGOs, and communities. Each player should be assigned with practical responsibilities. Good coordination among these actors ensures effective implementation of the EMP. Responsibilities of the CSC and IEMC for monitoring and supervision of EMP compliance during construction and supervision should be indicated in some details. Generic Terms of Reference for CSC and IEMC should be included in the EMP as annexes.
- (b) Incorporation of EMP into detailed technical design and bidding and contractual document: It is the bidding and contractual documents should include EMP requirements documents to ensure that obligations are clearly communicated to contractors. The bidding documents might also include environmental criteria as part of the basis for selecting contractors. Contractors should also be obliged to follow appropriate environmental, health, and safety standards to reduce associated risks during construction and operation. Therefore, this section should also elaborate on how PCO and its staff will incorporate EMP into the project detailed design and tendering documents. EMP experience as basis for qualification - to be added.
- (c) Environmental compliance framework: During project implementation, the borrower reports on compliance with environmental commitments, the status of mitigative measures, and the findings of monitoring programs as specified in the project documents. The Bank bases supervision of the project's environmental aspects on the EMP as set out in the legal agreements for the project. This subsection elaborates on the environmental duties of the contractor and its safety and environment officer, compliance with legal and contractual requirements, and environmental supervision during construction supervision, and a penalty framework.
- (d) Reporting procedures: Procedures to provide information on the progress and results of mitigation and monitoring measures should be clearly specified. As a minimum, the recipients of

such information should include those with responsibility for ensuring timely implementation of mitigation measures, and for undertaking remedial actions in response to breaches of monitoring thresholds. In addition, the structure, content and timing of reporting to the Bank should be designed to facilitate supervision. Responsibility of different actors for reporting and the type of reports should also be clearly indicated.

32. ***Institutional Strengthening Plan:*** Describes institutional needs to assure successful implementation of the mitigation and monitoring plans. This may include equipment purchases, training, consultant services, and special studies. Most projects would mainly require capacity strengthening in EMP implementation through training for different stakeholders.

33. All relevant stakeholders should undergo general environmental awareness training and training about their responsibilities under the EMP. The training should ensure that they understand their obligation to exercise proper environmental management during project implementation. Environmental training should include: a site induction, familiarization with the requirements of the EMP; environmental emergency response training; familiarization with site environmental control; targeted environmental training for specific personnel such as environmental staff of MAFF and the concerned ministries (PTs), safety and environment officer of the contractor, construction supervision engineer.

34. The need for additional or revised training should be identified and implemented from the outputs of monitoring and reviewing the EMP. Records of all training should be maintained and include: who was trained; when the person was trained; the name of the trainer; and a general description of the training content.

35. ***Estimated Budget for EMP Implementation*** - These should be specified for both the initial investment and recurring expenses for implementing all measures contained in the EMP, integrated into the total project costs, and factored into loan negotiations. It is important to capture all costs - including administrative, training, environmental monitoring and supervision, costs for mitigation measures to be implemented by contractors, costs for additional environmental studies, and operational and maintenance costs. The aim is to satisfactorily mitigate adverse impacts at least cost. The costs of preparing an EMP, which are borne by the borrower, vary depending on factors such as the complexity of potential impacts, the extent to which international consultants are used, and the need to prepare separate EMPs for sub-projects.

Consultation

36. The EMP should clearly describe and justify the proposed mitigation measures to facilitate public consultation. Consultation with affected people and NGOs should be integral to all Category A and B projects in order to understand the acceptability of proposed mitigation measures to affected groups. In some situations, the development of environmental awareness amongst stakeholders is important to ensuring effective consultation on the EMP. Where projects involve land acquisition or resettlement, these issues should be fully addressed in resettlement action plan (RAP), and where appropriate in ethnic minority development plan (EMDP).

37. The consultation process can also be used help to design achievable mitigation measures. This process is particularly important depends on the by-in of the affected people. particularly where their

success depends on buy-in or actions on their part (re-write this sentence). Where appropriate, this may be supported by including formal requirements within the TOR for public participation in developing the EMP.

38. Public consultation of EMP should be an integral part of EIA/EPC consultation. In case, consultation has not been conducted or not adequately carried out during EIA/EPC preparation process, it must be undertaken to capture on the feedbacks of the affected people and communities.

39. This section provides summary on consultation activities to stakeholders, particularly affected households, on the final draft EMP at project/subproject level. This summary should indicate the date and location where consultation meeting took place, the number of participants from affected households/the numbers of female and ethnic minority participants, and suggestions, concerns raised and responses. Locations and dates of EMP to be disclosed should be provided.

Disclosure of the EMP

40. Information disclosure: According to the Bank's policy on access to information, all draft safeguard instruments, including the EMP, are disclosed locally in an accessible place and in a form and language understandable to key stakeholders and in English at the InfoShop before the appraisal mission. EMP is locally disclosed.

F. Summary

41. The user should use this guidance in conjunction with the ESMF Toolkits, the project ESMF, and other project environmental and social safeguards instruments. It is very important that the MAFF and the concerned ministries (PTs) and EMP consultant work closely with other project safeguards consultants, the Bank project's Task Team Leader, and the Bank safeguards staff in developing the EMP and in ensuring that it is done with the required quality.

1. Objectives

This Environmental Codes of Practice (ECOP) is prepared to manage small environmental impacts during construction. The ECOPs will apply to manage small scale infrastructure investments subproject. ECOP will be a mandatory part of construction contract or bidding documents so that contractor complies with environmental covenants. MAFF and the concerned ministries (PTs) and construction supervisors will be responsible for monitoring of compliance with ECOP and preparing the required reports.

2. Responsibilities

MAFF and the concerned ministries (PTs) and Contractors are the key entities responsible for implementation of this ECOP. Key responsibilities of MAFF and the concerned ministries (PTs) and the contractors are as follows:

(a) MAFF and the concerned ministries (PTs)

- MAFF and the concerned ministries (PTs) is responsible for ensuring that the ECOP is effectively implemented. The MAFF and the concerned ministries (PTs) will assign a qualified staff to be responsible for checking implementation compliance of Contractors, include the following: (a) monitoring the contractors' compliance with the environmental plan, (b) taking remedial actions in the event of non-compliance and/or adverse impacts occur, (c) investigating complaints, evaluating and identifying corrective measures; (d) advising to the Contractor on environment improvement, awareness, proactive pollution prevention measures; (e) monitoring the activities of Contractors on replying to complaints; (f) providing guidance and on-the-job training to field engineers on various aspects to avoid/mitigate potential negative impacts to local environment and communities during construction.

(b) Contractor

- Contractor is responsible for carrying out civil works and informs MAFF and the concerned ministries (PTs), local authority and community about construction plan and risks associated with civil works. As such, contractor is responsible for implementing agreed measures to mitigate environmental risks associated with its civil works.
- Contractor is required to obey other national relevant legal regulations and laws.

Part 1 – Contractor's Responsibilities

This is an example and is not necessarily a full treatment of all requirements for a specific project. For example, there might be reason to have contractor deal with STDs, medical and hazardous waste s (e.g., oil from vehicle or furnace repair and similar, oily rags).

ISSUES/RISKS	MITIGATION MEASURE
1) Dust generation/ Air pollution	<ul style="list-style-type: none"> • The Contractor implement dust control measures to ensure that the generation of dust is minimized and is not perceived as a nuisance by local residents, maintain a safe working environment, such as: <ul style="list-style-type: none"> - water dusty roads and construction sites; - covering of material stockpiles; - Material loads covered and secured during transportation to prevent the scattering of soil, sand, materials, or dust; - Exposed soil and material stockpiles shall be protected against wind erosion.
2) Noise and vibration	<ul style="list-style-type: none"> • All vehicles must have appropriate “<i>Certificate of conformity from inspection of quality, technical safety and environmental protection</i>” following Decision No. 35/2005/QD-BGTVT; to avoid exceeding noise emission from poorly maintained machines.
3) Water pollution	<ul style="list-style-type: none"> • Portable or constructed toilets must be provided on site for construction workers. Wastewater from toilets as well as kitchens, showers, sinks, etc. shall be discharged into a conservancy tank for removal from the site or discharged into municipal sewerage systems; there should be no direct discharges to any water body. • Wastewater over permissible values set by relevant national technical standards/regulations must be collected in a conservancy tank and removed from site by licensed waste collectors. • At completion of construction works, water collection tanks and septic tanks shall be covered and effectively sealed off.
4) Drainage and sedimentation	<ul style="list-style-type: none"> • The Contractor shall follow the detailed drainage design included in the construction plans, to ensure drainage system is always maintained cleared of mud and other obstructions. • Areas of the site not disturbed by construction activities shall be maintained in their existing conditions.
5) Solid waste	<ul style="list-style-type: none"> • At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities. • Solid waste may be temporarily stored on site in a designated area approved by the Construction Supervision Consultant and relevant local authorities prior to collection and disposal. • Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. • No burning, on-site burying or dumping of solid waste shall occur. • Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources for reuse, for use as fill, or for sale. • If not removed off site, solid waste or construction debris shall be disposed of only at sites identified and approved by the Construction Supervision Consultant and included in the solid waste plan. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas, such as in areas of natural habitat or in watercourses.
6) Chemical or hazardous wastes	<ul style="list-style-type: none"> • Used oil and grease shall be removed from site and sold to an approved used oil recycling company. • Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery shall be collected in holding tanks and removed from site by a specialized oil recycling company for disposal at an approved hazardous waste site. • Unused or rejected tar or bituminous products shall be returned to the supplier’s production plant.

ISSUES/RISKS	MITIGATION MEASURE
	<ul style="list-style-type: none"> • Store chemicals in safe manner, such as roofing, fenced and appropriate labeling.
7) Disruption of vegetative cover and ecological resources	<ul style="list-style-type: none"> • Areas to be cleared should be minimized as much as possible. • The Contractor shall remove topsoil from all areas where topsoil will be impacted on by rehabilitation activities, including temporary activities such as storage and stockpiling, etc.; the stripped topsoil shall be stockpiled in areas agreed with the Construction Supervision Consultant for later use in re-vegetation and shall be adequately protected. • The application of chemicals for vegetation clearing is not permitted. • Prohibit cutting of any tree unless explicitly authorized in the vegetation clearing plan. • When needed, erect temporary protective fencing to efficiently protect the preserved trees before commencement of any works within the site. • The Contractor shall ensure that no hunting, trapping shooting, poisoning of fauna takes place.
8) Traffic management	<ul style="list-style-type: none"> • Before construction, carry out consultations with local government and community and with traffic police. • Significant increases in number of vehicle trips must be covered in a construction plan previously approved. Routing, especially of heavy vehicles, needs to take into account sensitive sites such as schools, hospitals, and markets. • Installation of lighting at night must be done if this is necessary to ensure safe traffic circulation. • Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. • Employing safe traffic control measures, including road/rivers/canal signs and flag persons to warn of dangerous conditions. • Avoid material transportation for construction during rush hour. • Signpost shall be installed appropriately in both water-ways and roads where necessary.
9) Interruption of utility services	<ul style="list-style-type: none"> • Provide information to affected households on working schedules as well as planned disruptions of water/power at least 2 days in advance. • Any damages to existing utility systems of cable shall be reported to authorities and repaired as soon as possible.
10) Restoration of affected areas	<ul style="list-style-type: none"> • Cleared areas such as disposal areas, site facilities, workers' camps, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be restored using landscaping, adequate drainage and revegetation. • Trees shall be planted at exposed land and on slopes to prevent or reduce land collapse and keep stability of slopes. • Soil contaminated with chemicals or hazardous substances shall be removed and transported and buried in waste disposal areas.

ISSUES/RISKS	MITIGATION MEASURE
11) Worker and public Safety	<ul style="list-style-type: none"> • Training workers on occupational safety regulations and provide sufficient protective clothing for workers in accordance with applicable national laws. • Install fences, barriers, dangerous warning/prohibition site around the construction area which showing potential danger to public people. • The contractor shall provide safety measures as installation of fences, barriers warning signs, lighting system against traffic accidents as well as other risk to people and sensitive areas. • If previous assessments indicate there could be unexploded ordnance (UXO), clearance must be done by qualified personnel and as per detailed plans approved by the Construction Engineer,
12) Communication with local communities	<ul style="list-style-type: none"> • the contractor shall coordinate with local authorities (leaders of local communes, leader of villages) for agreed schedules of construction activities at areas nearby sensitive places or at sensitive times (e.g., religious festival days). • Disseminate project information to affected parties (for example local authority, enterprises and affected households, etc.) through community meetings before construction commencement. • Provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results. • Inform local residents about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate. • Notification boards shall be erected at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, health and safety staff, telephone numbers and other contact information so that any affected people can have the channel to voice their concerns and suggestions.
13) Chance find procedures	<p>If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:</p> <ul style="list-style-type: none"> • Stop the construction activities in the area of the chance find; • Delineate the discovered site or area; • Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Department of Culture and Information takes over; • Notify the Construction Supervision Consultant who in turn will notify responsible local or national authorities in charge of the Cultural Property (within 24 hours or less); • Relevant local or national authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed. The significance and importance of the findings should be assessed according to the

ISSUES/RISKS	MITIGATION MEASURE
	<p>various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;</p> <ul style="list-style-type: none"> • Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage; • If the cultural sites and/or relics are of high value and site preservation is recommended by the professionals and required by the cultural relics authority, the Project’s Owner will need to make necessary design changes to accommodate the request and preserve the site; • Decisions concerning the management of the finding shall be communicated in writing by relevant authorities; • Construction works could resume only after permission is granted from the responsible local authorities concerning safeguard of the heritage.

Part 2 – Contractor’s Workers Environmental Code of Conducts

This is an example for typical project, but that for a specific project, some other requirements might be relevant. For example, washing hands protocol, agreeing to attend STD workshops.

DO:	DO NOT
<ul style="list-style-type: none"> ◆ USE THE TOILET FACILITIES PROVIDED – REPORT DIRTY OR FULL FACILITIES ◆ CLEAR YOUR WORK AREAS OF LITTER AND BUILDING RUBBISH AT THE END OF EACH DAY – use the waste bins provided and ensure that litter will not blow away. ◆ REPORT ALL FUEL OR OIL SPILLS IMMEDIATELY & STOP THE SPILL FROM CONTINUING. ◆ SMOKE IN DESIGNATED AREAS ONLY AND DISPOSE OF CIGARETTES AND MATCHES CAREFULLY. (Littering is an offence.) ◆ CONFINE WORK AND STORAGE OF EQUIPMENT TO WITHIN THE IMMEDIATE WORK AREA. ◆ USE ALL SAFETY EQUIPMENT AND COMPLY WITH ALL SAFETY PROCEDURES. ◆ PREVENT CONTAMINATION OR POLLUTION OF STREAMS AND WATER CHANNELS. ◆ ENSURE A WORKING FIRE EXTINGUISHER IS IMMEDIATELY AT HAND IF ANY “HOT 	<ul style="list-style-type: none"> ◆ REMOVE OR DAMAGE VEGETATION WITHOUT DIRECT INSTRUCTION. ◆ MAKE ANY FIRES. ◆ POACH, INJURE, TRAP, FEED OR HARM ANY ANIMALS – this includes birds, frogs, snakes, etc. ◆ ENTER ANY FENCED OFF OR MARKED AREA. ◆ DRIVE RECKLESSLY OR ABOVE SPEED LIMIT ◆ ALLOW WASTE, LITTER, OILS OR FOREIGN MATERIALS INTO THE STREAM ◆ LITTER OR LEAVE FOOD LYING AROUND. ◆ CUT TREES FOR ANY REASON OUTSIDE THE APPROVED CONSTRUCTION AREA ◆ BUY ANY WILD ANIMALS FOR FOOD; ◆ USE UNAPPROVED TOXIC MATERIALS, INCLUDING LEAD-BASED PAINTS, ASBESTOS, ETC.; ◆ DISTURB ANYTHING WITH ARCHITECTURAL OR HISTORICAL VALUE ◆ USE OF FIREARMS (EXCEPT AUTHORIZED SECURITY GUARDS) ◆ USE OF ALCOHOL BY WORKERS DURING WORK HOURS ◆ WASH CARS OR MACHINERY IN STREAMS OR CREEK ◆ DO ANY MAINTENANCE (CHANGE OF OILS AND FILTERS) OF CARS AND EQUIPMENT OUTSIDE AUTHORIZED AREAS ◆ DISPOSE TRASH IN UNAUTHORIZED PLACES ◆ HAVE CAGED WILD ANIMALS (ESPECIALLY BIRDS) IN CAMPS ◆ WORK WITHOUT SAFETY EQUIPMENT (INCLUDING BOOTS AND HELMETS)

<p>WORK" IS UNDERTAKEN e.g. welding, grinding, gas cutting etc.</p> <ul style="list-style-type: none"> ◆ REPORT ANY INJURY OF WORKERS OR ANIMALS. ◆ DRIVE ON DESIGNATED ROUTES ONLY. ◆ PREVENT EXCESSIVE DUST AND NOISE 	<ul style="list-style-type: none"> ◆ CREATE NUISANCES AND DISTURBANCES IN OR NEAR COMMUNITIES ◆ USE RIVERS AND STREAMS FOR WASHING CLOTHES ◆ DISPOSE INDISCRIMINATELY RUBBISH OR CONSTRUCTION WASTES OR RUBBLE ◆ SPILL POTENTIAL POLLUTANTS, SUCH AS PETROLEUM PRODUCTS ◆ COLLECT FIREWOOD ◆ DO EXPLOSIVE AND CHEMICAL FISHING ◆ USE LATRINES OUTSIDE THE DESIGNATED FACILITIES; AND ◆ BURN WASTES AND/OR CLEARED VEGETATION.
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Annex 5A: An example of Environmental Specifications for a Category B Project

1. The environmental management requirements in construction of (ABC bidding package) have been established and presented clearly in the EMP (detailed in Annex 3, EMP – Environmental mitigation measures). The Contractor need to carefully read and fully understand all requirements included in the contractor’s bid: (The name of the Civil Works Package...) of the Project.

I. Overview

2. In order to avoid negative effects into the environment and local community, as well as minimizing damaging impacts to the environment during the construction and operation stages of the project, Contractor and workers are required to observe the mitigation measures as mentioned below:

- “Environmental Management Plan for the Project...”.
- The technical specifications, procedures and the most popular practices are presented in this Annex.

II. Overall requirements of Contractor for environmental management

3. Contractor need to include, but not limited the following responsibilities:

- In compliance with the legal regulations about the current national environment.
- Working in scope of requirements in the contract and the conditions in the bidding documents.
- Assign the representative of the construction team to participate in the site inspection operations by the MAFF and the concerned ministries (PTs), CSC or the DONRE as well as implement all corrective actions to overcome the environmental issues as guidance provided by the Supervision Engineer.
- Provide and update information for MAFF and the concerned ministries (PTs) about activities, assignments that can contribute or continue to cause the significant harmful impacts into the environment.
- In case of instruction by the Supervision Engineer and MAFF and the concerned ministries (PTs), the Contractor must stop the construction activities that causes adverse impacts, also propose and conduct the environmental remedial actions and implementation other construction methods (if required) to minimize the negative environmental impacts.
- Establish and maintain an Environmental and Safety Board which consists of Construction team leader or Vice- team leader and Safety and Environmental Officer (SEO) with the purpose of receiving and dealing with the complaints, objections, argument and displeased of the local community caused by the construction operation. SEO is responsible to record all of complaints, resolve methods and results into the complained register. The register need to keep at the construction office and available for review by the supervision engineer and MAFF and the concerned ministries (PTs).

III. Responsibilities of Contractor in EMP implementation:

4. The construction Contractor has responsibility in compliance with the technical specifications of the EMP, (name of the project to be inserted here) and regulations about the current environmental management, included but not limited the following items:

- i) The mitigation measures presented in **Section 8.0. The mitigation measures for environmental impacts** of the EMP and prepare budget for implementing the mitigation measures.
- ii) Based on EMP, Contractor developed the detail plan for implementing the environmental management. The detail plan includes the following components:
 - Management Plan for worker camps.
 - Management Plan of the overall construction operation.
 - Plan for management and storage of construction materials (including the dangerously chemicals)
 - Solid waste and waste water management plan (including construction and household waste)
 - Plan for management and mitigation of noise and dust.
 - Plan for management and mitigation of impacts to vegetation and wild animals.
 - Plan for environmental landscape restoration
 - Healthy and safety ensuring plan at the construction.
 - Erosion and soil aggrandizement controlling plan.
 - Safety plan during the construction stage and training for workers about environmental management and community relations.
 - Rules and regulations about living activities of staffs and workers at the construction sites.
 - Emergency Problem Treatment Plan.
 - Management and Monitoring Plan for Report Process.

5. The detail measure of plan need to satisfy the following requirements: to implement the particular mitigation measures: who implement (people, team, etc), how to implement (labours, machines, equipment, etc.) and cost? (Contractor should choose the paragraphs and diagrams representation for good application in the future). **This plan shall be completed and submitted together with the bidding document.**

- a) Ensuring that at least one supervisor is available in compliance with EMP before and during the construction time.
- b) Ensuring that all of the construction activities will be approved in document of the relevant authorities.
- c) Ensuring that all of staff and workers understand through their process and duties.
- d) In compliance with requirements about the environmental management monitoring and reporting in EMP and inform to MAFF and the concerned ministries (PTs) about the difficulties and solutions.
- e) Inform to the local authority and MAFF and the concerned ministries (PTs) in case of environmental problems and co-ordinate with the relevant institutions and stakeholders for resolving.

IV. Safety and Environmental Officer of Contractor:

6. Each contractor will nominate a Safety and Environmental Officer (SEO) to work full-time at the construction site. Requirements for a SEO include an undergraduate degree in Environmental Major, at least 3 years of working experience in environmental management, training and monitoring at the infrastructure construction project. Additionally, SEO should have a good knowledge about national Environmental Legal Regulations and has participated to the labor safety and sanitation training class that organized by Department of Labor- Invalids and Social Affairs and have the labor safety and sanitation certificate.

7. SEO have the responsibilities for implementing and managing EMP of Contractor. Tasks of SEO will include, but not limit the following activities:

- a. Training and developing environmental awareness for workers of Contractors within 2 weeks after the contractor is mobilized. The training is repeating every six months. The additional trainings will be implemented under the guidance of Environmental Supervision Engineer.
- b. Conduct the internal environmental monitoring at the site to check the construction activity implementation of contractors, equipment and implementation methods to manage the environmental pollution and evaluate the efficiency of the mitigation measures into the environmental impacts.
- c. Internal monitoring the implementation of environmental mitigation measures and in compliance of contractors with the environmental protection measures to prevent and control pollution; the committed requirements in the contract; guidelines of the contractor(s) on environmental improvement, environmental awareness and also proactive measures to prevent pollution.
- d. Conduct an investigation and propose the mitigation measures for the contractor(s) in case of incompliance/ infringe the EMP; monitoring and implementing the environmental mitigation measures.
- e. Evaluate the success of the EMP implementation to estimate effectively the cost and adequacy of the implemented mitigation measures.
- f. Survey after receiving the complaint, thence evaluate and select the corrective actions.
- g. Conduct the additional monitoring activities, based on the concrete guidelines of the monitoring engineer and/ or MAFF and the concerned ministries (PTs); and
- h. Contact and implement all activities under the co-ordination or guidance of the Contractor Leader, Environmental Supervision Engineer, Supervision Engineer, PCO, representatives of the provincial environmental management offices, local authority about all of environmental problems if necessary.
- i. Establish the regularly reports for the environmental implementation of package according to the frequency as mentioned in the EMP.
- j. All of the internal monitoring as well as other activities of SEO should be minuted and updated frequently into **the environmental implementation monitoring diary of Contractor**. This diary is used for normally checking by the supervision engineer to evaluate the effect of SEO.

V. Monitoring the environmental implementation of Contractor:

8. Client will sign a contract with the Consultant to carry out the task of Supervision Engineer. Consultant will apply the environmental and monitoring activities of the package. The environmental monitoring engineer of construction/execution monitoring Consultant is responsible to monitor daily the

implementation of measures, in order to minimize environmental impact and safety of the Contractor. The construction monitoring Consultant will carry out the following main tasks:

- ✓ Before the construction stage, make sure that all of the compensation process for land, works on land and relocation and/ or recovery/ donation of land as well as the clearance of landmines and UXO have been completed.
- ✓ Review and approve the detail plan for implementing the EMP by Contractor before the construction operation.
- ✓ During the construction process, monitoring closely the compliance with implementing of the environmental and safety mitigation measures.
- ✓ Confirm the compliance with the EMP of Contractor and check any negative effect or damage caused by the contractor. If necessary, establish a request statement for contractor to compensate/ restore the construction site, as provided in the contract. The implementation of environmental management issues of the Contractor shall be mentioned in the progress report of the sub-projects.

VI. Compliance Framework:

- a. The contractors are not allowed to implement the construction activities, including preparation of construction within the project scope in advance the detail plan of EMP are reviewed and approved by the construction supervision consultant and environmental official of the Client.
- b. The Client is mandatory the Contractor in compliance with the contract provision including compliance with EMP and the detail implementation plan of EMP. In case of incompliance with EMP, Client will require the Contractor to bring out the suitable measures.
- c. In order to ensure in compliance with the environmental standards of the sub- project, Client is allowed to hire the third party to solve the problems in case the Contractor could not implement the remedies on time, leading to the negative effects into the environment, as follow:
 - For insignificant mistakes (such as minor impact/ damage, temporary and repairable), Client or the representative of Client (Supervision Consultant) will notify the Contractor to correct the problems as required in the EMP within 48 hours after receiving the official report. If the mistakes are satisfactorily repaired during that time, no more action should be undertaken. Supervision consultants have the right to extend more 24 hours in the limited time for recovery, under the conditions that the Contractor has implemented activities but not completed the prescribed time, due to irresistible conditions that mentioned in the contract.
 - For major violations, it is required about 72 hours for repairing, the Client through the supervision consultant will announce the violation and require the Contractor to rectify within the prescribed time by their budget. If the Contractor fails to complete corrective work according to the specified time, they will be punished by financial punishment (*cost punishment* is calculated by the cost of remedying damage)
 - According to the evaluation of the Supervision Consultant, if the Contractor fails to resolve the problems in environmental management or the contractor conduct repairing unsatisfactorily within the specified period of time (48 hours or 72 hours), the investors have

the capacity to arrange for another contractor (third-party) to implement the suitable measures and deduct money for this task from the contract with the contractor in the next payment.

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**Annex 5B: An Example of Environmental and Social Specifications for a Category A Project
(to be supplemented to Sub-clause 4.18 into Part B - Specific Provisions of Contract)**

Sub-Clause 4.18 Protection of the Environment: *Supplement this sub-clause with the following:*

I. Environmental Management Requirements

I.1 General

1. The Construction Contractor (the Contractor) shall comply with the Environmental Management Plan (EMP) and the Environmental Impact Assessment (EIA) of the Project, and relevant parts of the Contract. This Section mentions the detailed obligations which the Owner is requiring the Contractor to undertake, and which are of the Contractor's responsibility, and show how the Owner's construction related environmental and social management requirements will be addressed. The Contractor will employ sufficient numbers of qualified environmental staff to ensure environmental compliance.

2. The Contractor shall address those project impacts occurring within the construction areas arising as a direct consequence of the execution of the works by the Contractor.

I.2 Contractor's Site Environmental Management Plan

3. The Contractor shall prepare draft Site Environmental Management Plans with associated detailed cost estimates and submit them to the Owner and the Engineer for review, comments, and approval, including:

4. The 1st draft Site Environmental Management Plan for the works to be commenced on the ...date of ... month... year including construction of access road, disposal sites, foundation of culvert, coffer-dam, camp sites and auxiliary facilities (complete of activities to be provided). This plan shall be submitted for review and approval not later than ...date...month ...year. No construction activities will be permitted until the 1st draft Site Environmental Management Plan is approved by the Owner and the Engineer.

5. All plans shall include a summary of the proposed methodology to develop and implement the plan and shall outline the proposed actions for all the requirements given in this supplement to Sub-clause 4.18 of the Contract, including the requirements for sub plans for implementing protection and mitigation measures, throughout the execution of the Works, compliance by the Contractor and the Subcontractors and other agents with the environmental requirements stated in the bidding documents and elsewhere in the Contract. The draft Site Environmental Management Plan shall contain sufficient details to enable the Owner and the Engineer to review and comment on it.

6. The Contractor's Site Environmental Management Plan shall establish an environmental management system that specifies how the Contractor proposes to meet the Owner's environmental requirements stated in the bidding documents. The Contractor's Site Environmental Management Plans shall comply with ISO 14001:2004 - Environmental Management System and shall include the following as minimum:

- a. A statement of policy, providing a definition of the Contractor's environmental policy and an indication of commitment to the execution of its Site Environmental Management Plan.
- b. The environmental planning process, setting out the principal steps in the Contractor's Site Environmental Management Plan, including:
 - (i) Identify environmental aspects of the Contractor's work and evaluation of associated environmental impacts;
 - (ii) Specify other environmental mitigations for which the Contractor is responsible under the Contract;
 - (iii) Identify Applicable Laws associated with the requirements of these Owner's environmental requirements stated in the bidding documents and the Contractor's Site Environmental Management Plan, and identify the Contractor licenses, permits and approval associated with the Contractor's Site Environmental Management Plans.
 - (iv) Nominate the Contractor's performance criteria in accordance with the Owner's Environmental requirements stated in the bidding documents.
 - (v) Issue environmental plans and management programs.
- c. The implementation procedures that specify the capabilities, support mechanisms and resources necessary to achieve the objectives and targets of the environmental policy. Responsible personnel with appropriate knowledge, skills and training for specific tasks shall be identified. In addition, the Site Environmental Management Plan shall define communication and reporting responsibilities.
- d. The proposed quality assurance plan, including summary of methodology, equipment, staffing, organization, etc. for the Site Environmental Management Plan.
- e. An overview of the impacts that the construction work, within the scope of the Contract and that does not include activities, for which the Owner is responsible, will have on the physical, biological and social environment.
- f. The detailed sub-plans to be included in the Site Environmental Management Plan.
- g. A formal certification from the Contractor that the Site Environmental Management Plan:
 - (i) Has been prepared by duly qualified consultants or specialists;
 - (ii) Complies with the undertaking specified Environmental Requirements which stated at Bidding documents; and
 - (iii) Complies with the Conditions of the Contract, including Applicable Laws, Regulations, Standards, National Technical Regulations which relate to the Site Environmental Management Plan.

7. The Owner reserves the right to require the Contractor to submit, revise, and resubmit these Site Environmental Management Plans prior to the commencement of construction activities if, in the opinion of the Owner, the plans as submitted are inadequate to ensure compliance with the legislative and regulatory requirements related to the work activities.

8. The Site Environmental Management Plans may need to be revised in response to such things as, but not limited to, changes to design, construction procedures and methods, schedule, terms and conditions of permits and approvals, mitigation measures, and to other Owner's requirements.

9. These plans will be revised if and whenever any of the above conditions occur during the construction of the Works. All revisions and changes will be submitted by the Contractor for review and approval by the Owner and by all applicable agencies having jurisdiction.

10. The Contractor shall be responsible for updating and signing-off the Site Environmental Management Plans as necessary, to ensure they continue to meet the requirements of the EMP, relevant environmental legislation and regulations, and best management practices. The Contractor shall notify the Owner in advance of any modifications to the work methods, and/or amendments to the Site Environmental Management Plans.

11. The Contractor shall translate the final version of the Contractor's Site Environmental Management Plan into Khmer language. Such translation shall be made available to the Owner for information.

I.3 Contractor's Compliance Monitoring and Reporting

12. The Contractor shall institute a program of self-monitoring and enforcement via standard international quality assurance procedures for monitoring the Project Impact, as described in Section I.5. The self-monitoring and enforcement program shall be in accordance with the associated quality assurance procedures which shall be included in the Contractor's Site Environmental Management Plan.

13. The Contractor shall be responsible for preparing monthly environmental reports, as a section within the Progress report required in Clause 4.21 – Progress Report and other reports which are required in Part 8. Communication and Reporting (stated in Annex VI. 3 Environmental Requirement, Bidding Document) including accidental, monthly reports, for submitting to the Owner. The contents of these reports may include the following details:

- Implementation of the Contractor's Site Environmental Management Plan complying with the agreed program;
- Any difficulties encountered in the implementation of the Contractor's Site Environmental Management Plan and recommendations for remedying them for the future;
- The number and type of non-compliances and proposed corrective actions;
- Reports from the Subcontractors involved in the implementation of the Contractor's Site Environmental Management Plan, including minutes of meetings and discussions held by the Contractor;
- Minutes of meeting from discussions held with the Owner regarding implementation of the Contractor's Site Environmental Management Plan.

I.4 Compliance Monitoring by the Owner, Local Authorities, and Others

14. The Owner has an environmental unit called the "Environmental Management Unit" (EMU) which is responsible for monitoring the Contractor's compliance with the Contractor's Site Environmental

Management Plan on a daily basis. The Project Environmental Officer (PEO) of the EMU will represent the Owner for project-related environmental matters and will be responsible for ensuring that the Contractor satisfactorily complies with the project EIA report approved by Ministry of Natural Resources and Environment (MONRE), the Supplemental Environmental Impact Assessment (EIA), and the Environmental Management Plan.

15. The Construction Supervision Engineer (the Engineer) will be responsible for providing oversight to the Contractor and sub-contractors to ensure that environmental commitments identified within the EIA and EMP are complied with through the Contractor efficient implementation of its Site Environmental Management Plan.

16. The Environmental Quality Monitoring and Pollution Assessment Consultant hired by the Owner will regularly monitor the environment of project area including parameters of waste water, ambient air and water quality and also evaluate the impacts of construction activities on the environment.

17. The Independent Environmental Monitoring Consultant hired by the Owner will review, verify and validate environmental performance and identify those issues that require additional review and management adjustments.

18. The Local authorities, communities and other stakeholders will also take part in the supervision of compliance by the contractor with the EMP, EIA, where applicable during the construction.

19. In order to eliminate the conflicts during the contract implementation and base on the environmental compliance framework, the Owner stipulate some major infringements. For other infringement cases, the Owner will work with Engineer and Chief Engineer to determine and evaluate the types of infringements.

20. The Owner will carry out random checks to monitor the environmental performance of Contractor during contract implementation including some main indicators to monitor the environmental compliance of the Contractor. Other indicators will be also checked base on the applicable Laws, regulations, and national technical regulations and standards.

I.5 Requirements for Sub Plans to be Developed and Implemented by the Contractor

A-1: Construction Camp Management Plan

21. To help address potential negative impacts on local communities through the introduction of construction work force, the Contractor shall implement a series of activities related to the construction workforce and camps as follows.

Workforce and Camps

General Requirements

22. The Contractor shall, wherever possible, locally recruit the available workforce and shall provide appropriate training as necessary. The Contractor shall consider all aspects of workforce management and

address potential ethnic tensions between workers and the local communities, increased risk of prostitution and communicable diseases, theft, drug and alcohol abuse, market distortion due to temporary inputs to local economy and other local tensions such as unemployment, ethnicity and divergent cultural values.

23. The following general measures shall be considered for construction camps:

- a. The construction camp site will have to be accepted by the local authority.
- b. The Contractor shall present the design of the camps including details of all buildings, facilities and services for approval no later than two months prior to commencement of any construction work. Approvals and permits shall be obtained in accordance with applicable laws, applicable standards/technical regulation and environmental requirements for the building and infrastructure work for each camp area.
- c. The Contractor shall provide adequate and suitable facilities for washing clothes and utensils for the use of contract labor employed therein.
- d. Camp site selection and access roads shall be located so as to avoid clearing of major trees and vegetation as feasible, and to avoid aquatic habitats.
- e. Camp areas shall be located to allow effective natural drainage and landscaped so as to avoid erosion.
- f. The Contractor shall provide suitable, safe and comfortable accommodation for the workforce.
- g. The Contractor shall provide adequate lavatory facilities (toilets and washing areas) for the number of workers expected on site, plus visitors. Toilet facilities should also be provided with adequate supplies of clean or potable water, soap, and toilet paper. Separate and adequate bathing facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic conditions at all times.
- h. The Contractor shall implement effective sediment and erosion control measures during construction and operation of the construction work camps in accordance with the environmental requirements as stipulated by the approved EIA, EMP and EIA, especially near rivers or streams.
- i. The Contractor shall provide recreational facilities to the workforce. Such facilities will help mitigate against potential conflict and impact on the local population as the incentive to go outside the camp will be reduced.
- j. The Contractor shall provide safe potable water for food preparation, drinking and bathing compliant with the relevant national technical regulations issued by the Ministry of Health, and other applicable Laws.
- k. The Contractor shall install and maintain a temporary septic tank system for any residential labor camp, without causing pollution of nearby watercourses. Wastewater should not be disposed into any water bodies without treatment, in accordance to applicable national National Technical Regulations/ Standards.
- l. The Contractor shall establish a method and system for solid waste segregation into non-hazardous and hazardous wastes, temporary storage and disposal or recycling of all solid wastes generated by the worker camps and/or Contractor' s offices. Hazardous wastes shall be registered and managed by specific measures accepted by local environmental authority.
- m. The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.
- n. The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas as required in the approved EIA report.;

- o. The Contractor shall ensure that storage areas for diesel fuel and lubricants are not located within 100 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. A ditch shall be constructed around the area with an approved settling pond/oil trap at the outlet.
- p. Areas for the storage of fuel or lubricants and for a maintenance workshop shall be fenced and have a compacted/impervious floor to prevent the escape of accidental spillage of fuel and or lubricants from the site. Surface water drainage from fenced areas shall be discharged through purpose designed and constructed oil traps. Empty fuel or oil drums may be temporarily stored on site in a designated site with concrete floor, walls and roof. Waste lubricants shall be recycled, or sold to recycling companies and not disposed to land or adjacent water bodies.
- Areas for the storage of fuel or lubricants fenced and have a compacted/impervious floor or other surface to prevent the escape of accidental spillage of fuel and/or lubricants from the site. Surface water drainage from fenced areas shall be discharged through an oil skimmer or other appropriate device to remove hydrocarbons. Proper Material Safety Data Sheets (MSDS) labeling shall be in place and training provided to workers handling these materials.
- q. The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas as agreed by local authorities and approved by the PCO or supervisory engineer. They shall not be located within 200 meters of existing residential settlements
- r. Concrete batching plants shall not be located within 500 m of any residence, community or work place.
- s. The Contractor shall provide medical and first aid facilities at each camp area; and
- t. All medical related waste shall be disposed off in proper containers, or dealt with accordingly with established procedures for safe disposal.

Security

24. Security measures shall be put into place to ensure the safe and secure running of the camp and its residents. As a minimum, these security measures should include:
- a. Access to the camp shall be limited to the residing workforce, construction camp employees, and those visiting personnel on business purposes.
 - b. Prior approval from the construction camp manager shall be required for visitor access to the construction camp.
 - c. Adequate, day-time night-time lighting shall be provided.
 - d. A perimeter security fence at least 2m in height shall be constructed from appropriate materials; and
 - e. Provision and installation in all buildings of firefighting equipment and portable fire extinguishers.

Maintenance of Camp Facilities

25. The following measures shall be implemented to ensure that the construction camp and its facilities will be organized and maintained to acceptable and appropriate standards:
- a. A designated camp cafeteria shall be established under strict sanitary and hygiene conditions;
 - b. Designated meal times shall be established;
 - c. Cooking or preparation of food shall be prohibited in accommodation quarters;

- d. Designated rest times shall be established;
- e. Designated recreational hours shall be put in place;
- f. Smoking shall be prohibited in the workplace and shall only be allowed in designated areas;
- g. Procedures shall be implemented to maintain the condition of the construction camp and facilities and ensure adequate cleanliness and hygiene;
- h. The latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times;
- i. Water shall be provided in or near the latrines and urinals by storage in drums; and
- j. A complaint registers to receive and respond to complaints from the construction camp residents regarding facilities and services provided.

Code of Conduct (Behavior)

26. A major concern during a construction of a project is the potentially negative impacts of the workforce interactions with the local communities. For that reason, a Code of Conduct shall be established to outline the importance of appropriate behavior, drug and alcohol abuse, and compliance with relevant laws and regulations. Each employee shall be informed of The Code of Conduct and bound by it while in the employment of the Client or its Contractors. The Code of Conduct shall be available to local communities at the project information centers or other place easily accessible to the communities. The Code of Conduct shall address the following measures (but not limited to them):

- a. All workers and subcontractors shall abide by the national laws and regulations.
- b. Illegal substances, weapons and firearms shall be prohibited.
- c. Pornographic material and gambling shall be prohibited.
- d. Fighting (physical or verbal) shall be prohibited.
- e. Drug use, selling or buying shall be prohibited
- f. Workers shall not be allowed to hunt, fish or trade in wild animals.
- g. No consumption of bush meat shall be allowed.
- h. No pets shall be allowed in camp.
- i. Creating nuisances and disturbances in or near communities shall be prohibited.
- j. Disrespecting local customs and traditions shall be prohibited.
- k. Smoking shall be prohibited in some specific areas.
- l. Maintenance of appropriate standards of dress and personal hygiene shall be in effect.
- m. Maintenance of appropriate hygiene standards in accommodation quarters shall be set in place.
- n. Residing camp workforce visiting the local communities shall behave in a manner consistent with the Code of Conduct; and
- o. Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented at the construction camp will result in disciplinary actions.

A-2: Construction Impact Management Plan

27. In order to reduce the impact of the construction activities on local communities and the environment, the Construction Contractor shall prepare and implement the following Sub-plans in accordance with the following stipulations:

1. Erosion and Sedimentation Control Plan

28. Site activities shall be carefully managed in order to avoid site erosion and sedimentation of downstream waterways. In order to minimize negative erosion impacts in the project area, the Contractor shall prepare and implement an erosion and sediment control plan in accordance with the **Landscape, Visual impacts and Re-vegetation Plan**. It shall detail all site-specific measures the Contractor will implement during the construction phase to prevent an increase in pollution loads being exported from the site. The following activities shall be carried out by the Contractor:

- a. Erosion and sedimentation shall be controlled during the construction prior to any major soil disturbances, or in their proper sequence, and maintained until permanent protection is established. Areas of the site not disturbed by construction activities shall be maintained in their existing state.
- b. Prior each wet season, the Contractor shall implement appropriate measures to ensure that erosion is minimized from works where the permanent drainage and erosion control measures, if any, are not yet complete.
- c. Disturb as little ground area as possible, stabilize these areas as soon as possible, control drainage through the area, and trap sediment onsite. Install erosion control barriers around perimeter of cuts, disposal pits, and roadways.
- d. Slope works and earth moving/excavation shall be conducted in order to minimize exposure of the soil surface both in terms of area and duration. Temporary soil erosion control and slope protection works shall be carried out in sequence to construction.
- e. Conserve topsoil with its leaf litter and organic matter, and reapply this material to local disturbed areas to promote the growth of local native vegetation.
- f. Apply local, native grass seed and mulch to barren erosive soil areas or closed construction surfaces.
- g. Apply erosion control measures before the rainy season begins, preferably immediately following construction. Install erosion control measures as each construction site is completed.
- h. In all construction sites, install sediment control structures where needed to slow or redirect runoff and trap sediment until vegetation is re-established. Sediment control structures include windrows of slash, rock berms, sediment catchment basins, straw bales, brush fences, and silt fences. The silt trap can control sheet flows along minor drainage lines, whereas the sedimentation basin shall be utilized for removing sediment-laden runoff from the construction areas. These shall be built prior to the start of the activity and shall be maintained until the completion of that activity. The basins shall be designed in accordance with best practices and it shall be desilted when the basin capacity gets reduced by approximately fifty percent.
- i. Control water flow through construction sites or disturbed areas with ditches, berms, check structures, live grass barriers, and rock.
- j. The ground surface at the construction site offices shall be concreted or asphalted in order to minimize soil erosion.
- k. Erosion control measures shall be maintained until vegetation is successfully reestablished.
- l. Water shall be sprayed as needed on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion and dust, and
- m. Larger changes in the landscape from quarries, tunnel spoil tips, etc. should be landscaped and replanted, both to reduce erosion problems and to reduce the visual impact of construction.

2. Particulate Emissions and Dust Control Plan

29. The Contractor shall prepare and implement a particulate emission and dust control plan with proposed methods and actions to control dust resulting from construction related activities, including quarry sites, crushing and concrete batching plants, earthworks including road construction, embankment and channel construction, haulage of materials and construction work camps. In particular the Contractor shall undertake the following:

- a. Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding communities, and especially to vulnerable people (children, elderly people).
- b. Time removal of vegetation to prevent large areas from becoming exposed to wind.
- c. Place screens around construction areas to minimize dust proliferation, paying particular attention to areas close to local communities.
- d. Spray water as needed on dirt roads, cut areas and soil stockpiles or fill material. Spraying shall be carried out in dry and windy days, at least twice a day (morning and afternoon). The frequency of spraying near local communities shall be increased as needed.
- e. Pave access roads with gravel in the sections which near the communities and other sensitive receptors to reduce generation of air-borne dust.
- f. Provide an adequate ventilation system and other measures to control concentration of air pollutants within tunnels.
- g. Transportation of materials by vehicles and construction of access roads shall be properly designed. For example, the access road can be constructed and paved by concrete/asphalt, or laid with small graded rocks, prior to major earthworks which may require transportation of substantial amount of materials on-site and off-site.
- h. Ensure adequate maintenance of all vehicles. Construction plant/vehicles that generate serious air pollution and those which are poorly maintained shall not be allowed on site.
- i. Transport of chemicals or materials such as cement, sand and lime shall be covered entirely with clean impervious material to ensure that these materials shall be contained. Overflow of material shall be avoided; and
- j. The engines shall be inspected and adjusted as required to minimize pollution levels.

3. Noise Control Plan

30. The Contractor shall prepare and implement a noise control plan to minimize noise. The Contractor shall:

- a. Maintain all construction-related traffic on project access roads at established speed limits.
- b. Maintain all on-site vehicle speeds at or below 30 kph, or otherwise designated.
- c. To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90 db.
- d. In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict noise abatement measures may need to be implemented to prevent undesirable noise levels.
- e. Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.
- f. Design a transportation schedule for entry of construction materials to minimize the adverse impact on residents, as well as the traffic on the existing roads. The transportation vehicles shall

be required to slow down and banned from using horns when passing sensitive areas. Transportation during peak hours should be minimized. The Contractor shall provide the transportation route in advance to the Engineering Supervisor.

- g. Maintain the construction equipment in its best operating conditions and lowest noise levels possible.
- h. Use temporary noise barriers to minimize the noise caused by construction equipment;
- i. Provide hearing protection to workers who must work with highly noisy machines such as piling, explosion, mixing, etc., for noise control and workers protection.
- j. The construction supervision team shall be equipped with portable noise detection devices to monitor the noise level at the sensitive receptors.
- k. Materials leaving the construction site shall be transported during non-peak hours in order to minimize traffic noise due to the increase in traffic volumes.
- l. Use of properly designed silencers, mufflers, acoustically dampened panels and acoustic sheds or shields, etc. shall be made. Mufflers and other noise control devices shall be repaired or replaced if defective.
- m. Use of electric-powered equipment when applicable instead of diesel-powered or pneumatic-powered equipment.
- n. Equipment known to emit strong noise intensity in one direction, shall when possible, be oriented to direct noise away from nearby sensitive receptors.
- o. Machines and equipment that may be in intermittent use shall be shut down between work periods or throttled down to a minimum operation.

4. Nighttime Construction Noise Mitigation

31. Although in general, nighttime construction shall be banned near sensitive receptors, some construction may still occur for technical and other reasons (e.g., bridge piles required and continued around clock concrete pouring). Because nighttime construction, if occurring near local communities, will result in significant impacts to residents and other sensitive receptors, the following special measures shall be taken during the construction phase:

- a. People living within potentially impacted areas shall be notified ahead of time of the length and noise intensity of the proposed nighttime construction. Residents shall be informed as to why night construction is necessary and they shall be provided with the mitigation measures that are going to be implemented to obtain their understanding. These residents shall be allowed to express their concerns, difficulties, and suggestions for noise control prior to the commencement of night time construction. These concerns shall be addressed and suggestions adopted where appropriate;
- b. Concrete batching plants, generators and other stationary equipment shall be carefully placed as far away from local communities to reduce noise impacts from these machines. Where possible, municipal power supply shall be used for nighttime construction as diesel generators are extremely noisy and avoiding their use is the best mitigation possible.
- c. Equipment with lower noise levels shall be used for concrete pouring operations, which may require 24 hour non-stop operation.
- d. Temporary noise barriers shall be installed at the appropriate locations to avoid nighttime noise impacts, and

5. Earthworks, Cut and Fill Slopes

32. The Contractor shall prepare and implement an earthworks, cut and fill slopes plan to ensure that the following procedures are undertaken:

- a. All earthworks shall be properly controlled, especially during the rainy season.
- b. The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the works.
- c. The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.
- d. In order to protect any cut or fill slopes from erosion, in accordance with drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.
- e. Any excavated cut or unsuitable material shall be disposed of in designated disposal areas as agreed to by the Supervisory Engineer, and
- f. Disposal sites should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause runoff from the landfill towards any watercourse. Drains may need to be dug within and around the landfills, as directed by the Supervisory Engineer.

6. Stockpiles and Borrow Pits

33. The Contractor shall prepare and overall Stockpiles and Borrow Pits Management Plan for the total works. Operation of a new borrowing area, on land, in a river, or in an existing area, shall be subject to prior approval of the Environmental Supervisor, and the operation shall cease if so instructed by the Supervisory Engineer.

34. Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage riverbanks, or carry too much fine material downstream.

35. The location of crushing plants shall be subject to the approval of the Supervisory Engineer, and not be adjacent to environmentally sensitive areas, or to existing residential settlements, and shall be operated with approved fitted dust control devices.

36. Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the riverbanks.

37. The Plan shall include:

- a. A map showing the extent of the area to be developed.
- b. A method statement defining the proposed working methods.
- c. The proposed access and haulage routes between the borrow pits and the destination for the extracted materials.

- d. A justification for the quantities of materials to be extracted, an estimation of the waste material to be generated and disposal details for such waste materials.
- e. Details of the measures taken to minimize the borrow pit areas and their visual impact on the surrounding area, and
- f. Details of the measures to be taken for the long-term rehabilitation of the borrow pit areas in order to avoid situations that could constitute a threat to health and safety and cause environmental degradation.

38. In general terms, the Contractor shall:

- g. Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are 15 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies.
- h. Limit extraction of material to approved and demarcated borrow pits.
- i. Stockpile topsoil when first opening the borrow pit. After all usable borrow has been removed, the previously stockpiled topsoil should be spread back over the borrow area and graded to a smooth, uniform surface, and adequately sloped for drainage. On steep slopes, benches or terraces may have to be established to help control erosion.
- j. Excess overburden should be stabilized and re-vegetated. Where appropriate, organic debris and overburden should be spread over the disturbed site to promote revegetation. Natural revegetation is preferred to the best extent practicable.
- k. Existing drainage channels in areas affected by the operation should be kept free of overburden.
- l. Once the job is completed, all construction -generated debris should be removed from the site to an approved disposal location.
- m. The Contractor shall ensure that all borrow pits used are left in an appropriate condition with stable side slopes, re-establishment of vegetation, restoration of natural water courses, avoidance of flooding of the excavated areas wherever possible so no stagnant water bodies are created which could breed mosquitoes, and
- n. When the borrow pits or the local depressions created by the construction activities *cannot be refilled or reasonably drained, the Contractor shall consult with the local community to determine their preference for reuse such as fish farming or other community purposes.*

7. Disposal of Construction Waste Plan

39. The Contractor shall prepare and implement a Disposal of Construction Waste Plan to ensure that the following procedures are undertaken:

- a. Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris.
- b. Segregation of non- hazardous and hazardous wastes prior to waste transport and disposal shall be required. Hazardous wastes shall be transported and treated by specific measures accepted by local environmental authority.
- c. Debris generated due to the dismantling of the existing structures shall be suitably reused, to the best extent feasible (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the Supervisory Engineer. The Contractor should ensure that these sites (a) are not located within designated forest areas; (b) do not impact

natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the Contractor dispose of any material in environmentally sensitive areas.

- d. In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of Supervisory Engineer.
- e. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Supervisory Engineer.
- f. Consult with local communities, if any, living close to spoil disposal sites that may be affected. The consultation shall provide local stakeholders with detailed information of the potential spoil disposal site, and provide an opportunity for them to express their opinions and concerns with the proposed plans. Information and feedback from the consultation process shall be incorporated into the final design for each spoil disposal site.
- g. Include provisions for incorporating the most appropriate stabilization techniques for each disposal site.
- h. Assess risk of any potential impact regarding leaching of spoil material on surface water.
- i. Include an appropriate analysis to determine that the selected spoil disposal sites do not cause unwanted surface drainage, and
- j. Stabilize spoil disposal sites to avoid erosion in accordance with the requirements of the Landscape and Re-vegetation Plan.

8. Demolition of Existing Infrastructure

40. The Contractor shall prepare a plan for demolishing of existing infrastructure to implement adequate measures during demolition of existing infrastructure to protect workers and public from falling debris and flying objects. Among these measures, the Contractor shall:

- a. Set aside a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels.
- b. Conduct sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable.
- c. Maintain clear traffic ways to avoid driving of heavy equipment over loose scrap.
- d. Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as hand rails and toe boards to prevent materials from being dislodged.
- e. Evacuate all work areas during blasting operations, and use blast mats or other means of deflection to minimize fly rock or ejection of demolition debris if work is conducted in proximity to people or structures.
- f. Provide all workers with safety glasses with side shields, face shields, hard hats, and safety boots or shoes.

9. Waste Management Plan

41. During the construction stage, the Contractor shall prepare a Waste Management Plan before commencement of project works. The Plan shall include:

Water and Wastewater

- a. A review of the preliminary site drainage design prepared during the detailed design.
- b. An update of the preliminary design based on the actual construction program and site specific conditions (e.g. the geographical conditions, location of slopes and the nature of construction work).
- c. Detailed design including drawings, location maps, specifications of drainage collection channels and wastewater treatment facilities.
- d. Proposed discharge locations and treatment standards.
- e. A detailed implementation program of the proposed drainage system.
- f. As part of the design of the site drainage system, surface runoff within the construction site shall be diverted in order to avoid flushing away soil material and the water is treated by device such as sediment trap before discharge.
- g. Domestic sewage from site offices, toilets and kitchen shall either be collected by a licensed waste collector or treated by on-site treatment facilities. Discharge of treated wastewater must comply with the discharge limits according to national legislation.
- h. A Wastewater treatment device such as a sediment tank can be installed near each of the constructions activities that may generate wastewater. Alternatively, sedimentation ponds can be constructed on-site to settle out excessive suspended solids (SS) before discharging into a discharge outlet.
- i. Retaining walls and sandbags barriers shall be constructed surrounding the bored piling machine in order to trap bentonite and wastewater within the piling location. The collected spent bentonite or the wastewater shall be pumped for treatment before discharge.
- j. Prior to the rainy season, all exposed surfaces and slopes shall be properly covered or landscaping shall be provided to minimize run-off of sediment laden. Slope protection can be carried out in sequence to construction and in advance of the rainy season.
- k. Drainage control devices such as sediment traps shall be installed at each discharge outlet, and they shall be cleaned regularly, and mobile toilets can be provided on each work site employing 5 workers or more.
- l. At least one toilet shall be installed per 25 workers. Domestic sewage collected from the site office and chemical toilets shall be cleaned up on regular basis. Only licensed waste collectors shall be employed for this disposal. The sludge shall be treated according to the requirements of the Contractor's Waste Management Plan.

Solid Wastes

42. Wastes such as those listed below are expected due to construction activities:
 - a. Surplus excavated materials requiring disposal due to earth moving activities and slope cutting.
 - b. Disposal of used lumber for trenching works, scaffolding steel material, site hoarding, packaging materials, containers of fuel, lubricant and paint.
 - c. Waste generated by demolition of existing houses / buildings affected by the project or breaking of existing concrete surfaces.
 - d. Waste from on-site wastewater treatment facility (e.g. treatment of bentonite from tunneling works by sedimentation process), and
 - e. Domestic waste generated by construction workers, construction campsite and other facilities.
 - f. Medical waste from the on-site clinics.

- g. The above wastes must be properly controlled through the implementation of the following measures:
- h. Minimize the production of waste that must be treated or eliminated.
- i. Identify and classify the type of waste generated. If hazardous or chemical wastes are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal. (See Emergency Plan for Hazardous Materials and Chemical Waste Management Plan).
- j. Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each, and
- k. Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands). Collect and recycle and dispose where necessary in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials.

43. The Contractor shall make a commitment to waste recycling and re-use methods in consideration of the following:

- a. A method statement on waste segregation, recycling, re-use and minimization of waste generation.
- b. Excavated material shall be re-used on-site or the nearby road segment / other projects as far as possible in order to minimize the quantity of material to be disposed of.
- c. Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources. Collected recyclable material shall be re-used for other projects or sold to waste collector for recycling, and
- d. Collected hazardous waste shall be disposed of properly through a licensed waste collector.

10. Pollution Prevention Plan

44. The Contractor shall prepare and implement the following plans:

Emergency Plan for Hazardous Materials

45. If the construction site is expected to have or suspected of having hazardous materials (chemicals, asbestos, hydrocarbons, or other similar hazardous materials), the Contractor will be required to prepare a Hazardous Waste Management Plan and Emergency Response Plan to be approved by the Environmental Supervisor. Removal and disposal of existing hazardous wastes in project sites should only be performed by specially trained personnel following national or provincial requirements, or internationally recognized procedures.

46. The Contractor shall:

- a. Make the Hazardous Waste Management Plan available to all persons involved in operations and transport activities;
- b. Hazardous waste (or chemical waste) shall be registered, properly stored, handled and disposed of in accordance with the local legislative requirements. Hazardous waste shall be stored at designed location and warning signs shall be posted;

- c. Inform the Environmental Supervisor, or Construction Supervisor of any accidental spill or incident in accordance with the plan;
- d. Prepare a companion Emergency Response Plan outlining all procedures to be undertaken in the event of a spilled or unplanned release;
- e. Initiate a remedial action following any spill or incident; and
- f. Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions. The Emergency Plan for Hazardous Materials shall be subsequently updated and submitted to the PEO for no objection.

Chemical Waste

47. During construction there will be a potential for pollution to adjacent habitat areas and watercourses caused by chemical wastes such as spent waste oil, spent lubricant, contaminated soil material due to leakage of hydraulic oil, fuel from construction plant or vehicles, etc.

48. The following measures shall be put into place in order to minimize the damage caused by chemical waste:

- a. All refueling of heavy equipment and machinery shall be undertaken by a service vehicle to prevent any spillage or contamination by chemical wastes such as maintenance oils, lubricants, etc.
- b. All the fuel and hazardous material storage shall be adequately enclosed to prevent any spillage problems;
- c. Storm water runoff from open workshops, repair areas, and enclosed machinery or fuel storage areas shall be collected and treated in oil separation pits/tanks before discharge to drains and waterways.
- d. All explosives shall be transported, stored and handled in accordance with applicable laws and good design engineering and constructions practices. The contractor shall provide details of proposed storage and security arrangements, and
- e. Pesticides shall be packaged, labeled, handled, stored and disposed of according to standards acceptable to the World Bank and the government regulation

Maintenance of Construction Equipment

49. The Contractor shall:

- a. Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas and approved by the local Fire Control Police.
- b. Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems, and
- c. All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 100m from all cross drainage structures and important water bodies or as directed by the PEO.

11. Landscape, Visual impacts and Re-vegetation Plan

50. The construction program of the project shall be executed in phases, particularly in those locations where severe or high landscape and visual impacts are expected.

51. The Contractor shall prepare a Landscape, Visual impacts and Re-vegetation Plan to ensure the following measures shall be implemented:

- a. Construction shall be programmed in sequence so that the scale of earth moving activities and area of exposed surface can be minimized.
- b. Re-vegetation shall start at the earliest opportunity. Appropriate local species of vegetation shall be used.
- c. The requirement of compensatory planting shall be included in the design and project contract. A Master Landscaping Plan and requirements of ecological monitoring or survey during different stages of the project shall be prepared during the design stage that shall be implemented during the construction and maintained during operation.
- d. Facilities and structures shall be located according to the terrain and geographical features of the project site.
- e. Restoration, of cleared areas such as borrow pits no longer in use, disposal areas, construction roads, construction camp areas, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be accomplished using landscaping, adequate drainage and re-vegetation.
- f. Existing trees and plants within the construction boundaries shall be tagged to indicate whether the trees are to be retained transplanted or removed. Transplantation of existing trees affected by the project works shall be carried out prior to the commencement of construction.
- g. Excavations shall avoid damage to the root systems. Mitigation measures are also required to prevent damage to trunks and branches of trees.
- h. Temporary hoarding barriers shall be of a recessive visual appearance in both color and form.
- i. Upon completion of the construction, the affected areas shall be immediately restored to their original condition, including the re-creation of natural and rocky shoreline, footpath and re-establishment of disturbed vegetation.
- j. At the highly visually sensitive zones, construction may be scheduled where possible at the low tourist seasons.
- k. Construction trucks shall operate at night when possible and kept cleaned and covered when shipping bulk materials.
- l. Construction sites shall be surrounded with fence if located at the scenery zones to avoid direct visual sights of the construction sites.
- m. There shall not be construction camps in scenic areas.
- n. Random disposal of solid waste in scenic areas shall be strictly prohibited.
- o. All mixing stations and concrete batching plants shall not be located near rivers or in scenic areas. The stockpiles shall be located in hidden areas, and outside of the sight from tourists;
- p. Use the existing roads as access road if possible to minimize the need for new access roads which lead to damage existing landforms and vegetation.
- q. Land use for agricultural activity prior to use for construction activities shall be, as much as possible, restored to a state to allow the same agricultural activity to continue.

- r. Spoil heaps and excavated slopes shall be re-profiled to stable batters, and grassed to prevent erosion.
- s. Topsoil stripped from the work areas shall be used for landscaping works, and
 - Watercourses, which have been temporarily diverted by the construction activities, shall be restored to their former flow paths.

Site Restoration

- a. At the completion of construction work, all construction camp facilities shall be dismantled and removed from the site and the whole site restored to a similar condition to that prior to the commencement of the works, or to a condition agreed to with local authorities and communities.
 - b. Remedial actions that cannot be effectively carried out during construction shall be carried out on completion of the restoration works (and before issuance of the acceptance of completion of works).
52. Various activities to be carried out for site restoration are:
- a. The construction campsite shall be grassed and trees cut replaced with saplings of similar tree species.
 - b. All affected areas shall be landscaped and any necessary remedial works shall be undertaken without delay, including grassing and reforestation.
 - c. Water courses shall be cleared of debris and drains and culverts checked for clear flow paths.
 - d. All sites shall be cleaned of debris and all excess materials properly disposed.
 - e. Borrow pits shall be restored.
 - f. Oil and fuel contaminated soil shall be removed and transported and buried in waste disposal areas.
 - g. Saplings planted shall be handed over to the community or the land owner for further maintenance and watering, and
 - h. Soak pits and septic tanks shall be covered and effectively sealed off.

12. Plan for Safety during Construction

53. The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:
- a. Present details regarding maximum permissible vehicular speed on each section of road;
 - b. Establish safe sight distance in both construction areas and construction camp sites;
 - c. Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. All signs shall be in English and Khmer language and be constructed according to national specifications;
 - d. Estimate maximum concentration of traffic (number of vehicles/hour);
 - e. Use selected routes to the project site, as agreed with the PEO, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes;

- f. Be held responsible for any damage caused to local roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the PEO;
- g. Not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor;
- h. Maintain adequate traffic control measures throughout the duration of the Contract and such measures shall be subject to prior approval of the PEO;
- i. Carefully and clearly mark pedestrian-safe access routes;
- j. If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;
- k. Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;
- l. Conduct safety training for construction workers prior to beginning work;
- m. Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots, etc.,) for construction workers and enforce their use;
- n. Provide post Material Safety Data Sheets for each chemical present on the worksite;
- o. Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant;
- p. Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers;
- q. During heavy rains or emergencies of any kind, suspend all work; and
- r. Brace electrical and mechanical equipment to withstand seismic events during the construction.

13. Environmental Training for Construction Workers

54. During construction there will be a potential for workers to damage protected areas and waterways adjacent to camps and work areas. The Contractor shall prepare an Environmental Training Plan for all construction workers: the Plan shall address the following items:

- a. All Contractor's employees shall be required to comply with environmental protection procedures and they shall be able to provide evidence that they attended the training sessions detailed in the Plan;
- b. The Plan shall educate all construction workers on the following issues but not limited to them: fire arm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, health and safety issues, all prohibited activities, the Code of Conduct requirements and disciplinary procedures, and general information on the environment in which they will be working and living;
- c. Establishment of penalties for those who violate the rules; and
- d. Proposed methods for conducting the training program, which shall include formal training sessions, posters, data in newsletters, signs in construction and camp areas and 'tool box' meetings.

14. Construction Workers Health Management Plan

Diseases Brought by Construction Workers and Camp Followers

55. Most of construction workers and camp followers come from different locations and they can bring other diseases to the area. Common health issues that can come with these groups are: STIs, HIV/AIDS, tuberculosis, respiratory infections, diarrhea, helminthes, vector-borne diseases such as malaria and dengue fever, alcohol abuse, drug addiction, zoonosis, schistosomiasis, leptospirosis, etc.

Worker Health Management Plan

56. The Contractor shall prepare and enforce a Worker Health Management Plan to address matters regarding the health and safety of construction workers and project staff. The Chief Engineer will issue a certificate of compliance to the Contractor prior to the initiation of Construction.

57. The following measures shall be implemented by the Contractor to ensure an adequate Worker Health Management Plan:

- a. Screening of all workers on recruitment and annually;
- b. Implementation of a comprehensive vaccination program including but not limited to hepatitis A and B, tetanus, polio, etc.;
- c. Implementation of anti-malaria measures following current accepted practice at the camp area and establishment of facilities for the early diagnosis and treatment of patients with the disease;
- d. Storing sufficient medicines for malaria treatment;
- e. Collecting and testing sputum of individuals who are at risk for Tuberculosis(TB) infection;
- f. Storing antibiotics for treatment of respiratory infections;
- g. Storing medicines and transfusion fluid to treat food poisoning and diarrhea;
- h. Develop solutions for mass outbreaks of food poisoning;
- i. Periodic monitoring of public kitchen in construction camps;
- j. Storing and distributing vermifuges to workers;
- k. Implementation of a disease control and pest management measures at the time the construction camps are built;
- l. Distribution of free condoms to camp workers;
- m. Monitoring of health indicators to follow the trends;
- n. When buildings cannot be made mosquito proof, pyrethroid-treated nets shall be provided;
- o. Appropriate measures shall be taken subject to risk assessment and review of potential environmental affects to address mosquito control including dengue fever control;
- p. Implementation of a program for the detection and screening of sexually transmitted infections, especially with regard to HIV/AIDS, amongst laborers;
- q. Establishment of a medical center located at the main construction camp for the diagnosis and treatment of communicable diseases, simple medical complaints, and the handling of medical emergencies and accidents, prior to transportation to the hospital. The medical center shall have:
 - A 7-10 bed health facility fully equipped to provide emergency medical care to stabilize emergency patients before they can be referred to district or provincial hospital;
 - Essential medical equipment for the center to provide emergency care;
 - Short term care of patients requiring hospitalization;

- o Isolation room (one bed) for any infectious disease patient (in epidemic situations, district and provincial facilities will have to be used;
 - r. The center shall include one medical officer, one trained nurse of senior level, two medical auxiliaries, one laboratory technician (who may be also responsible for monitoring water quality in construction camp areas), one driver, and one ambulance (4WD).
 - s. The smaller construction camps shall have subsidiary treatment or first aid posts staffed by either a trained nurse or a locally trained personnel, as required;
 - t. Examine and screen construction workers before employment for schistosomiasis;
 - u. Selection of suitable workers from the workforce who shall receive additional training in occupational health and first aid and shall form teams of two or three personnel at each work site. They shall be under the supervision of the medical officer; and
 - v. Provisions shall be made for health checks of employees, including checks, where required, for drug abuse and sexually transmitted diseases in accordance with the International Labor Organization (ILO), and the World Health Organization (WHO) resolutions (“ILO Code of Practice on STD HIV/AIDS and the World of Work”. ILO, Geneva, June 2001).
 - w. Provision shall be made for the adequate disposal of medical waste from the clinics and from any other activities undertaken by the medical staff.
58. The Contractor shall include a Pest Management Program for the construction areas, including construction work camp areas, in the Worker Health Management Plan, which shall provide for:
- a. Controlling pests primarily through environmental methods. When environmental methods are not sufficient, the use of pesticides shall be considered;
 - b. Promoting the safe use of all pesticides;
 - c. Incorporating pest management strategies when feasible;
 - Pesticides and shall be packaged, labeled, handled, stored and disposed of according to standards acceptable to the World Bank (OP 4.09: Pest Management) and the government regulation
59. The Contractor shall employ a sanitation and pest management officer who shall work full time to:
- a. Control vector borne and other diseases;
 - b. Ensure the continued safe disposal of all solid waste and sewage;
 - c. Implement fly and other insect pest control at construction camp facilities;
 - d. Implement and monitor the Pest Management Program throughout the project area including construction camps and spontaneous resettlement areas;
 - e. Provide appropriate information and education to the workforce on basic personal hygiene, prevention of diseases, including respiratory diseases, vector-borne diseases such as malaria and dengue, water and food borne diseases such as diarrhea, STIs, and HIV/AIDS, tuberculosis, etc.;
 - f. Distribute educational materials including brochures, and leaflets which provide information of TB, HIV/AIDS symptoms and counseling and treatment services;
 - g. Investigate and document disease outbreaks within the Contractor’s workforce;
 - h. Ensure correct maintenance of water and sewage treatment plants; and
 - i. To reduce the risk of workers contracting malaria, the following measures shall be followed:
 - j. Education of workers about problems and preventive measures;
 - k. Use of protective clothing;

- l. Repellents applied to clothing;
- m. Minimize containers full of water;
- n. Keep storm water drains and borrow pits free of vegetation; and
- o. Use insecticides as a last control method and only after studies indicate the primary location of mosquitoes.

15. Safety and Community Relations Plan

60. In addition to the RLDP (and its 3 components Resettlement Plan, Community Livelihood Improvement Plan and Ethnic Minorities Development Plan, the contractor will be required to complete a Community Relations and Community Safety Plan.

D-1: Community Relations and Community Safety Plan

Community Relations

61. To enhance adequate community relations the Contractor shall:
- a. Inform the population about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate;
 - b. Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures; and
 - c. At least five days in advance of any service interruption (including water, electricity, telephone, and bus routes) the community must be advised through postings at the project site, at bus stops, and in affected homes/businesses.
 - Notification boards shall be posted at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, telephone numbers and other contact information so that any affected people can have a channel to voice their concerns and suggestions.
62. A separate Community Relation Plan for the Project will be prepared by the PCO, which will include:
- a. Means to maintain open communications between the local government and concerned communities;
 - b. Have a mailing list to include agencies, organization, and residents that are interested in the project;
 - c. Provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results;
 - d. Provide all information, especially technical findings, in a language that is understandable to the general public and in a form of useful to interested citizens and elected officials through the preparation of fact sheets and news release, when major findings become available during project phase;
 - e. Monitor community concerns and information requirements as the project progresses;
 - f. Respond to telephone inquiries and written correspondence in a timely and accurate manner; and
 - g. Modify the Community Relation Plan for changes in community needs as necessary to be accurate during different project implementation phases.

D-2: Community Safety

Reservoir Filling

63. The Contractor shall, with no less than 30 days prior notice, inform the Environmental Supervisor and the local authorities of any planned construction events that will raise the water level in the reservoir and that could result in stranding or drowning any inhabitants in the area.

Traffic Safety

64. The Contractor will work with local communities and community leaders to implement a community traffic and safety program aimed at minimizing traffic related risks during the construction phase (see also Annex A-4). The community traffic safety program will consist of the following:

- a. Present the community with details regarding maximum permissible vehicular speed on each section of road;
- b. Establish safe sight distance in both construction areas and construction camp sites;
- c. Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning.
- d. Use selected routes to the project site, as agreed with the PEO, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes;
- e. Be held responsible for any damage caused to local roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage;
- f. Not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor;
- g. Maintain adequate traffic control measures throughout the duration of construction;
- h. Carefully and clearly mark pedestrian-safe access routes;
- i. If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;
- j. Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;
- k. Conduct safety awareness programs in local schools and community facilities.

Blasting

65. The contractor shall ensure that blasting does not pose a risk to local residents or communities through the implementation of the following (see also Annex A).

- a. The contractor shall warn local communities and/or residents that could be disturbed by noise generating activities such as blasting well in advance and shall keep such activities to a minimum;
- b. In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels;
- c. Blasting shall not be carried out within 200 m of residences or local communities;

- d. Before blasting is carried out, a detailed survey shall be conducted at nearby communities to evaluate the degree of impacts due to the blasting activity (e.g. possible damage to structures or infrastructure due to vibration, effects on animals, local residents, etc.);

16. Physical Cultural Resources Management Plan (Chance Find Procedures)

Background

66. *The report on Investigation of Tangible Cultural Resources in the Area of the Project* documents the current archaeological, historical and culturally significant landscapes within the project area. Several burial sites, holy places and artifacts will be directly affected and potential salvage methods and proposals are included in the Physical Cultural Resources Management Plan. Additional physical and cultural resources (chance finds) may be encountered during construction.

67. *These Chance Find Procedures*, which identify what measures should be taken in the event that physical cultural resources are encountered, outlined here, will be included in the Construction Management Plan and in bidding documents, and will be supervised by the Environmental Supervision. The Contractor will develop a Physical Cultural Resources Management Plan that identifies what measures shall be taken to protect these cultural resources.

Physical Cultural Resources in the Project Area

68. The Contractor will train all workers, especially those working on earth movements and excavations, on recognition of artifacts most likely to be found in the area. The Ministry of Culture, Sports and Tourism, or any other recognized Historical or Archaeological Institute can be requested to provide this training

Procedure upon Discovery

Suspension of Work

69. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the National Culture Administration take over;
- After stopping work, the contractor must immediately report the discovery to the Supervision Engineer and Environmental Supervisor.

70. The contractor is not entitled to claim compensation for work suspension during this period. The Supervision Engineer is entitled to suspend work and to request from the contractor some excavations at the contractor's expense if he thinks that a discovery was made and not reported.

Demarcation of the Discovery Site

71. With the approval of the Supervision Engineer and Environmental Supervisor, the Contractor is then required to temporarily demarcate, and limit access to, the site.

Non-Suspension of Work

72. The Supervision Engineer and Environmental Supervisor are entitled to decide whether the PCR can be removed and for the work to continue, for example in cases where the find is a small object.

Chance Find Report

The Contractor should then, at the request of the Supervision Engineer or the Environmental Supervisor, and within a period of two working days, make a *Chance Find Report*, recording:

- Date and time of discovery;
- Location of the discovery;
- Description of the PCR;
- Estimated weight and dimensions of the PCR;
- Temporary protection implemented.

The *Chance Find Report* should be submitted to the Supervision Engineer, who will then submit it to the PCO and notify the Ministry of Culture, Sports and Tourism of the finding.

Arrival and Actions of the Ministry of Culture, Sports and Tourism

Prior arrangements with the Ministry of Culture, Sports and Tourism, the Ministry will be requested to send a representative that will arrive at the discovery site within 24 to 48 hours, and determine the action to be taken. This would require a preliminary evaluation of the findings to be performed by the archeologists of Ministry of Culture, Sports and Tourism. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values. Subsequent actions may include, but not be limited to:

- Removal of PCR deemed to be of significance;
- Execution of further excavation within a specified distance of the discovery point;
- Extension or reduction of the area demarcated by the contractor.

These actions should be taken within 7 days.

The contractor will not be entitled to claim compensation for work suspension during this period.

If the Ministry of Culture, Sports and Tourism fail to arrive within the stipulated period, the Supervision Engineer will have the authority to extend the period by two days.

If the Ministry of Culture, Sports and Tourism fail to arrive after the extension period, the Supervision Engineer will have the authority to instruct the Contractor to remove the PCR or undertake other mitigating measures and resume work. Such additional works can be charged to the contract. However, the contractor may not be entitled to claim compensation for work suspension during this period.

Further Suspension of Work

During this 7-day period, the Ministry of Culture, Sports and Tourism will be entitled to request the temporary suspension of the work at or in the vicinity of the discovery site for an additional period of up to, for example, 30 days. The contractor will not be entitled to claim compensation for work suspension during this period. However, the contractor will be entitled to establish an agreement with the Ministry of Culture, Sports and Tourism for additional services or resources during this further period under a separate contract with the Ministry of Culture, Sports and Tourism.

Restart of Works

Construction works could resume only after permission is granted from the responsible local authorities or the Ministry of Culture, Sports and Tourism concerning safeguard of the heritage.

II. Environmental Compliance Framework.

This compliance framework to the EMP is in place for addressing non-compliance issues by contractors, and will be applied to the Contractor’s Contract. It is based on the environmental requirements established by the EMP and Environmental Specifications included in bidding documents and will be strictly enforced by the Engineer and monitored by the Owner. Whether an infringement is minor or major will be determined as set out in the table below.

Definitions of Major and Minor Category of EMP Infringements

Category of Infringement	Definition	Remedy
Minor Infringement	Incident which causes temporary but reversible damage to the environment, community property, people.	<ul style="list-style-type: none"> - Minor clean up operations - Minor restoration activities - Adjustments/eliminations to construction practices - Compliance with EMP
Major Infringement	Incident where there is long-term or irreversible damage to the environment, community property, and people. Some major Infringements are stipulated in Annex I but not limited to them	<ul style="list-style-type: none"> - Major clean up operations - Major restoration requiring engineering measures - Major restoration of community property - Compensation to affected communities or persons.

For minor infringements—an incident which causes temporary but reversible damage—the Contractor will be given a reasonable period of time to remediate the problem and to restore the environment. If restoration is done satisfactorily during this period, no further actions will be taken. If it is not done during this period, the Chief Engineer, in consultation with the Owner, will immediately arrange for another contractor to do the restoration, and deduct the cost from the offending Contractor’s next payment. For major infringements—an incident where there is long-term or irreversible damage—there will be a financial penalty in addition to the cost for restoration activities. To minimize the damage, the restoration activities will be implemented without delay.

The compliance framework will be applied as follows:

- The Engineer will identify or be notified of an infringement (by a community member, local government, daily inspections).
- The Engineer in consultation with the Chief Engineer and the Owner will assess whether it is a minor or major infringement.
- For minor infringements:
 - The Engineer will establish the required mitigation measures, and the time period, which is a maximum of two days (this could be extended at the judgment of the Engineer), to remedy the situation.
 - The Chief Engineer will review the recommendation and confirm (i) the level of infringement (minor/major); (ii) the mitigation measures; and (iii) the mitigation time period. If they do not agree, they will work with the Owner to reach mutually acceptable recommendations.
 - The Contractor will be informed of the infringement, the required mitigation measures, and time period for resolution.
 - The Contractor shall remedy the infringement in accordance with the recommendations within the agreed time period.
 - The Engineer shall confirm the infringement is satisfactorily remedied in the time period, and inform the Chief Engineer who will independently confirm.
 - If the infringement is not remedied satisfactorily in the time period the Engineer shall inform the Chief Engineer and the Owner. The Owner shall immediately arrange for a separate contractor to undertake the necessary works and the cost of this shall be deducted from the next payment to the offending contractor.
- For major infringements:
 - The Engineer shall immediately inform the Chief Engineer of the incident.
 - The Chief Engineer shall inform the appropriate provincial authorities if appropriate.
 - The Chief Engineer in consultation with the Owner and the Engineer and other provincial authorities as appropriate, shall agree upon mitigation and clean up measures to be undertaken immediately by the Contractor or by specialists to be procured at the Contractor’s expense. To minimize the environmental impacts the restoration activities should be completed within seven days.
 - The Chief Engineer shall apply a financial penalty, not to exceed 0.05 % of the Contract cost, for each major infringement, in addition to any costs associated with the infringement not borne by the Contractor.

- In addition, for major infringements which cause long-term or irreversible damage, the contractor is liable for additional penalties related to the cost of environmental damage as may be decided by the competent authorities.

Any conflicts between the Contractor, Chief Engineer and Engineer will be resolved by the Owner.

- The Contractor will adhere to the national environmental legislation and World Bank's safeguards policies and all related regulations, standards and good practice guidelines. In case of significant differences between WB policies and national environmental legislation, which are relevant to the conduct of the project, the Contractor will notify the Owner, who, after consultation with WB and relevant authorities, will inform the Contractor how to proceed.
- Unscheduled inspections of all works and installations may be carried out by representatives from the Client at any time. The country's relevant authorities will have the right for unscheduled site inspections and compliance checks, as well as the leveling of fees and fines for non-compliance.
- The Contractor will employ sufficient numbers of qualified environmental staff to ensure environmental compliance with EMP and EIA, perform day-to-day management and supervision of works, conduct dialogue with designer, construction management and authorities, and manage environmental monitoring and reporting. The CVs of key staff (environmental / EHS manager and deputy) will have to be approved by the Owner before staff may be mobilized to site.

I. Principles

1. *Borrower's Role.* The borrower prepares the Project for which it seeks Investment Project Financing. The Project's scope, objectives, and the borrower's contractual rights and obligations are set out in the legal agreements with the Bank. The obligations include the requirement to carry out the Project with due diligence, maintain appropriate implementation monitoring and evaluation arrangements, and comply with procurement, financial management, disbursement, social and environmental obligations. The borrower measures and reports against the achievement of the Project development objectives and results and provides agreed financial and audit reports. The borrower is expected to deal in a timely and effective manner with actual or alleged problems or violations (individual or systemic) in these areas.
2. *Bank's Role.* During Project implementation, the Bank monitors borrower compliance with the borrower's obligations as set out in the legal agreements and provides implementation support to the borrower by reviewing the borrower's information on Project implementation progress, progress toward achievement of the Project's development objectives and related results, and updates the risks and related management measures. Implementation support and monitoring carried out by the Bank during the implementation period ends at the completion of the Project. Project Implementation support covers monitoring, evaluative review, reporting, and technical assistance activities.
3. The Bank bases supervision of the project's environmental aspects on the findings and recommendations of the EA, including measures set out in the legal agreements, any EMP, and other project documents.

II. Supervision Objectives:

4. The supervision objectives for environmental safeguards or EMP implementation during project implementation are imbedded in the following project implementation supervision objectives:
 - a. ascertain the project is implemented with due diligence to achieve its development objectives in conformity with the legal agreements, including environmental covenants;
 - b. identify environmental and social problems promptly as they arise during implementation and find ways to resolve them;
 - c. propose to the Bank changes in project design, as appropriate, as the project evolves or environmental circumstances change;
 - d. identify the key environmental risks to project sustainability and propose appropriate risk management strategies and actions to the Bank; and
 - e. prepare the Borrower's Implementation Completion Report which includes a section on safeguard compliance, and to draw lessons to improve the design of future projects for better environmental outcome.

III. Pre-Construction Phase

3.1. Incorporation of EMP into the project operational manual

5. Incorporation of EMP into the project operational manual is done only at the project level, not at the subproject level. Usually the Project Operational Manual (POM) will be developed during the project appraisal and before negotiation. Any POM would include a section on environmental safeguards. It is critically important to avoid copying and pasting sections from the EMP into sections or annexes of the Project Operational Manual. This has been documented to be ineffective. Rather, the developer of the EMP, or the Environmental Staff of the PCO should be engaged to work with the project and modify and adapt the EMP into the POM. It is also useful to look for other POM in the country and for other similar Bank projects and identify those POM that have practical safeguard related components. Suggested content of a POM is provided in the box below.

Suggested Contents for a Project Operational Manual

Brief Project Description

- overview/ objectives
- environmental context
- policy considerations
- project components (specifying road length, development sites, etc)
- project management: coordination/implementation arrangements

Potential Environmental Impacts of the Project Components

- overall orders of magnitude/area of influence
- direct, indirect and cumulative impacts
- critical environmental/social issues cumulative

Environmental Safeguards

- objectives (mainstreaming compliance)
- safeguards triggered by the project components; cross -referencing with pesticide management plan, resettlement action plan, etc)
- monitoring /evaluating the application of the safeguards - relevant country environmental legislation/regulations.
- Role of national environment agency e.g., approving sub-projects, monitoring/supervision, etc.

Environmental Management Plan or Variant

- mitigation measures
- monitoring requirements; key issues/actions, M&E performance indicators
- institutional arrangements/responsibilities, including coordination, staffing and strengthening capability
- scheduling of measures/reporting
- Cost

Monitoring/Reporting Plan

- key issues/actions for management
- quarterly/annual reports
- M&E performance indicators

Institutional arrangements

3.2. Training on environmental management after the loan agreement effectiveness

6. As a good practice, right after the effectiveness of the loan, MAFF and the concerned ministries (PTs) will organize a project launching workshop. At this workshop, the Bank will provide short training on project management including environmental safeguards of the project. The environmental staff of the MAFF and the concerned ministries (PTs) and related consultants, if already recruited, need to attend the

training to get a first sense of how EMP will be implemented during project implementation. The MAFF and the concerned ministries (PTs) should organize a short training on EMP of each subproject at the local level for the affected local communities and authorities, and the contractor.

3.3. Project environmental management system

7. Usually project environmental management system is considered and included in the EMP to ensure that the project complies with environmental safeguard requirements. This system, which is designed for project and subproject level, includes an environmental management unit of MAFF and the concerned ministries (PTs), environmental officer (EO) of the Construction Supervision Consultant/ Supervision Engineer (CSC), Safety and Environmental Officer (SEO) of the Contractor, and Independent Environmental Monitoring Consultant (IEMC), relevant authorities, and the community. Depending on the level of environmental risk of the project, an IEMC may not be needed. However, regardless of the risk level, environmental staff of the MAFF and the concerned ministries (PTs), EO, and SEO play a crucial role in ensuring the project safeguard compliance.

8. Responsibility of these players should be clearly indicated in the EMP. The PCO needs to follow the EMP and ensure that this system is up and functions when the related consultant and contractor are mobilized.

3.4. During Detailed Design

9. One of the objectives of the EA process is to identify any environmental issue that can be incorporated into the project design at the early stage of project preparation to enhance positive impact and avoid, minimize, or mitigate potential negative impacts. During project implementation, which starts after the loan agreement becomes effective, the MAFF and the concerned ministries (PTs) needs to ensure that relevant mitigation measures in the EMP are considered and incorporated in the detailed technical design as appropriate. The steps for this are:

- a. MAFF and the concerned ministries (PTs) includes requirements for EMP consideration in the TORs for the detailed technical consultant;
- b. MAFF and the concerned ministries (PTs) includes EMP in the bidding package for detailed technical design;
- c. the detailed technical design consultant refers to finding in the EMP during design process; and
- d. MAFF and the concerned ministries (PTs) monitors to ensure that relevant mitigation measures in the EMP are addressed in the technical design.

3.5. Preparation of Bidding and Contractual Documents for Civil Work

10. The EMP is valueless unless it can be implemented as intended. This can only be achieved if the EMP is attached to the tender and contract documents as part of the specifications to be heeded by the contractor, and is addressed by the contractor at the time of bidding. This allows the EMP to be incorporated into the tender and contract process and ensure that:

- a. The EMP is addressed as a condition of the contract,
- b. The EMP is properly costed, and
- c. Management systems are established to complying with the EMP.

11. If the EMP is not properly meshed with the tender and contract documents, the contractor may claim that compliance with it is not a part of the work requirements. Including the EMP in the tender and contract documents is thus a proactive requirement. Otherwise, after the contract has been awarded, it will be too late to enforce the EMP's provisions.
12. The Bank uses standard bidding documents of the International Federation of Consulting Engineers (FIDIC) for works package. Within this document, there are two places where the environmental management and monitoring requirements can be put: Part B of Particular Conditions, as supplemental requirements under Sub-Clause 4.18 – Protection of the Environment; Specification, as environmental specifications (usually coded as Specification 01700 – Environmental Management Plan).
13. The MAFF and the concerned ministries (PTs) cannot change the content of General Conditions of Contract because it contains clauses and language that are internationally recognized. But, fortunately, in the event of any disagreement between the sections on General Conditions and Particular Conditions or Specifications, Particular Conditions and Specifications always prevail.
14. Particular Conditions Section provides the detailed of the project's design requirements. So, for example, if there are particular requirements for landscaping requirements for re-vegetating a slope or a particular design for sediment basin that must be included, this is where the detailed specifications are provided. This section can also include particular performance standards, so if there is a temporary wastewater treatment system required during construction, MAFF and the concerned ministries (PTs) can include the acceptable parameters for discharge from the system.
15. Environmental clauses should be explicit and state: what needs to be done; where it needs to be done; when and how the actions will take place; and, who is responsible. PCO in collaboration with the environment specialists of its Environmental Management Unit, engineers, and technicians should use contract conditions and specifications to ensure that the contractor implements mitigation measures effectively.
16. Close coordination between the environmental and technical teams ensures inclusion of mitigation measures in the design of the project. Design engineers should address mitigation measures in their technical documents (e.g., bill of quantities, drawings and technical specifications), but it should be noted that some documents may refer to general mitigation measures that have to be followed by the technical team and contractor.
17. To better ensure the implementation of environmental requirements, the EMP or variant may be attached as a legal condition to contract documents or a set of environmental clauses may be prepared and placed directly into contract documents.
18. MAFF and the concerned ministries (PTs) also needs to ensure that penalties are imposed in the contract with different level of non-compliance.
19. The following levels of non-compliance are suggested:
 - Noncompliance level I: A noncompliance situation not consistent with the requirements of the concession agreement, but not believed to represent an immediate or severe environmental or social risks. Repeated Level I concerns may become Level II concerns if left corrected.

- Noncompliance Level II: A noncompliance situation that has not yet resulted in clearly identified damage or irreversible impact, but with potential significance requires expeditious corrective action and site-specific attention to prevent severe effects. Repeated Level II concerns may become Level III concerns if left unattended.
- Noncompliance Level III: A critical noncompliance situation, typically including observed significant environmental or social damage or reasonable expectation of very severe impending damage. Intentional disregard of specific prohibitions is also classified as Level III concern.

21. Alternatives include clauses that give the owner the option the owner option to undertake the corrective action and pass on the cost to the contractor plus 15%.

22. When evaluating bid proposals PCO needs to look at the approach the contractor will use to for environmental management during construction, its previous experiences, and the cost for environmental mitigation.

IV. Construction Phase

24. During construction phase of the project monitoring and supervision of the EMP are undertaken by relevant stakeholders.

The Contractor:

25. During the construction phase, the construction Contractor has responsibility in compliance with the technical specifications of the EMP and related national environmental management and technical regulations. Based on the environmental requirements in the contract, the Contractor will prepare detailed site specific environmental management plans (SEMP) for addressing construction related impacts. These SEMP may include Management Plan for worker camps; Management Plan of the overall construction operation, Solid waste and waste water management plan, Plan for management and mitigation of noise and dust, Plan for management and mitigation of impacts to vegetation and wild animals, Plan for environmental landscape restoration, and other plans. These SEMP must be reviewed and approved by the CSC and the MAFF and the concerned ministries (PTs) before commencement of the construction.

26. The contractor will nominate a Safety and Environmental Officer (SEO) to work full-time at the construction site to monitor implementation of these plans on the ground. The SEO needs to create a log book for internal monitoring and control and regularly reports on the environmental performance of the contractor as required in the contract.

Construction Supervision Consultant:

27. The CSC will undertake supervision of physical work that involves day to day monitoring of physical progress of the works, application of conditions of contract, enforcement of specifications, measuring of works with contractor's representatives, quality control in form of materials testing at laboratory and on site, certification of work done, preparation of interim payment certificates, control of material and equipment on site, issuing of site instructions and variation orders and settlement of disputes (arbitration, conciliation, etc.).

28. The CSC is also responsible to supervise implementation of mitigation measures carried out by the contractor on a daily basis as required by the conditions of the contract. The environmental specialist of the CSC will develop a methodology and appropriate tools for EMP compliance supervision. Specifically, the CSC will supervise preparation and implementation of the SEMP. A log book for daily environmental supervision is also maintained by the CSC. In addition to EMP supervision, the CSC may also be tasked with activities during construction to enhance environmental management capacity of the MAFF and the concerned ministries (PTs) and the contractor.

MAFF and the concerned ministries (PTs):

29. The project owner holds the final responsibility for the environmental performance of the project. The MAFF and the concerned ministries (PTs), representative of the project owner, will be responsible for monitoring the overall project implementation, including environmental compliance of the project during construction phase. MAFF and the concerned ministries (PTs) will have the final responsibility for EMP implementation and environmental performance of the project during both the construction and operational phases.

30. Specifically, MAFF and the concerned ministries (PTs) will: i) closely coordinate with local authorities in the participation of the community during project implementation; ii) monitor and supervise EMP implementation including incorporation of EMP into the detailed technical designs and bidding and contractual documents; iii) ensure that an environmental management system is set up and functions properly; iv) be in charge of reporting on EMP implementation to the project owner and the World Bank.

31. In order to be effective in the implementation process, MAFF and the concerned ministries (PTs) will establish an Environmental Unit (EU) as mentioned above with at least two environmental staff to help with the environmental aspects of the project. The EU is responsible for monitoring the implementation of WB's environmental safeguard policies in construction stage. Specifically, this unit will be responsible for: i) reviewing different reports submitted by the Contractor, CSC, and IEMC to ensure their quality and taking actions recommended in these reports; ii) conducting periodic site checks; iii) advising MAFF and the concerned ministries (PTs) on solutions to environmental issues of the project; and iv) preparing environmental performance section on the progress and review reports to be submitted to the project owner and the Bank.

32. The EU can base on the EMP supervision forms of the CSC to develop a consolidated form for monitor EMP implementation.

V. Reporting

5.1. Reporting by MAFF and the concerned ministries (PTs)

34. The MAFF and the concerned ministries (PTs) is responsible for careful review of these reports and ensure their good quality before submitting to the Bank for no objection. There is a bad practice that some MAFF and the concerned ministries (PTs) just pass on the consultant report to the Bank without having a look at it. It is crucial that the PCO review findings of the reports for action and follow up on any safeguards issue and EMP noncompliance that the Contractor needs to undertake to rectify.

Semi-annual report

38. During project implementation, the MAFF and the concerned ministries (PTs) reports on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP, as set out in the project documents; (b) the status of mitigatory measures; and (c) the findings of monitoring programs.

39. Specifically, the Progress Report from the MAFF and the concerned ministries (PTs) submitted to the Bank before a Bank mission must include sufficient information on:

- i) preparation and disclosures of environmental safeguards instruments for subprojects;
- ii) incorporation of new subproject EMPs in the bidding and contractual documents;
- iii) monitoring and supervision of EMP implementation by the contractor, the construction supervision engineer, and the MAFF and the concerned ministries (PTs);
- iv) the status and compliance with mitigation measures in the EMP; and
- v) any challenges in safeguard implementation, solutions, and lessons learned.

Mid-term Review

40. During the mid-term review (MTR), MAFF and the concerned ministries (PTs) will:
- ✓ Assess the impacts from any changes in project design or new components introduced as a result of any restructuring and, if required, agree upon revised safeguards management plan, monitoring and reporting requirements.
 - ✓ Pay special attention (MTR) to issues of non-compliance. In case of any non-compliance or unresolved safeguards issues propose additional measures with Bank.
 - ✓ Agree on revisions to safeguard management plans, monitoring requirements and reporting if relevant.
 - ✓ Document these issues in the progress report for MTR to be submitted to the Bank.

Project Implementation Completion and Results Report

41. After the completion of the Project, or in certain cases of additional financing or in certain cases of series of projects, prior to the Project completion, the Bank prepares an implementation completion and results report (ICR). The ICR covers, among other things, the degree to which the Project development objectives and results have been achieved and the overall Project performance, taking into consideration the Project operating environment. The ICR incorporates the borrower's evaluation of the Project, its own performance and the performance of the Bank, if available.

42. The borrower is responsible for preparing and submitting to the Bank its own completion report. The completion report/summary should include, among other section, a section on safeguard compliance. The overall objective of this section is to review of safeguard outcomes and lessons learned. This section summarizes:

- (1) key safeguard issues in the operation;
- (2) compliance with the Bank safeguard policy and procedural requirements;
- (3) any problems that arose and their resolution, as applicable; and
- (4) any significant deviations or waivers from the Bank safeguards/fiduciary policies and procedures.

5.2. Reporting by CSC

35. Reporting requirements, including inception report and supervision reports and their contents and frequency of submission, for the CSC should be clearly stated in the TORs for the consultant. Unlike the IEMC, the CSC is responsible for day-to-day supervision of EMP implementation by the contractor. Therefore, usually it submits weekly and monthly reports to the MAFF and the concerned ministries (PTs). In addition, the CSC may report to the MAFF and the concerned ministries (PTs) on a case-by-case basis for any noncompliance that needs immediate attention of the project owner.

36. The MAFF and the concerned ministries (PTs) is supposed to pay special attention in reviewing findings of the CSC report on EMP implementation for action and follow up on any safeguards issue and EMP noncompliance that the Contractor needs to undertake to rectify.

5.3. Reporting by Contractor

37. The contractor reports against the conditions set forth in the contract, which also include reporting on EMP implementation and compliance.

A. Terms of Reference
Environmental Safeguards Supervision Consultant or Construction Supervision Consultant

Objective of the Assignment

1. The purpose of this assignment is to ensure the successful implementation of the project's Environmental and Social Management Framework (ESMF) and provide implementing agencies: MAFF, MRD and MoWRAM with hands-on supports for ESMF implementation, monitoring, reporting and capacity building needs.

Roles and Responsibilities

2. The **consultant shall** assist with all activities related to the ESMF requirements. The Consultant is to provide professional technical services to help ensure Environmental Safeguards compliance during the agriculture and infrastructure design and implementation phases. Specifically, the Consultant will be responsible for the following tasks:

- a. Ensure the provisions of ESMF are integrated in the Project and sub-project implementation, monitoring and reporting arrangements; and liaise with the World Bank task team to proactively ensure adequate integration of environmental safeguards consideration;
- b. Provide technical oversight for the screening of sub-projects identified under the project, ensuring the screening process complies with the ESMF; and advice on the site-specific safeguard instruments required such as the sub-project Environmental and Social Management Plan (ESMP).
- c. Provide technical oversight, guidance and quality control for the preparation of needed environmental safeguards requirements for sub-projects;
- d. Assist the implementing agencies with the review of contractors' proposals regarding environmental safeguard requirements and identify gaps not covered by the proposed mitigation and environmental measures and/or budget;
- e. Assess the capacities for safeguards screening, implementation, and supervision/monitoring of safeguard focal points and other relevant staff in the implementing agencies; define a comprehensive training plan; provide on the job training and supervision particularly in the preparation and implementation of adequate environmental safeguards instruments including ESMP;
- f. Support the design, preparation, and implementation of the Environmental Safeguard Training Program for the Project coordinating as necessary with safeguards capacity building initiatives taking place;
- g. Advise implementing agencies on stakeholder and community engagement, including grievance redress mechanism (GRM) establishment to ensure the effectiveness of the GRM;
- h. Ensure that World Bank recommendations on environmental safeguards implementation are taken up and reported;
- i. Coordinate with the environmental safeguard focal points and engineers to review and clear contractor's ESMP of sub-project;
- j. Supervise the Contractor's performance, and handling of site-specific environmental and social issues, and provide corrective instructions if needed;

- k. Prepare periodical environmental monitoring reports, including reports on ESMP implementation status and prepare statement of environmental safeguards supervision during the implementation phase; and
- l. Other tasks as required by the project

Selection Criteria

- a. At least a Bachelor's degree in environmental management, environmental engineering, social science, or urban planning or related fields;
- b. Minimum 5-year experience regarding to the compliance of environmental safeguards policies including environmental risks management
- c. Experience in moderating and facilitating group discussions in public preferred
- d. Excellent written and oral communication skills in English and Khmer languages
- e. Knowledge and experience of working with environmental safeguard policies of the World Bank and/or Asian Development Bank preferred.

Timeframe

- 3. The assignment is 12 months with possible extension depending on performance assessment.

Implementation Arrangements

- 4. The consultant will report directly to the Project Manager/delegated authority and will work closely with environmental and social safeguard focal points of the implementing agencies as well as the to-be-recruited Social Safeguards Consultant. The Consultant will be based at MAFF. MAFF will provide Office facilities and internet access...etc. The Consultant shall bring his or her own laptop to carry out the assignment.

B. Terms of Reference
Social Safeguards Supervision Consultant

Objective of the Assignment

1. The purpose of this assignment is to ensure the successful implementation of the project's Social safeguards including Resettlement Policies Framework (RPF) and Indigenous People Policies Framework (IPPF). And this assignment is also to provide implementing agencies: MAFF, MRD and MOWRAM with hands-on supports for RPF implementation, monitoring, reporting and capacity building needs.

Roles and Responsibilities

2. The **consultant shall** assist with all activities related to the RPF requirements. The Consultant is to provide professional technical services to help ensure Social Safeguards compliance during the agriculture and infrastructure design and implementation phases. Specifically, the Consultant will be responsible for the following tasks:

- a. Ensure the provisions of RPF are integrated in the Project and sub-project implementation, monitoring and reporting arrangements; and liaise with the World Bank task team to proactively ensure adequate integration of social safeguards consideration;
- b. Provide technical oversight for the screening of sub-projects identified under the project, ensuring the screening process complies with the RPF; and advice on the site-specific safeguard instruments required such as the sub-project Social Safeguard Management Plan.
- c. Provide technical oversight, guidance and quality control for the preparation of needed social safeguards requirements for sub-projects;
- d. Assist the implementing agencies with the review of contractors' proposals regarding social safeguard requirements and identify gaps not covered by the proposed mitigation and social safeguard measures and/or budget;
- e. Assess the capacities for safeguards screening, implementation, and supervision/monitoring of safeguard focal points and other relevant staff in the implementing agencies; define a comprehensive training plan; provide on the job training and supervision particularly in the preparation and implementation of adequate social safeguards instruments including ESMP;
- f. Support the design, preparation, and implementation of the Social Safeguard Training Program for the Project coordinating as necessary with safeguards capacity building initiatives taking place;
- g. Advise implementing agencies on stakeholder and community engagement, including grievance redress mechanism (GRM) establishment to ensure the effectiveness of the GRM;
- h. Ensure that World Bank recommendations on Social safeguards implementation are taken up and reported;
- i. Coordinate with the social safeguard focal points and engineers to review and clear contractor's ESMP of sub-project;
- j. Supervise the Contractor's performance, and handling of site-specific environmental and social issues, and provide corrective instructions if needed;
- k. Prepare periodical social safeguard monitoring reports, including reports on ESMP implementation status and prepare statement of social safeguards supervision during the implementation phase; and
- l. Other tasks as required by the project

Selection Criteria

- a. At least a Bachelor's degree in social safeguard management, social science, or related fields;
- b. Minimum 5-year experience regarding to the compliance of social safeguards policies including social safeguard risks management
- c. Experience in moderating and facilitating group discussions in public preferred
- d. Excellent written and oral communication skills in English and Khmer languages
- e. Knowledge and experience of working with social safeguard policies of the World Bank and/or Asian Development Bank preferred.

Timeframe

3. The assignment is 12 months with possible extension depending on performance assessment.

Implementation Arrangements

4. The consultant will report directly to the Project Manager/delegated authority and will work closely with social safeguard focal points of the implementing agencies as well as the to-be-recruited Social Safeguards Consultant. The Consultant will be based at MAFF. MAFF will provide Office facilities and internet access...etc. The Consultant shall bring his or her own laptop to carry out the assignment.

1. The Pest Management Plan (PMP) aims to provide basic knowledge to the national, provincial and district government, the CASDP team, consultants, village officials, private and public sector agencies with adequate guidance for effectively addressing the safeguard issues in line with OP 4.09. The process will be implemented as part of the CASDP project cycle and fully integrated into the subproject selection, approval, implementation, and monitoring and evaluation process. The CASDP does not include procurement of pesticides, but the ESMF identifies key issues related to the existing use of pesticide and chemical fertilizers and identified mitigation measures required in relation to prohibited items, training, and guidelines on safe use and disposal of pesticides. The PMP will be applicable for all CASDP activities related mostly to:
2. Component A: Improved Agriculture Efficiency and Sustainability, which supports (a) Adopting good varieties and quality seeds, (b) Promoting good agriculture practices, (c) Providing critical infrastructure, and (d) Strengthening public services delivery.
3. In instances where activities under Component B would potentially impact pesticide use and reduction, the PMP will also apply for:
4. Component B: Enhanced Agriculture Commercialization, which supports: (a) Establishing Agriculture Value Chain Facility (AVCF), (b) Linking farmers to markets, and (c) Improving the enabling environment.
5. Village visits indicated that chemical based fertilizers and pesticides are currently being used in the project areas, particularly in instances where monoculture is practiced.
6. Responsible agency: The CASDP staff at central and local levels will be responsible for implementation of the PMP and ensuring full compliance, including keeping proper documentation in the project file for possible review by the World Bank.
7. This document is considered a living document and could be modified and changed as it is appropriated. Close consultation with the World Bank and clearance of the revised PMP will be necessary.

SECTION I. POLICY AND REGULATIONS

World Bank's safeguard policy on pest management (OP 4.09)

8. OP 4.09 (pest management). The policy requires projects involving procurement of pesticide to prepare and implement a Pest Management Plan to ensure that the handling, transportation, usage, disposal of pesticide be safe for both human and the environment. The CASDP will not promote the procurement of any chemical pesticides or herbicides. However, if pest invasion occurs, small amount of eligible and registered pesticides in the project provinces is allowed if supplemented by additional training of farmers to ensure pesticide safe uses in line with World bank's policies (OP 4.09). And, given that the project is designed to promote the reduction in chemical pesticide and fertilizer use in existing farm land by enhancing sustainable farming practices, this simplified Pest Management Plan was prepared, along with a negative list. While the project will not procure and promote use of chemical pesticides and fertilizers, which are included in the non-eligibility list, it may be unrealistic to completely prevent all

farmers from applying chemical inputs. Specifically, rehabilitation of irrigation, building of small irrigation/agriculture production, and/or control of infestation of diseases may involve the use of pesticides, herbicides, and insecticides. To mitigate this potential impact, this simplified PMP has been prepared outlining clear regulations and procedures for management of pesticides and/or toxic chemical as well as providing knowledge and training on health impacts and safe use of pesticides and/or, when possible, promotion of non-chemical use alternatives such as organic farming. The simplified PMP is informed by the Regulation on the Control of Pesticides in Cambodia (2014) as well as guidelines on Integrated Pest Management (IPM) provided by the Food and Agriculture Organization of the United Nations (FAO).

9. The CASDP will work closely with agriculture sector to apply the Conservation Agricultural Technology approved by Ministry of Agriculture and Forestry (MAF) in 2006 for the agricultural activities. This PMP is adopted and simplified from the PMP prepared for PRF III project.

Government regulation related to pest management

10. Pest management practices in Cambodia have been promoted through the expansion of the National Integrated Pest Management (IPM) Program by both the government and NGOs. These bodies have worked together to establish a Pesticide Reduction Network to develop awareness of the risks associated with pesticide use amongst farmers.

11. Furthermore, MAFF has been engaged in examining and implementing various international legal guidelines and instruments relating to regulating the trade, distribution and use of pesticides in Cambodia. These include pledged adherence to the FAO Code of Conduct on the Distribution and Use of Pesticides, the Stockholm Convention on Persistent Organic Pollutants, and the WTO sanitary and phytosanitary measures.

12. After the Law on Management of Pesticides and Fertilizers was promulgated as Royal Kram Number 0112/005 on 14th January 2012, MAFF developed 5 Prakas in relation to Procedures for Registration and Business Operations as follows:

- Prakas No. 415/MAFF, dated 17 August 2012, on Procedures and Standard Requirements for Fertilizer Registrations;
- Prakas No. 456/MAFF, dated 19 October 2012, on Procedures and Standard Requirements for Pesticide Registrations;
- Prakas N. 484/MAFF, dated 26 November 2012, on List of Pesticides in the Kingdom of Cambodia;
- Prakas No. 119/MAFF, dated 11 April 2013, on Procedures for Management of Fertilizers for Business Operations;
- Prakas No. 120/MAFF, dated 11 April 2013, on Procedures for Management of Pesticides for Business Operations.
- The Department of Agriculture Legislation and GDA under MAFF is mandated to oversee all pesticide use.

Implementation arrangement and budget

(a) Planning and implementation

13. CASDP staff at central level will be responsible for providing training to CASDP staff at province and local level facilitator during the consultation and planning stage. Budget for training will be included in the subproject cost or capacity building as appropriate.

(b) Monitoring

14. CASDP staff will: a) ensure the procured pesticide is not in the non-eligibility list provided in Annex 1; b) ensure procured pesticides are properly kept and transport them to the target area; c) ensure training delivery to the user before distribution; and d) monitor compliance usage of pesticide according to the MAF's regulation number 2860/MAF (in Annex 2). The World Bank and CASDP team at central will carry out a joint Implementation Support Mission in every six months' period to review the compliance. The World Bank will use its Pest Management Guidebook as a standard to monitor compliance of the use of pesticide procured under the project.

Annex 9: Integrated Pest Management

1. Integrated Pest Management (IPM) refers to the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms.
2. Under the Ministry of Agricultural and Forestry, the Plant Protection Centre and its branches in the provinces as well as the Agricultural Extension Centers at district level are the authorities coordinating and working on Integrated Pest Management Programs. The National IPM program was initiated with assistance from FAO, DANIDA and other donors since the early 1990s and is largely being continued national resources.
3. IPM activities implemented by these local authorities and technical backstopping by experts from GDA include conducting field surveys, preparing forecasts, monitoring and checking the progress of main pest development in the field. Using the forecast based on the timing, scale and level of damages that the main pest(s) may cause, the provincial plant protection authorities recommend policies, plans, and measures for pest management.
4. They also conduct training to farmers to carry out sets of integrated measures such as pest identification, pest control, conduct pest analysis, pest list and pest surveillance, measure to control and apply chemical and botanical control agent, promote the application of biological measures for pest management, reduce chemicals and practice sustainable IPM. They also provide training for farmers on proper use of chemical pesticide to ensure high efficiency for pest management, safe for human beings, farm pests and the environment. These authorities also carry out communication campaigns on plant protections and quarantine legislations and advance IPM technics to the farmers etc.
5. Running costs of these plant protection agencies has been state fund allocations. Their staff also have also working in projects and programs financed from other sources for research and to conduct additional trainings for farmers annually.
6. Pesticide Use and IPM implementation in Project Provinces: GDA survey in 2014 and nation-wide inspections in 2013 of pesticide and herbicide suppliers in provincial capitals and other main distribution hubs, indicate that the most commonly sold products include: abamectin, chlorpyrifos, cypermethrin, glyphosate, imidacloprid. In the Northern provinces, where a large part of the herbicide use is on corn and rubber plantations, the main products sold are the herbicides Glyphosate, Paraquat and Atrazine. Nowadays, on Rice and Maize cultivation farmers don't use pesticide accept some vegetables. These inspections have also shown that the most problematic highly hazardous products, such as monocrotophos, methyl parathion, methamidophos, mevinphos, endosulfan, etc., are no longer found on the market with the exception of the occasional old bottle. The only banned products that still are found regularly are paraquat and methomyl. This is because these products were banned only recently (2010) and are still permitted in the neighbouring countries from where they are informally brought in by users or retailers. The banning of highly hazardous pesticides in China does not seem to have led to dumping of old stocks in Cambodia. There are no known large stocks of obsolete pesticides.

7. Insecticides are used mainly on vegetables (such as Long Yard Bean, Chilly, Cabbage, Chinese Cabbage) marketable high-value crops and plantation crops, notably rubber. Field surveys by the national IPM program and GDA indicate there still is wide-spread abuse of pesticides among farmers. Lack of knowledge among farmers is a major constraint. Abuse includes mixing without justification (just to be sure), use of wrong pesticides, use of wrong dosages, etc. Adequate protective gear is hardly being used. Shops often have gloves and masks for sale, but these tend to be inadequate for protection against hazardous chemicals. Buyers of pesticides rarely also buy protective gear and shops do not provide it for free. Half used pesticide bottles or packages are often stored within the house or near homesteads, often in easy reach of children. Empty pesticide containers are often discarded at the border of fields or in drainage ditches.
8. The GDA Plant Protection Centre (and its national IPM program) has developed a 3-day curriculum for a Farmer Training on Pesticide Risk Reduction (FT-PRR) which is intended to raise awareness, develop capacity and help rural communities formulate and implement their own action plans for pesticide risk reduction. As of June 2014, some 4,900 Lao farmers (including 1,600 women) have participated in FT-PRR courses in 149 villages of 34 Districts in 9 provinces.
9. Season-long Integrated Pest Management training through Farmers Field Schools (FFS) often includes these short-duration FT-PRR courses. These FFSs allow farmers to learn about and adopt Integrated Pest Management as to reduce overuse of pesticides in crop production.
10. The National IPM Program has implemented 806 season-long IPM Farmers Field Schools, with over 24,350 rice, vegetable and fruit farmers trained. More, however, remains to be done. Pesticide Risk Reduction and IPM adoption at farm level remains a priority for the Government.
11. As per the International Code of Conduct on the Distribution and Use of Pesticides, the following rules are observed for IPM:
12. The standards of conduct set forth in this Code: 1.7.6. are designed to promote Integrated Pest Management (IPM) (including integrated vector management for public health pests);
13. Concerted efforts should be made by governments to develop and promote the use of IPM. Furthermore, lending institutions, donor agencies and governments should support the development of national IPM policies and improved IPM concepts and practices. These should be based on scientific and other strategies that promote increased participation of farmers (including women's groups), extension agents and on-farm researchers.
14. All stakeholders, including farmers and farmer associations, IPM researchers, extension agents, crop consultants, food industry, manufacturers of biological and chemical pesticides and application equipment, environmentalists and representatives of consumer groups should play a proactive role in the development and promotion of IPM.
15. Governments, with the support of relevant international and regional organizations, should encourage and promote research on, and the development of, alternatives posing fewer risks: biological control agents and techniques, non-chemical pesticides and pesticides that are, as far as possible or desirable, target-specific, that degrade into innocuous constituent parts or metabolites after use and are of low risk to humans and the environment.

16. Governments should: 5.1.7 provide extension and advisory services and farmers' organizations with adequate information about practical IPM strategies and methods, as well as the range of pesticide products available for use.

17. Governments should: 8.1.4 ensure that any pesticide subsidies or donations do not lead to excessive or unjustified use which may divert interest from more sustainable alternative measures.

18. Pest Management Plan

19. It is anticipated that there will be no procurement of pesticides under the project and that pesticide use, overall, will decline as a result with the introduction of good agricultural practices. That said, pesticides are being used by farmers in the project area, so this plan will be applied to the project activities involving any changes in agricultural practices and/or rehabilitation of or development of existing irrigation schemes that may prompt farmers to increase their use of pesticides if no training or monitoring is provided. The plan is comprised of three parts: (i) application of government regulation on pesticide control; (ii) training of the integrated pesticides concept and/or other approaches for the safe use of pesticides; and (iii) monitoring. A full overview of Regulation Number 2860/MAF is available in Annex 2, and a simplified PMP is available in Annex 3. Both should be consulted for any subprojects under the CASDP.

Annex 10: Screening Form for Due Diligence of Existing Agribusinesses and enterprises to be financed under sub-component 1.2

1. This form must be filled out by the person designating for review the E&S aspects of grant/loan applications, and the information should be gathered from the enterprise itself, and verified through a review of local media and consultation with local authorities. If the answer is yes to any of the question in this due diligence form, then the World Bank task team should be consulted before a decision is made on whether or not to finance the proposal.

ENVIRONMENTAL AND SOCIAL SAFEGUARDS DUE DILIGENCE FOR EXISTING AGRIBUSINESS	
1. Contact Information	
- Is there any staff assigned by the company to be responsible for environment and social safeguard review and monitoring? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please provide name and information for contact.	Name Tel
2. Screening and determination of environmental category	
- Confirm this sub-project is not in negative list - Is this a category B or category C Sub-project <input type="checkbox"/> B <input type="checkbox"/> C	<input type="checkbox"/> Yes Category C – proceed without any further E&S due diligence and submit Table 3 Form Category B – continue with this Form contents
3. Compliance to Environmental Social Safeguards Laws and Regulations	
Has the sub-project proponent acquired all permits/approvals from authorities (Ministry of Natural Resources and Environment/MONRE or its provincial offices/PONREs or Ministry of Industry and commerce)? <input type="checkbox"/> Yes <input type="checkbox"/> No	List
Has the enterprise had any environmental incidents in the last 2 years that requires notification to the regulator?	
Has the enterprise been issued with, in the last 2 years, any violation of environmental permits, licenses or improvement notices by the regulator?	
Has the enterprise had any health and safety incidents or accidents, including fatalities, in the last 2 years involving death or multiple serious injuries and/or significant environmental damage?	
Has the site/Company has all the relevant permits/approval from government authorities and key environmental operating permits, for example Consent to Operate and Hazardous Waste Authorization if applicable?	
4. Consultation with Neighbors and Households	

<p>If there is going to be construction, building, expansion and has business consulted with those potentially impacted?</p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no Brief description</p>
<p>Is the business involved in any recent (last 5 years) or ongoing land related disputes with neighboring villages or households</p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no Brief description</p>
<p>Is the business involved in any recent (last 5 years) or ongoing natural resource related (e.g. access to raw materials, access to water) disputes with neighboring villages or households</p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no Brief description</p>
<p>5. Environmental Aspects</p>	
<p>What are the key potential impacts and/or risks <input checked="" type="checkbox"/> Check box is applicable</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use of hazardous material, chemicals <input type="checkbox"/> Generation of hazardous wastes <input type="checkbox"/> Use of wood/lumber <input type="checkbox"/> Discharge of wastewater from business <input type="checkbox"/> Air emissions <input type="checkbox"/> Noise issues from business 	<p>Provide comments about severity and measures to reduce minimize, avoid such impacts. Please indicate if the Business will use any applicable mitigation checklist/management plan. List what checklist, Guidance or ECOP will be used. Please attach any document. There are sample of ECOPs for four type of sub-project activities under this ESMF.</p>
<p>Do national or local environmental regulations require this business to prepare any environmental or social impact assessment reports or review?</p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If the IEE report under Lao PDR legislation will be required, the sub-project proponent may proceed to process the sub-project proposal, but will not disburse until the IEE is reviewed and approved by World Bank and the applicant provides a notice of approval from MONRE or PONRE.</p> <p>An environmental and social impact audit may be carried out on proposed sub-project as well as on existing facilities to ensure compliance of existing facilities and operations with relevant environmental and social laws, regulations and applicable World Bank policies requirements. This includes the environmental and social impacts from past/on-going activities and sub-project proposals.</p>
<p>6. Occupational health and safety</p>	
<p>Will this business pose a serious risk of major accidents (such as fires, explosions, release of toxic or hazardous chemicals)?</p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no If yes, what measures are in place to address</p>

Has the business suffered significant work-related accidents (leading to serious injuries or fatalities) during the last five years?	
Does the business require a health, safety and/or emergency response plan?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, are there permits, inspections, certifications?
Are proper safety measures in place for workers?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, what measures are in place if no, what are the issues of concern
8. Labor	
What is the expected size of the workforce?	
What is their minimum work age for this business?	<input type="checkbox"/> yes <input type="checkbox"/> no (describe)
Are there any recent (last 5 years) or outstanding labor disputes?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, describe
Have there been any accusation of discriminatory work practices (e.g. against women, ethnic minorities or women) during the last five years?	

IV. CONCLUSION	
Other Information Any other information which may be useful, e.g. information from customers' clients and competitors, quality of supervision by regulatory authorities, any complaint record, etc.	Comments:
Date:	
Recommendation of Authority <u>Approve</u> Signature Name: Confirmation of E&S Coordinator/Consultant Signature Name:	Sub-project Name: