Environmental Assessment and Review Framework

April 2018

LAO: Additional Financing of Water Supply and Sanitation Sector Project

Prepared by the Department of Water Supply, Ministry of Public Works and Transport for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 26 March 2018)

Currency unit	=	kip (KN)
KN1.00	=	$ 0.0012
$1.00	=	KN 8,297.5

ABBREVIATIONS

ADB	–	Asian Development Bank
DOH	–	Department of Health
DONRE	–	Provincial Department of Natural Resources and Environment
DWS	–	Department of Water Supply
EARF	–	environmental assessment and review framework
EHS	–	environmental health and safety
EIA	–	environmental impact assessment
EMP	–	environmental management and monitoring plan
EPL	–	environmental protection law
GRM	–	grievance redress mechanism
IEE	–	initial environmental examination
LACP	–	land acquisition and compensation plan
MOH	–	Ministry of Health
MONRE	–	Ministry of Natural Resources and Environment
MPWT	–	Ministry of Public Works and Transport
MSDS	–	materials safety data sheets
NAPA	–	National Adaptation Program of Action
NRW	–	non-revenue water
PCU	–	project coordination unit
PIA	-	project implementation assistance consultants
PIU	–	project implementation unit
PNP	–	provincial *nam papa*
PPSC	–	provincial project steering committee
SPS	–	Safeguards Policy Statement, 2009
UXO	–	unexploded ordinance
VDC	–	village development committee
VEI	–	village environmental improvement
WSSP	–	Water Supply and Sanitation Sector Project
WTP	–	water treatment plan

WEIGHTS AND MEASURES

^{o}C	–	degree centigrade
dBA	–	decibel
ha	–	hectare
km	–	kilometer
l/s	–	liters per second
m	–	meter
masl	–	meters above sea level
mm	–	millimeter

NOTES

(i) The fiscal year (FY) of the Government of the Lao PDR ends on 30 September. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2017 ends on 30 September 2017.

(ii) In this report, "$" refers to United States dollars.

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INTRODUCTION

1. The Water Supply and Sanitation Sector Project (WSSP) and WSSP Additional Financing (WSSP-AF) will improve the performance of provincial *nam papas* (PNPs) and expand access to safe piped water supply and sanitation for urban residents in small towns of the Lao People's Democratic Republic (PDR), consistent with the government's urban water supply and sanitation sector policy and investment plan and supporting targets for piped water supply for the urban population. It is the fourth water supply sector project funded by the Asian Development Bank (ADB) in the Lao PDR and follows the Small Towns Water Supply and Sanitation Sector Project (STWSP: Grant 0143-LAO) which is currently being completed.

2. This Environmental Assessment and Review Framework (EARF) sets out the environmental requirements for screening, environment classification, assessment and preparation of environmental safeguard plans for WSSP-AF subprojects that will be prepared after board approval. The Project Implementation Assistance (PIA) consultants for the current project will be retained for the additional financing to support the government to prepare subprojects in accordance with the eligibility criteria (see Section IV), the requirements as set out in this EARF, the relevant laws of the government of the Lao PDR and ADB Safeguards Policy Statement (2009). The guidance in the EARF is intended to facilitate the effective integration of environmental assessment and environmental management planning into the preparation and implementation of subprojects identified after board approval.

3. Under the current WSSP, three subprojects are under construction and feasibility studies have been prepared for a further six subprojects. For WSSP-AF, two subprojects in Xamneua province have already been subject to feasibility study and two initial environmental examinations (IEEs) and environmental management plans (EMPs) have been prepared. This EARF will be used to screen proposed subprojects in Attapeu, Sekong, and Luang Prabang provinces which will be prepared after board approval.

POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. Legal and Institutional Framework on Environmental Management in Lao People's Democratic Republic

1. Environmental Impact Assessment

4. The law governing the protection of the environment, including the assessment and management of projects in the Lao PDR is the Environmental Protection Law (EPL), which was issued in 1999 and amended in 2013. This includes the Lao IEE Instruction of 2013. The responsibilities and procedures for environmental monitoring of projects are set out in the Ministry of Natural Resources and Environment (MONRE) Ministerial Instructions No. 8029 (for IEE) and No. 8030 (for EIA) issued on 17 December 2013. Under the Agreement No. 8056 as issued by MONRE on 17 December 2013, investment projects are categorized according to a schedule or list of projects such that for Category 1 or small-scale projects, an IEE is required and for Category 2 or large-scale projects, an EIA report is prepared. Under the Ministerial Agreement No. 8056/MoNRE, water supply facilities (Item 3.35) fall under Category 1 so an IEE is required by government.

5. The Ministerial Instructions No. 8029 states that all investment projects that may create adverse environmental and social impacts are to be designed with the correct and appropriate environmental and social impact prevention and mitigation measures or environmental

management and monitoring plans (EMP) and social management and monitoring plans (SMMP). According to the decree, the primary responsibility for undertaking environmental assessment of projects is with the project developers, which for this subproject, is the Department of Water Supply (DWS). The Ministry of Natural Resources and Environment, acting through the Department of Natural Resources and Environment (DoNRE), is responsible for the review and approval of environmental assessment reports, coordination of monitoring and evaluation, and issuance of the requisite environmental compliance certificates (ECC). Public participation and discussion with local administrations is required throughout the environmental assessment process.

6. The Ministerial Instructions No. 8029 stipulates responsibilities for the key stakeholders involved in the process. These are listed as MONRE (or the local DONRE), local administrations, development project responsible agencies (taken to mean, essentially, the line agency either at central or provincial level), concerned sector bodies and project developers. The responsibilities relate to the process of IEE preparation and approval. The tasks required, from inception through to approval, are investigations, field inspections, information dissemination, public consultation, review of draft IEEs, updating IEEs in response to comments and the issuance of certificates of compliance.

7. Project developers are defined as any person, legal entity or organization, from the public or private sector, who/which is licensed to undertake study, survey, design, construction and operation of an investment project.

8. Procedures for IEE preparation and approval are described in the Ministerial Instructions No. 8029 and are summarized as follows:

a) The project developer prepares the IEE report, in cooperation with other stakeholder agencies and including consultation at village, district and provincial levels;
b) On completion of consultations at district level and subsequent updating of the IEE report based on comments received, the project developer should send the IEE report to the relevant line ministry;
c) The line ministry should review the IEE report within 10 days and either accept or instruct the project developer to provide further information or make revisions;
d) Once accepted by the line ministry, the project developer should submit 15 hard copies and a soft copy of the IEE to the line ministry;
e) The line ministry should send the IEE report to the local administration and concerned agencies within five days of receipt;
f) Recipients of the IEE report must send any comments on the IEE reports within 20 working days of receipt;
g) The line ministry should convene a technical workshop to review the IEE and, if necessary, undertake a field visit, following which comments are sent to MONRE with a recommendation as to the acceptability of the IEE; and
h) MONRE decides whether to issue a certificate of compliance, instructs the project developer to amend the IEE report, instructs the project developer to undertake further investigations, or to reject the IEE report.

2. Water Resources and Water Supply

9. Further legislation of relevance to the sector is the Water Supply Law (2009) and the Water and Water Resources Law (1996, Draft Amended Law under Committee Review, National Assembly as of 11 May 2017).

10. The Water Supply Law (2009) allocates priority to water supply. It defines a principle of water supply activities (Article 5), as the coordination of all sectors and localities concerned in joint using of water sources by giving priority to water supply production.

11. Article 18 of the Water Supply Law states (in the unofficial translation) that "individuals or organizations may have the rights of possession and use of water sources for water supply production only if they have received the authorization from the sectors concerned with the approval of the water resources and environment sectors at the same level." From this it is understood that approval for water use by the PNP requires the approval of the DONRE (the provincial water resources and environmental sector).

12. A revision of the Water and Water Resources Law (1996, Draft Amended Law under Committee Review, National Assembly as of 11 May 2017) is under preparation to reflect new institutional arrangements (in particular the formation of the Ministry of Natural Resources and Environment in 2011, replacing the former Water Resources and Environment Administration), growing usage of water for hydropower and irrigation as well as for water supply, and other issues. Public consultations for development of a revised law commenced in late 2012. The law vests ownership of water and water resources in "the national community whom the State represents" (Article 4). Provision is made for water resource allocation, but not in detail. Article 11 states that "The allocation of water sources and catchments shall be based on surveys and on data collected, in order that water and water resources are distributed, managed and used effectively and in accordance with their purposes. Article 12 states: "To ensure that water and water resources existing in the Lao PDR are used thoroughly and in accordance with their purposes, the government shall determine the distribution of water and water resources."

13. The law separates water use into small, medium and large-scale use. The definition of medium scale use including constructing small scale intake structures for water (Article 16) and for large scale includes the construction of medium or large-scale reservoirs. Provision for approvals is made in Article 18, which states that water and water resources shall be centrally managed, that large scale use shall be approved by government, and that medium scale use shall be approved by a relevant agency ("relevant agency" is not defined in the law).

3. Drinking Water Quality Standards

14. The Ministry of Public Health (MOH) has issued the Water Quality Standard for Management for Drinking and Domestic Use in March 2014 in accordance with Decision 561/MOH, 2014. The standard is based on the World Health Organization Guidelines for Drinking Water Quality, which is recommended by IFC's EHS Guidelines for Water and Sanitation. The MOH has the institutional mandate for overseeing and monitoring drinking water quality in the Lao PDR, while the PNPs (operators) are responsible for ensuring compliance with the standard. The MOH Drinking Water Quality Standards, 2014, stipulate that PNPs are required to conduct regular water quality monitoring and testing of 23 water quality parameters. The standards specify 7 parameters must be tested weekly and an additional two parameters tested on a monthly basis, with an additional 14 parameters to be tested on an annual basis. The monitoring parameters are listed in Table 3 of the water quality standards, which is attached in Appendix D. At this stage the

Lao PDR's socio-economic development however, the laboratory infrastructure necessary to conduct this level of testing across the country does not exist. There are two known laboratories, but both have produced suspect results in the past. Consequently, most of the samples under ADB-funded projects over the past couple of decades have been tested in Thailand, which is logistically quite difficult. Consequently, at this time DWS has agreed with the PNPs to focus on three parameters for routine testing of treated water – pH, turbidity and residual chlorine at the extremity of the distribution network to keep the water supply safe for consumption. To supplement this testing, PNPs will take samples once or twice per year for testing in one of the laboratories in the country; the tests are conducted for a full range of parameters as set out in the MOH standard. It would be wise for the PNPs to have these samples tested in Thailand until such time as the laboratory infrastructure in the Lao PDR is sufficiently developed.

4. Discharge Standards

15. The Agreement on National Environmental Standards 2010[1], Water Resources and Environment Administration (WREA) of 2009, defines the discharge standards for industrial wastewater discharges from manufacturing facilities which covers a comprehensive range of parameters, including biochemical oxygen demand (BOD) of 40 mg/l and total suspended solids (TSS) of 40 mg/l.

5. Requirements for Compliance with the Legislation

16. The Ministerial Instructions No. 8029 requires (i) appropriate screening, based on project categorization, of the required level of environmental assessment, (ii) environmental assessments to identify direct and indirect physical, biological, socioeconomic and cultural resources, (iii) presentation of alternatives (where an EIA is required), (iv) analysis to identify ways of avoiding and/or mitigating negative impacts and enhancing positive impacts, (v) extensive stakeholder consultation, (vi) disclosure to the public, (vii) preparation, approval, implementation and verification of environmental management and monitoring plans, (vi) specific provision for national biodiversity conservation areas and (vii) engagement of competent expertise for environmental impact assessment and management planning. These show strong adherence to the principles of the ADB safeguard policy. The following steps ensure compliance with the Environmental Protection Law (amended, 2013) and the Ministerial Instruction No. 8029 (Matrix provided below):

a) The IEE is prepared by the DHUP, with assistance from the consultants and includes cooperation with other stakeholder agencies and including consultation at village, district and provincial levels;
b) The IEE is disclosed, consultations take place at district level, the IEE is updated based on comments received, it is sent to MPWT for review.
c) The MPWT reviews the IEE and either accepts or instructs the DHUP to provide further information or make revisions;
d) Once the IEE is acceptable, 15 hard copies and a soft copy of the IEE are submitted by the MPWT to DONREs in the provinces concerned to circulate locally for comment. If requested by DONRE, a technical workshop is convened to review the IEE which may include a field visit;
e) The IEE is updated by MPWT and sent to DONRE with a recommendation as to the acceptability of the IEE; and

[1] *The Agreement on the National Environmental Standards stipulates the allowable limits for Air Quality and Ambient Noise Levels and will be the guidance during all phases of Project Implementation.*

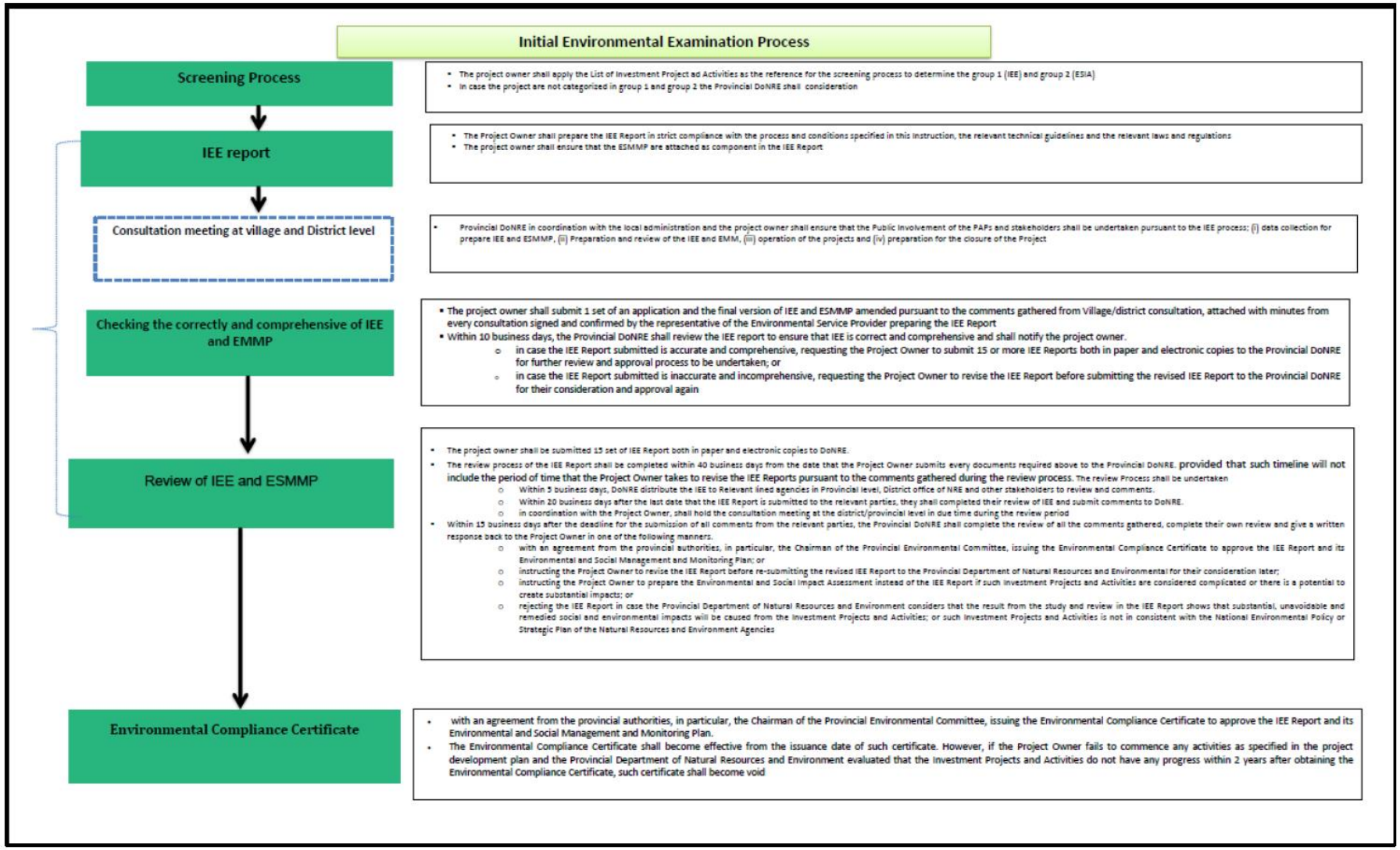
f) DONRE makes the final decision as to acceptance of the IEE report.

6. Timeline for Clearance and Approvals

17. The timelines below are the mandated clearance and approval schedule as contained in the Ministerial Instruction No. 8029:

a) On completion of the IEE report and submission to MPWT, 10 days for review and issuance of decision
b) Revisions are made as required. IEE is then issued for consultations, comments must be received within 20 working days of receipt.
c) IEE then updated to take account of comments and submitted for clearance by DONRE.

Figure 1: Matrix of Processing of Environmental Impact Assessment Reports as per Ministerial Instruction No. 8029



B. ADB Safeguards Policy Statement 2009

18. ADB Safeguard Policy Statement (SPS) became effective in January 2010.[2] The SPS defines the general requirements to be followed with regards to: project screening and classification, information disclosure, consultation and participation, due diligence, monitoring and reporting, local grievance redress mechanisms and the Bank's Accountability Mechanism.

19. Project screening and classification: The SPS requires the undertaking of project screening as early as possible to (i) determine the significance of adverse impacts; (ii) identify the level of assessment and institutional resources required; (iii) determine disclosure requirements. A project's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence. Each proposed project (or sub-project in the case of a sector loan) is scrutinized as to its type, location, scale, and sensitivity and the magnitude of its potential environmental impacts. Subprojects will be screened using the Rapid Environmental Assessment Checklist for Water Supply Projects, which is included in Appendix A.

Projects are assigned to one of the following four categories:

d) **Category A.** A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.

e) **Category B.** A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.

f) **Category C.** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.

20. Information disclosure: In line with the ADB's Public Communications Policy, the SPS requires that for environment Category A projects, draft environmental impact assessments must be posted on the ADB's website 120 days before project approval. For draft environmental assessment and review frameworks, draft resettlement frameworks and/or plans and draft Indigenous Peoples planning frameworks and/or plans, the Policy only stipulates that these documents must be provided by the borrower/client and posted on ADB's website before project appraisal, as follows: (i) final or updated environmental impact assessments and/or initial environmental examinations (IEEs), resettlement plans, and Indigenous Peoples plans upon receipt (by the ADB), and (ii) environment, involuntary resettlement and Indigenous Peoples monitoring reports submitted by borrowers/clients during project implementation upon receipt (by the ADB).

21. Consultation and participation: The general provisions on consultation and participation are mostly phrased as aspirations. The Policy states that the ADB "is committed to working with borrowers/clients to put processes of meaningful consultation and participation in place." Meaningful participation is defined as: (i) beginning early in the project preparation stage and being carried out on an ongoing basis throughout the project cycle; (ii) providing timely disclosure

[2] *ADB. 2009. Safeguard Policy Statement. Manila.*

of relevant and adequate information that is accessible to affected people; (iii) being free of intimidation and coercion; iv) being gender inclusive and responsive; and (v) enabling the incorporation of all relevant views of affected people and other stakeholders in decision-making.

22. Monitoring and reporting: The monitoring obligations are merely required to be "commensurate with the project's risks and impacts". It is deemed appropriate by ADB in accordance with the OMF1 2013 that periodic monitoring reports are submitted for environmental category B projects

23. Local grievance redress mechanisms: The Policy requires the borrower/client to set up and maintain a grievance redress mechanism at project level. This mechanism does not replace the ADB's accountability mechanism but is intended to solve grievances at the local level. Affected people can also take complaints to the ADB's Accountability Mechanism. The Accountability Mechanism Policy merely requires complainants to demonstrate that they have sought to address their complaint with management.

24. Specific to environmental aspects, the objective of the SPS is to "ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process".

25. The main Environmental Safeguard Policy Principles of SPS 2009 are as follows:

a) Screen the project early on to identify past, present, and future involuntary resettlement impacts and risks. Determine the scope of resettlement planning through a survey and/or census of displaced persons, including a gender analysis, specifically related to resettlement impacts and risks.
b) Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential transboundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.
c) Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.
d) Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an environmental management plan (EMP) that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.
e) Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made

known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns and grievances regarding the project's environmental performance.

f) Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.

g) Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.

h) Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.

i) Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phaseouts. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.

j) Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.

k) Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of "chance find" procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.

26. With regard to biodiversity conservation, the SPS specifies that project activities should not be implement in critical habitats or legally protected areas, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no

reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.

OVERVIEW OF TYPE OF PROJECTS TO BE ASSESSED AND ANTICIPATED ENVIRONMENTAL IMPACTS

27. The project has five outputs: (i) Improved sector policy implementation and strengthened capacity for project implementation and O&M; (ii) Improved non-revenue water management and development of water supply systems, (iii) developed new water supply systems in small towns, (iv) Enhanced community action in urban water supply and sanitation, and (v) strengthened capacity for project implementation and O&M. Of these, the first is a sector wide intervention, directed at central level institutions. The remaining four outputs will apply to each subproject, which will take place in small towns in Luang Prabang province which may or may not have an existing water supply system.

A. Identified Project Outputs

1. Improved Sector coordination and policy Implementation

28. Output 1 will continue reforms introduced under previous projects and implement policy reforms to improve the performance of eight PNPs. It includes support for the following activities

29. **Strengthening of sector coordination** through provision of financial and consultant support to the EA to help coordinate the subsector working group on water supply and sanitation under the Technical Working Group sub-group on urban development (UDSWG); subsector meetings; subsector performance reviews and workshops with all participating development partners and smaller subsector coordination meetings, as necessary, amongst development partners on corporate planning and other topics.

30. **Continued implementation of policy reforms** includes activities that were introduced by the previous ADB sector lending projects (Grant 0016-LAO, Grant 0205-LAO, and Grant 0143-LAO). This includes support for the preparation of service agreements between PNPs and provincial governments (regulation by contract); technical assistance and training courses for corporate planning and financial management; continued tariff adjustments prior to subproject civil works contract award; “free connection policy” for households, conditional on the household having approved sanitation facilities; and issuance of district sanitation regulations; and use of simplified corporate plans to ensure greater PNP participation and ownership. The Project will focus on developing PNP capacity for business management, financial management and efficient operation and maintenance. This will assist PNPs to effectively manage increased revenues generated through tariffs adjustments and demonstrate to customers that service levels are improving.

31. **Expanded policy implementation** will provide financial and consultant support for nationalizing the “free connections policy” and sanitation regulations. The Project will support a sector-wide approach to NRW management, improved asset management and enhanced O&M

manuals through a coordinated development partner approach. The project will encourage the EA to promote the integration of policy improvements in these key areas with the PNP corporate plans. Improved PNP asset management will include the establishment of basic asset management tools, and the establishment and maintenance of basic systems for managing and updating water supply system drawings and records. The Project will continue supporting the established corporate planning help desk in the project coordination unit (PCU).

2. Improved NRW Management and Development of Water Supply Systems (outputs 2 and 3)

32. **The integrated NRW program and water supply development and rehabilitation** will be carried out on new and existing PNP water supply systems. In sub-project areas with no existing systems, new water supply systems will be developed for the densely populated core urban areas of the identified sub-project areas while for sub-project areas with existing systems, these will be expanded rehabilitated and upgraded as required. The NRW program will integrate a comprehensive NRW reduction program with water supply development in identified provincial capitals and will be undertaken to address both “real losses” such as leakage and “apparent losses” such as metering losses and water theft.

33. **The NRW program** will include establishment of a permanent NRW management team within the concerned PNP to address both “real losses” such as leakage, and “apparent losses” such as metering losses and water theft. NRW management activities will no longer be front-loaded in the subproject implementation period. Instead, they will be established upon subproject completion when all aging water meters and suspect pipelines have been replaced and upgraded. At that time, NRW procedures will be introduced including leak detection, water meter testing, household surveys (illegal connections) and monitoring of district metering areas (DMAs). Physical works such as: creating physical hydraulic zones in the network; installing pipes, valves and meters, and; undertaking leak detection and repairs. It will also include: (i) surveys to identify unauthorized connections; (ii) a water audit and water balance to identify the main NRW sources; (iii) improving record drawings and asset registers; (iv) updating customer registration; (v) implementing customer complaints register and pipeline repair register, and; (vi) formulating and implementing disconnection and meter management policies. Adoption of the “free connections” policy will help to minimize apparent losses by reducing the incentive for illegal or unauthorized connections.

34. **The scope of water supply development works** will include (i) the development of surface, spring or groundwater sources (for new systems); the expansion, replacement and rehabilitation (if required) of: (ii) water intakes from surface, spring or groundwater sources; (iii) raw water transmission; (v) water treatment facilities including a small water testing laboratory; (vi) distribution and reticulation pipework; (vii) service reservoirs; (viii) individual metered service connections, and; (vii) new/improved office/workshop/store facilities for the PNP branch. It also includes procurement of equipment and a flatbed truck for operation and maintenance (O&M) of the water supply systems. Households that apply to connect during the construction period will not be required to pay any up-front connection charges for small-bore reticulation, connections or meters, but the cost of these items will form part of the subproject capital cost and will be recovered through the water tariff.

35. **Marketing and awareness campaigns** will inform communities about the Project’s connections policies and the benefits of connecting to PNP piped water supply. The consultant support will provide system-specific capacity development and training for PNP provincial and

district staff in system O&M and help each PNP to develop short and medium-term water supply investment plans for each of its water supply systems.

3. Enhanced Community Action in Water Supply and Sanitation

36. Enhanced community action will increase and sustain the benefits from investments in the water supply systems through complementary sanitation and awareness activities. The output will facilitate the implementation of the water supply system and enhance the sustainability of water supply benefits with activities targeted at improved household sanitation for the poor, public sanitation, village environmental improvements (VEI) and community project and health awareness. Village Development Committees (VDCs) will be the main assisting group for prioritizing these activities, in coordination with the district government. However, all payments will be made either directly from the project implementation unit (PIU) or the PCU, depending on the size of the package. Project funds will not be transferred to the VDCs.

37. **Village environmental improvements** (VEI) will promote demand-driven, community-managed environmental improvements, such as construction or rehabilitation of small-scale community improvements (e.g., drains and village access roads). Core villages will be eligible to participate, including those that agree to implement, operate and maintain improvements; contribute towards the capital costs of the improvements; and select specific improvements in a participatory, socially inclusive and transparent manner. Each village will be eligible for a VEI grant following a cost-sharing arrangement—the project will contribute up to 80% of the cost of improvements (maximum $10 per capita), local governments will contribute at least 10% in cash and the village beneficiaries excluding the poor and vulnerable households will contribute at maximum 10% in cash or in kind. Each village will enter into an agreement with the office of public works and transport for O&M of the VEI before any funds are released.

38. The output also includes **improved household sanitation for the poor** (e.g., new construction or upgrading). During the village planning process, poor households will be identified and will be eligible to receive a sanitation grant for building or upgrading their existing sanitation facility. Poor households will be identified in accordance with the criteria set forth in the Prime Minister's Decree No. 285, dated October 2009, or otherwise agreed to in advance with ADB. A grant of $120 will cover materials to construct a durable water seal pit latrine with 10-year capacity. Poor households that decide not to connect to the PNP system will receive a smaller grant to improve their sanitary facilities. It is anticipated that household toilets and public toilets will be constructed through shopping; however, if possible, civil works will be packaged as national competitive bidding (NCB) contract covering VEI, public and household sanitation.

39. **Constructed or repaired public sanitation facilities** in strategic areas where the O&M can be contracted to a nearby business or social entity. Where septage disposal facilities are not available in the subproject area, the project will provide technical assistance and grant funds for constructing septage disposal facilities at a suitable location on government land.

40. The output also includes support for **increased project and hygiene awareness**. This includes (i) implementation of stakeholder consultation and community participation activities for informing, promoting and educating beneficiaries, consulting with individuals from different social and ethnic groups, and public disclosure of safeguard documents, water and sanitation policies, and corporate plans; and (ii) support to district authorities for sanitation and hygiene behavior change, design of new programs to cover emerging issues (e.g., water conservation or protection of water sources), and evaluation of program effectiveness.

4. Strengthened capacity for project implementation and O&M

41. **Strengthened project implementation and O&M** includes support for project implementation assistance and capacity development for O&M, including effective implementation of environmental and social safeguards plans to enhance sustainability. Following the lessons on the previous projects, PNP capacity development for O&M will be supported through formal training and on-the-job-training in the PNPs' own water facilities or in the region. The output will also provide support to VDCs to enhance their capacities to operate and maintain village infrastructure and their on-site water and sanitation facilities. It will procure computer hardware, basic laboratory water quality testing equipment and (where necessary) improved billing and accounting systems for the PNPs. For subprojects that involve NRW programs, the Project will also procure leak detection equipment. This output also includes incremental administration support to project staff for vehicles, and office and computer equipment in PCU and PIU offices.

B. Anticipated Environmental Impacts

42. The most significant impacts expected to arise from the project are beneficial impacts on public health and the quality of life in the town from the provision of potable water together with enhancements from the VEI. Both actions address priority problems. Some items of potential concern arise in connection with project location, the construction phase and the operation phase. The issues of potential concern are (i) management of sediment from the water treatment plant which bears traces of aluminium sulphate (alum) used in water treatment, (ii) protection of water sources and water quality monitoring capacity, (iii) risks associated with unexploded ordinance, (iv) water resource conflicts (v) an increased burden on drainage systems due to improved water supplies and (vi) occupational and community safety issues. The operations and maintenance manuals will include operator environmental mitigation and monitoring measures in line with EHS Guidelines for Water and Sanitation. Anticipated impacts and mitigation are described in the succeeding sections.

43. **Management of Sediments from Water Treatment Plants (WTPs).** Sludge from pre-sedimentation, sedimentation and filtration processes at each water treatment plant will require periodic removal. It consists of the fine particles of inert material (mainly silt) that are removed from the raw water by the sedimentation, flocculation and filter backwash processes, and traces of the flocculation agent, aluminium sulphate, or alum, which is not toxic. Quantities are dependent on raw water quality and the capacity of the treatment plant and will vary seasonally but are minor. While traces of alum will be minor, it should not be allowed to build up in soil as it "locks up" nutrients and prevents their uptake by plants. Effects are controlled by (i) release of backwash water into moving water, where dilution ensures that the alum, already in minor quantities, is vastly diluted and not allowed to build up and (ii) by collecting sediment in retention ponds, dewatering and disposal in an approved site (where available, a landfill).

44. **Protection of Water Sources and Water Quality Monitoring.** Most of the Project towns will obtain raw water for their piped water supply systems from rivers, streams or springs which are open to contamination from development and activities in the upstream catchments. While the quality of the existing raw water sources in general is suitable for urban water supply after full treatment, there is potential for water quality to degrade over time because of increased urbanization, industrial activity, agricultural development, animal production and deforestation in the upstream catchments. Provision is made in the national legislation for source protection regulations to be made. The project consultants will assist the relevant authorities to prepare appropriate regulations and the implementation of these will be supported. In addition,

awareness campaigns conducted during Project implementation will make communities aware of the need to protect water sources, the extent of protection zones and the activities permitted within them. In addition, community Water Safety Plans and water quality monitoring plans will be prepared prior to commissioning of a new or rehabilitated water treatment plant which will identify measures for ongoing source protection, monitoring and awareness.

45. Commissioning and training for WTP operation will ensure that the Standard Operating Procedures reflect identified risks. Staff will have ongoing liaison with the Department of Agriculture and Forestry, and Department of Natural Resources and Environment to ascertain possible risks from upstream pesticides and other pollutants. Should risks arise the water treatment regimes can be adjusted.

46. **Risk Associated with Unexploded Ordinance.** Accidental detonation of unexploded ordinance occurs regularly throughout the country, with excavation activities for infrastructure among one of the main causes. Managing the threat involves the use of data provided by the National Mines Regulatory Authority (NMRA), seeking local knowledge, commissioning a verification survey and clearance services where necessary. Provision is made for these.

47. **Water Resource Conflicts.** Potential conflicts may arise, particularly between demand for town water supplies and irrigation water, although priority is given to water supply in the Water Supply Law (2009) in article 5. To manage potential conflicts monitoring of stream flows by PNPs is necessary. Existing full-time river monitoring systems exist only on major rivers, usually tributaries of the Mekong.

48. **Increased Burden on Drainage Systems.** Households receiving new water supply connections are likely to use more water for cooking and washing, although liberal use will be constrained by tariff charges. In towns on flat terrain or valley floors, drainage is often limited and even relatively small quantities of additional grey water or sullage may form ponds of dirty water which provide a habitat for mosquitoes and pose a health hazard. This will be addressed primarily through initiatives under the VEI, IEEs need to emphasise the need for these.

49. **Safety Issues.** Where installed under the VEI, improved drains in project towns will carry larger volumes of water at greater velocity than previously, creating potential safety hazards to children or the infirm. To mitigate this hazard, drains will be small size, designed to a wide cross section that both limits the depth of running water and allows safe exit from the drains if people accidentally fall into them. Awareness activities will also include informing communities, especially children, of the need to stay away from drains during significant rainfall events. In addition, concrete crossings will be provided where the drains intersect pathways and in the busier commercial centres of the towns.

50. **Construction Impacts.** Potential impacts that may occur during construction include generation of waste from excavation (ii) blocking or impeding public rights of way, (iii) noise and dust nuisance, (iv) release of silt from construction operations, (v) pollution from chemicals, fuels or temporary worker toilet facilities, (vi) safety hazards to workers and the public, (vi) accidental damage to utilities, (vii) erosion, where operations take place on slopes and (viii) impacts on items of cultural, historical or scientific importance that are uncovered by chance during the works. Construction will however be temporary, and provision will be made in the EMP for each subproject to mitigate these, bringing them to acceptable levels.

ELIGIBILITY CRITERIA AND PROCEDURES FOR ENVIRONMENTAL ASSESSMENT OF SUBPROJECTS

A. SubProject Eligibility Criteria

51. The selection of subprojects for inclusion in the project involves screening and prioritization, individual town subprojects are then selected for feasibility study. Feasibility study then confirms subproject eligibility in accordance with the eligibility criteria listed below. Subprojects are selected following initial information gathering and screening, and then a set of prioritization criteria aimed primarily at ensuring alignment with government priority, maximizing impact in terms of numbers and maximum contribution to economic development and poverty alleviation. Under the current WSSP, three subprojects are under construction and feasibility studies have been prepared for a further six subprojects. For WSSP-AF, two subprojects have already been subject to feasibility study and IEEs and EMPs have been prepared. This EARF will be used to screen additional subprojects in Attapeu, Sekong and Luang Prabang provinces which will be confirmed after board approval.

(a)	A feasibility report shall have been prepared demonstrating that the subproject meets: i) ADB's and the government's requirements; ii) Category B or C safeguard requirements (Rapid Environmental Assessment for Water Supply Projects to be completed and classification to be approved by ADB); iii) EIRR > 12%; and iv) FIRR > WACC.
(b)	Relevant provincial and district governments and PNP shall have confirmed their agreement to adopt the government's water sector policies, cost recovery principles, tariffs, arrears, sanitation regulations, 'free' connection policy, NRW program, and other reforms as agreed between the government and ADB;
(c)	The Subproject covers only the most densely population core villages, and in the case of system expansion, covers the core villages and contiguous densely populated areas;
(d)	The relevant PNP for the Subproject has adopted a provincial utility-wide progressive tariff structure with 3 consumption blocks, namely lifeline, middle, highest, whereby the average tariff has been set at such levels to enable the PNP to: (i) recover full O&M costs and gradually increasing costs of depreciation; and (ii) maintain a debt service coverage ratio of 1.2;
(e)	The relevant provincial and district governments and the PNP concerned shall have agreed to: (i) adopt sanitation regulations for the Subproject town concerned, acceptable to the EA and ADB; and (ii) provide adequate budget allocations to meet the O&M costs of the village environmental improvements and public sanitation improvements constructed under Output 4;
(f)	The relevant PNP for the Subproject has submitted to the Borrower an updated corporate plan for the PNP as approved by the board of directors and acceptable to the EA and ADB, and such corporate plan has been disclosed on the Project website;
(g)	Relevant PNP shall have (i) identified potential sources of raw water and (ii) collected adequate flow and water quality data for each potential source during dry and wet season at the Subproject feasibility and design phases to demonstrate source suitability, adequate minimum flows exceed the design flow for the water supply system, adequate water treatment requirements;

(h)	The Provincial authority shall have given a written assurance that: (i) the subproject will have first priority for raw water from the proposed surface source and has obtained an agreement to that effect from any hydropower, irrigation agency or company which uses or stores water upstream of the urban water supply intake This would involve identification of the facilities that could affect the continuity of water supply at the intake during feasibility preparation of each subproject;
(i)	Provincial authority shall have given a written assurance that it will issue and enforce regulations to protect raw water quality upstream of the proposed water supply intake. The feasibility report shall confirm that water quality testing at the raw source has been undertaken in accordance with applicable standards and the tests must confirm that the presence of chemicals or hazardous substances at the raw source are in accordance with Borrower's water quality standards; (date of assurance and attach copy of assurance)
(j)	The Borrower, Provincial Authority and ADB have approved the subproject Land Acquisition and Compensation Plan (LACP), and Initial Environmental Examination (IEE)/ Environmental Management Plan (EMP), and Indigenous Peoples Plan (IPP, if applicable) and have agreed to implement the aforementioned Plans in accordance with the policies of the Borrower and ADB;
(k)	The Provincial Authority has confirmed in writing that sufficient government budget is available to finance additional Works or Consulting Services under the proposed Subproject; and
(l)	PCU and PIA Consultant prior to the commencement of Project implementation shall have confirmed that the relevant participating Province, district and PNP are ready to implement the subproject (i) PIU has been established, staffed by adequate, qualified and competent staff appointed, and adequate funding provided; (ii) The capacity of the relevant PIU to manage the Project being adequate; (iii) The capacity of the PNP being adequate to manage, operate and maintain the proposed water supply system, including arrangements for ongoing training, technical and management support; (iv) PNP performance including approved corporate plan is in place and accounts receivable is less than 90 days; (v) The debt service capacity for the relevant PNP having been reviewed; (vi) The relevant tariff level in the Participating Province concerned having been reviewed and adjusted as needed to financially sustainable levels; and (vii) In the case of Subprojects involving non-revenue water programs, the PNP's non-revenue water taskforce, leak detection team and leak repair team established.

52. Of significance for environmental assessment and management planning is that Category A subprojects should be excluded, classification and environmental assessment documents should be approved by ADB. The criteria in general seek to ensure institutional and financial sustainability which is necessary if schemes are to be properly operated and maintained, avoiding environmental consequences of scheme failure.

B. Procedures for Environmental Assessment of Sub-Projects

53. All subprojects to be identified after board approval shall be screened and categorized for environmental impacts in accordance with ADB, SPS 2009, and requirements set out in this EARF. Appropriate safeguards documents will be prepared and finalized for non-sample subprojects, for review and concurrence by ADB prior to implementation. The following procedures provide for assessment of environmental impacts, reporting and environmental management planning and have been designed to meet both ADB SPS (2009) and the government requirements as specified in the Ministry of Natural Resources and Environment Ministerial Instructions No. 8029 (for IEE) and No. 8030 (for EIA) issued on 17 December 2013 and therefore the EPL of 1999 as amended in 2013.

1. Responsibilities and Authorities

54. The responsible agency will be the executing agency, the Ministry of Public Works and Transport (MPWT), acting through the Department of Water Supply (DWS) which will house the Project Coordination Unit (PCU) with responsibility for overall planning and coordination of implementation, including programming, budgeting, financial planning, accounting and reporting. The PCU will receive overall direction and policy guidance from a Project Steering Committee (PSC). The PSC will include one representative from MONRE.

55. Within the meaning of the Ministerial Instructions, the project developer is the MPWT. As such, the MPWT is responsible for ensuring that environmental compliance certification is obtained, prior to allowing works to commence, the accuracy of information in the IEE (or EIA) and to ensure adherence to the EMP.

56. For each subproject, a Project Implementation Unit (PIU) will be established at provincial level, with the responsibility of day-to-day coordination, and supervision of project implementation. The PIU has representation from the Provincial Nam Papa (PNP), the Provincial Department of Public Works and Transport (DPWT), Department of Natural Resources and Environment (DONRE) and other provincial and district level agencies. The PIU will have representatives from district agencies including the district health and education offices and Lao Women's Union (LWU). In each subproject village, the Village Development Committees will serve as the main conduit for all communications between the Project and the community, possibly within existing village committees, to mobilize local communities and work with the PIU and the PIA Consultants in implementing village improvements and awareness activities.

57. The PIU will receive support in co-ordinating the provincial and district level agencies including the provincial department of Natural Resources and Environment (DONRE) and take decisions on behalf of the provincial government from a Provincial Project Steering Committee (PPSC), chaired by the Provincial Vice Governor. At the district level, the District Governor (DG) or Vice Governor will oversee the project, monitor progress, review quality of work, coordinate the subproject with the PIU and local communities, and report on progress to the PPSC. The PPSC will include a representative of DONRE.

58. Technical support across all aspects of project implementation will be provided by the Project Implementation Assistance Consultants.

2. Implementation Arrangements

59. The Ministry of Public Works and Transport, Department of Water Supply and the PNP are the key institutions that will play crucial roles in the implementation of the subproject as well as in ensuring the proper and timely implementation of the requisite environment safeguard reports. The succeeding sections detail the administrative and environmental management responsibilities of the concerned institutions. Table 1 sets out the Institutional Responsibilities for Environmental Management.

Table 1: Institutional Responsibilities for Environmental Management

AGENCY	ROLE	CONSTRUCTION	OPERATION
• MoNRE/ • DoNRE	• Overall central level supervision and guidance related to natural resources and environment in the Lao PDR. The agency is in-charge of reviewing the IEE, issuing environmental compliance certificate (ECC) and monitoring environmental compliance.	✓	✓
• PCU	• Overall supervision of subproject environmental screening and classification, IEE/EMP preparation and implementation. • Review of IEE/EMP, submission to ADB and coordination of approvals • Uploading of the IEE/EMP on MPWT website • Ensuring EMP is included in bid and contract documentation. • Monitor the project's adherence to the EMP and ensure corrective actions are implemented. • Review the quarterly environmental monitoring reports prepared by the PIU during the construction phase and prepare semi-annual environmental monitoring reports to be submitted to ADB. • Review the semi-annual progress report prepared by the PNP during the operational phase and submit the report to ADB. • Prepare environment section of Project Completion Report.	✓	✓ (prior to PCR)
• PIU	• Principal responsibility for EMP and safeguards grievance redress mechanism (GRM) implementation • Preparation of IEE and contract documentation • Submission of IEE to PPSC and DoNRE for reference during monitoring • Facilitate public and stakeholder consultation during IEE/EMP preparation. Conduct consultations with local residents in respect of specific sites where the proposed works will include excavation, determine the need for any further investigation and/or clearance services and submit to the PCU	✓	✓

AGENCY	ROLE	CONSTRUCTION	OPERATION
	• Monitor compliance of the contractor with the EMP • Monitor GRM and effective resolution of complaints. • Consolidate monthly environmental monitoring reports prepared by contractor through a quarterly progress report to be submitted to the PCU. • Provide members of the Provincial Project Steering Committee and the District Governor with copies of the quarterly progress report		
• PIA	• Support PCU and PIU with subproject screening in line with EARF and preparation of IEEs and EMPs • Provide training for PCU, PIUs and Contractors on EMP requirements. • Advise on issues arising with EMP and GRM implementation • Support PCU/PIU with development and implementation of corrective action plans • Support PCU/PIUs with preparation of semi-annual environmental monitoring reports and environment section of project completion report.	✓	✓
• PPSC	• Coordination of provincial and district agencies for EMP implementation during construction and operation and ensuring compliance monitoring.	✓	✓
• PNP	• Participation in PIU	✓	
	• Implementation of operational aspects related to water supply output in the EMP • Conduct water quality monitoring at WTP inlet, treated water, and distribution lines		✓
• OPWT	• Participation in PPSC	✓	
	• Implementation of operational aspects related to drainage and public sanitation output in the EMP		✓
• DOH	• Participation in PPSC	✓	
	• Participation in environmental monitoring and awareness raising		✓

Notes: PIA – Project implementation assistance; OPWT – Office of Public Works and Transport (District); DOH – District Heath Office; PCU - Project Coordination Unit; PNP -Provincial Nam Papa; MONRE - Ministry of Natural Resources and Environment; PPSC - Provincial Project Steering Committee

3. Environmental Screening and Classification

60. The environmental categorization for each subproject will be determined by the PCU with assistance from the PIA consultants on the basis of ADB rapid environmental assessment (REA) checklist for Water Supply (see Appendix A) and the Lao PDR Environmental Protection Law

(1999 as amended in 2013) and the Lao PDR IEE Instruction of 2013[3]. All subprojects will be subject to a screening process to ensure that subprojects that would be classified as environment Category B will be excluded. Similarly, all subprojects will fall into Category 1 according to schedule attached to the Ministerial Instructions. The REA checklist will be submitted to ADB to confirm subproject classification.

4. Preparation of the Initial Environmental Examination (IEE)

61. For Category B sub-projects, REAs and IEEs will be prepared by the PIUs with participation from the relevant OPWTs, and with the assistance of project implementation consultants. IEEs and EMPs will be submitted to ADB as part of the feasibility study for each subproject. The REA, which will be utilized to screen project impacts and category, will be included as an appendix to the IEE.

62. In the preparation of the IEE, relevant primary and secondary data will be gathered that includes surface water flows during the wet and dry season, water quality, upstream and downstream catchment characteristics, among others. The assessment will include analysis of potential impacts of water abstraction on water reliability for downstream users. An assessment of project impacts and risks on biodiversity and natural resources will also be undertaken for subprojects and components located near or within critical habitats or legally protected areas. Issues regarding natural and critical habitats will be covered in the IEE report. Pollution prevention for conservation of resources particularly technology for management of process wastes will be addressed in the IEE report. Occupational health safety and community health safety will be properly addressed in the EMP section of the IEE report. Climate change and natural hazard impacts on the project (especially in the design of components/activities) shall be considered and integrated. The document will also reflect meaningful consultation and disclosure process with a provision of grievance redress mechanism.

63. The EMP, which is developed as part of the IEE report, shall describe the environmental management measures that must be carried out to avoid or mitigate negative impacts and enhance environmental performance during implementation. Environmental monitoring is to be conducted to ensure that mitigation is provided and is effective in reducing impacts, or to determine the long-term impacts of a subproject. EMPs will outline specific mitigation measures, environmental monitoring requirements, and related institutional arrangements, including budget requirements for implementation. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the project is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document. The level of detail and complexity of the environmental planning documents and the priority of the identified measures and actions will be commensurate with the project's impacts and risks. Key considerations include mitigation of potential adverse impacts to the level of "no significant harm to third parties," the polluter pays principle, the precautionary approach, and adaptive management.

64. If some residual impacts are likely to remain significant after mitigation, the EMP will also include appropriate compensatory measures (offset) that aim to ensure that the project does not cause significant net degradation to the environment. Such measures may relate, for instance, to conservation of habitat and biodiversity Monetary compensation in lieu of offset is acceptable in

[3] *Categorization will be based on: (i) the schedule contained in the Ministerial Instructions issued on 17 December 2013, which allocates projects into Category 1 (requiring an IEE for water supply facilities) and Category 2 (requiring an EIA), based on parameters identified therein*

exceptional circumstances, provided that the compensation is used to provide environmental benefits of the same nature and is commensurate with the project's residual impact.

65. All IEE reports and EMPs will be updated and finalized based on detailed design. The final EMPs, cleared by ADB, will form part of the contract bidding documents. The bid documents will include the requirement to incorporate necessary resources to implement the EMP. The EMP will form part of the contract document, and, if required will need to be further updated during the construction phase of a sub-project.

5. Review of IEE Reports

66. The PCU will be responsible for the review of IEEs and will therefore undertake internal review, with the assistance of the consultants as required. In accordance with the Ministerial Instructions, the IEEs will also be reviewed by DONRE and local administrations and presented to stakeholders at provincial, district and village level for public review. The PCU will be responsible for updating the IEE in response to comments received. The IEEs, included with each Feasibility Study report as well as updated IEEs and EMPs during detailed design, will be sent to the ADB project officer who shall arrange review and clearance by the ADB environmental specialist. During implementation, if unanticipated impacts are encountered, a corrective action plan will be prepared.

C. Monitoring and Reporting Environmental Performance

1. Environmental Monitoring

67. Environmental monitoring will include: (i) compliance with EMPs during construction and operation to ensure that the required mitigation measures are implemented, (ii) the quality of water in the supply systems are in compliance with the Drinking Water Quality Standards, and (iii) the adequacy of dry season flows in the streams and rivers used as the water source. To ensure that potential environmental problems are detected and addressed appropriately, environmental monitoring will take place during all phases of project implementation. During construction, the key tasks are monitoring the compliance with environmental mitigation measures in the environmental management plan for each subproject, which shall be done by the PIU and construction supervision team. During operation, responsibility for monitoring shall rest with the provincial departments. Construction impacts will be limited by their temporary nature and adherence to the EMPs which provide for mitigation. Construction sites for intakes, WTP and transmission main installation will mostly be distant from homes, limiting such effects as noise and dust nuisance. Monitoring for compliance with EMPs and seeking community feedback is recommended. Table 2 presents an indicative environmental monitoring plan and performance indicators during the construction and operational phases of a subproject.

Table 2: Environmental Monitoring Plan

PARAMETERS	LOCATION	ENVIRONMENTAL PERFORMANCE INDICATOR	FREQUENCY	MEANS OF MONITORING
PRE-CONSTRUCTION PHASE				
• Assessment of potential impacts of the subproject due to location of facilities,	• All project sites	• Views and opinions of communities and assessment of the	• During subproject preparation prior to construction	• Public consultations, reviews and approval

PARAMETERS	LOCATION	ENVIRONMENTAL PERFORMANCE INDICATOR	FREQUENCY	MEANS OF MONITORING
impacts on other water users, natural resources and protected areas, historical and archaeological sites		environmental authorities and consultants; REA and IEE prepared for each subproject		s of environmental documents (IEE/EMP)
CONSTRUCTION PHASE				
• Adherence to provisions in the EMP to mitigate construction impacts	All project sites (intake, WTP, reservoir, access roads, main and distribution network)	Compliance with EMP	Daily	Compliance monitoring by contractor and PIU
• Direct effects on communities from impacts such as damage to properties, dust generation, noise, and safety	All project sites (intake, WTP, reservoir, access roads, main and distribution network)	Views and opinions of communities and complaints received via GRM	Weekly	Through community feedback and grievance redress mechanism
• Monitoring of EMP during construction/ excavation, including compliance with traffic management requirements	All roads, particularly at road pipe crossings	Compliance with EMP	Daily	Compliance monitoring by contractor and PIU
• Residual chlorine during pipeline and reservoir disinfection prior to commissioning	Pipeline and reservoir	Residual chlorine should be less than 2 mg/l before flushing	Prior to decommissioning	Residual chlorine testing or report on dilution activity
OPERATIONAL PHASE				
• Wastewater management	Villages	Number of households with latrines and with water connections, population served, and billed water volume	Monthly	PNP records
• Raw water source	Intake	Water abstraction rate at intake	Monthly	PNP records

PARAMETERS	LOCATION	ENVIRONMENTAL PERFORMANCE INDICATOR	FREQUENCY	MEANS OF MONITORING
• Water quality of raw and treated water	Inlet of WTP	pH, turbidity	Daily	In-situ test kits
• Water quality of treated water and at the distribution networks	WTP and sampling stations strategically scattered around the distribution area	After the reservoir: pH, turbidity, residual chlorine, and temperature At locations in the distribution system: Residual chlorine, pH, turbidity After the Clearwater tank: Chloride (Cl), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), sodium (Na), sulfate ion, zinc (Zn), conductivity, total hardness as $CaCO^3$	Daily Weekly Annually	Using portable test kits and/or analysis in laboratory
• Backwash water and sediments from WTP	WTP	Schedule of backwashing and condition of detention ponds	Monthly	PNP records and site observation
• Occupational health and safety	WTP	Staff training on chemicals handling and monitoring of incidents	Before the start of WTP operation and throughout operation	PNP records

68. The monitoring of water quality within the water supply system, while of environmental relevance, is required in any case for the design, construction and operation of the water supply system. Raw water sources are initially tested for hardness, turbidity, pH, total suspended solids and alkalinity (a measure of the presence of cations such as calcium, magnesium ions and carbonate ions, as opposed to pH) during the wet and dry season at the feasibility and design phases. These are required to design the water treatment process and the plant itself. Additional specialized tests (e.g. for pesticides) may be undertaken for the raw water source as required by project consultant, PNP[4] or district government based on: (i) assessment of point and non-point sources of pollution in the catchment, catchment characteristics, proposed or potential development in catchment; (ii) local knowledge of raw water quality, and; (iii) type of treatment proposed.

69. Prior to commissioning of the water treatment plant, the PNP with assistance of DHUP and the project consultant will prepare a water quality monitoring plan which will be implemented following plant commissioning. Testing of treated water quality at the water treatment plant is also

[4] At present, PNPs, government agencies and private companies located in the provinces do not have the capacity or resources to sample and test for the full range of parameters and frequencies set out in the current (2005) or draft (2012) Ministry of Health (MOH) Drinking Water Quality Standards. Currently, PNPs undertake daily water quality tests for pH, turbidity and residual chlorine, and send one or two water samples per year to Vientiane for testing of a wide range of parameters in accordance with what are commonly referred to as the "Lao Standards" for drinking water quality. These are based on the Nam Papa Lao Guidelines developed in the 1990's and World Health Organization (WHO) Drinking Water Quality Guidelines. The project supports a phased approach to testing of PNP treated water quality, whereby the type and frequency of water quality testing are advanced towards the MOH Drinking Water Quality Standards as the capacity and resources for water quality testing in each province are improved.

undertaken at the time of commissioning by the Contractor to demonstrate the performance of the completed water treatment plant.

70. Following commissioning, water quality is regularly tested by the PNP to determine correct levels of chemical dosing in the water treatment process, to ensure the quality of treated water supplied to customers, to monitor the effectiveness of treatment and to monitor compliance with appropriate water quality standards. Results from water quality monitoring should be included in environmental monitoring reports during subproject implementation, but the cost of this monitoring is either a design, construction or operation cost and not part of the environmental assessment and management budget.

2. Reporting

71. The findings from all monitoring activities will be summarized and included in periodic project progress reports. Table 3 summarizes the EMP reporting.

Table 3: EMP Reporting Plan

TYPE OF REPORT	BASIC CONTENT	PREPARED BY	SUBMITTED TO	FREQUENCY
PRE-CONSTRUCTION PHASE				
• IEE report	• IEE/ and EMP report	PCU, Department of Water Supply and Sanitation	MPWT ADB	Part of FS report
CONSTRUCTION PHASE				
• Construction Progress Report	• Progress of construction, including EMP monitoring results, complaints received, and actions taken	Contractor	PCU and copy furnished to PIU	Monthly
• Subproject Progress Report	• Progress of construction, EMP implementation, complaints received, and actions taken	PIU	PCU, District Governor, Provincial Project Steering Committee	Quarterly
• Progress Report	• Progress of construction, safeguards (EMP[5] and LACP) implementation, complaints received, and actions taken	PCU, Department of Water Supply and Sanitation	MPWT, MONRE, and other national agencies[6] ADB	Quarterly
• Integrated Safeguards Monitoring Report	• Project progress report including EMP/LACP/IPP implementation and compliance with ADB's policies and regulations	PCU, Department of Water Supply and Sanitation	MPWT ADB	Semi-annual until project completion report (PCR)
OPERATIONAL PHASE				
• Progress Report	• Subproject progress report including EMP implementation and monitoring	PNP	PCU	Semi-annual until project completion report (PCR)

[5] *This includes the water quality monitoring results.*
[6] *This includes the Ministry of Health (MOH)*

TYPE OF REPORT	BASIC CONTENT	PREPARED BY	SUBMITTED TO	FREQUENCY
• Integrated Safeguards Monitoring Report	• Project progress report including EMP/LACP/IPP implementation and compliance with ADB's policies and regulations	PCU, Department of Water Supply and Sanitation	MPWT ADB	Semi-annual until project completion report (PCR)

72. **Pre-construction Phase.** The EMP monitoring during the pre-construction phase of the subproject will be undertaken by the PIA consultant. (Appendix B - Checklist for Environmental Safeguards Monitoring). Semi-annual Integrated Safeguards Monitoring Reports will be prepared by the PCU with support of the PIA and submitted to ADB for review and disclosed on the ADB project website. Appendix C includes the Semi Annual Integrated Safeguards Monitoring Report Template.

73. **Construction Phase.** Throughout the construction period, the contractor will submit monthly environmental compliance progress reports to the PNP, copy furnished to the PIU. The contractor should be able to highlight the summary of the progress of construction, activities undertaken within the reporting period to implement the measures outlined in the EMP, record any community complaints received and how the complaint was resolved. The PIU will consolidate the results of the monthly environmental monitoring through a quarterly progress report that will be submitted to the PCU which is based at the Department of Water Supply of the MPWT. The quarterly report will summarize the significant findings and measures undertaken to address any adverse environmental impacts during construction and present any unforeseen environmental impacts and suggested remedial actions for the next monitoring period. Copies of the quarterly progress report prepared by the PIU will be given to the members of the Provincial Project Steering Committee and the District Governor. PCU will consolidate information from quarterly progress reports, compile and submit integrated safeguards monitoring report semi-annually to ADB. Once the reports are received by the PCU, these will be reviewed relative to subproject compliance with the indicators defined in the EMP. The PCU will submit the quarterly reports to the Department of Water Supply and Sanitation of MPWT and other national agencies (MoNRE, MOF, MOPC, etc.), and to ADB. The PCU will also prepare the quarterly Project Progress Reports including the main points of environmental monitoring and Semi-annual Integrated Safeguards Monitoring Reports in English to be submitted to ADB.

74. **Operational Phase.** The EMP monitoring during the operational phase will be undertaken by the PNP. Semi-annual reports will be submitted by the PIU to the PCU. The PCU will review the report and check the project's adherence to the EMP and then submit the Semi-annual Integrated Safeguards Monitoring Reports to ADB until the Project Completion Report (PCR) is prepared. The monitoring parameters during the operational phase, as outlined in the EMP, include monitoring of water quality at the inlet of the WTP and of treated water. Table 4 shows the Matrix for reporting of the Water Quality Monitoring Results.

Table 4: Matrix for Reporting of the Water Quality Monitoring Results

Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

_____

WATER MONITORING RESULTS

Province: _____
No: _____ /WS.LNT
District: _____
Date: _____
Water Supply and Transport Division
Time: _____
Water Supply of State Enterprise

NO	POINT TEST	VILLAGE	HOME NO	HOUSE TYPE	TURBIDITY 5NTU	CHORINE CL_2 MG/L	PH	SMELL	COLOR 5TCU	PASS	FAIL	NOTATION

_____ _____
Date: _____
Director, Water Supply of State Enterprise Chief of Water Treatment Plant
Researcher: _____

CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

75. As required by the SPS 2009 and the Lao PDR EPL, 1999 as amended in 2013, meaningful public consultations need to be undertaken during the preparation of the environmental safeguards documents (IEEs and EMPs), after finalization of the said environmental safeguards documents (IEEs and EMPs) and before the commencement of any civil works.

A. Public Consultations and Disclosure During Sub-Project Preparation

76. Public Consultations will be conducted with the stakeholders in the identified affected communities at least once during the preparation of the Initial Environmental Examination (IEE). After the IEE has been submitted to DoNRE, another Public Consultation may be required by DoNRE to be undertaken again with the stakeholders in the identified affected communities. After the IEE has been approved by ADB and the requisite Environmental Compliance Certificate (ECC) has been issued by DoNRE, another Public Consultation will be conducted with the stakeholders in the identified affected communities.

77. During IEE, meetings with stakeholders from the target villages for the subproject will take place to inform them of the proposed subproject and the possible environmental and social impacts, and to collect opinions from people who may be affected by the project. At this stage, the following agenda should be used to ensure that there is adequate exchange of information and opinion:

l) A summary of the proposed works under the subproject;
m) A summary of subproject objectives and likely positive and negative environmental, public health impacts, covering the construction and operational phases;
n) Invitation for feedback in respect of any areas of concern that the public may have, and suggested means of implementation;
o) Identification of suitable sites for project facilities, accounting for flood risk and potential presence of important habitats;
p) Disclosure of and feedback on the Grievance Redress Mechanism;
q) Acceptability of the proposed works to the public; and
r) Request for information on the known occurrence of unexploded ordinance in the area where the scheme components will be built.

78. For the consultations, the dates, attendees, topics covered, and conclusions should be recorded and included with the IEE or FS report. These are to take the form of meetings, at which the findings of the IEE or FS will be presented in addition to key background information. Comments are recorded and the IEE or FS updated accordingly.

79. Once the IEE is completed, a summary should be prepared in the Lao PDR. The IEE and Lao language summary should be distributed to the district authorities for their information and for display to the public for a period of thirty days.

80. All IEEs, EMPs and Safeguards monitoring reports must be submitted and disclosed on ADB website. The executing agency will send written endorsements to ADB for disclosing these documents on ADB's website. The EA/IA will also provide relevant safeguards information in a

timely manner, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders.

B. Public Consultation During Construction and Operation

81. During construction and operation, the project developer, together with the appointed contractor is obliged to inform affected people and other stakeholders of project activities which are likely to create environmental and social impacts, and to allow them to access general information about the subproject. In addition, should people affected by the project have any grievances, they have the right of lodging complaints through a grievance redress process established for the subproject.

GRIEVANCE REDRESS MECHANISM

82. The Prime Minister Decree No 84 requires the subproject to establish an effective mechanism for grievance resolution. The government's legal requirements for this mechanism are further described in Part VI of the Decree's implementing regulations, and in detail in the Technical Guidelines. The loan covenants stipulate the GRM requirements of the ADB for the project. The mechanism to address any grievances on environmental issues is the same as that designed to address grievances related to land acquisition and compensation. The objective of the grievance redress mechanism is to resolve complaints as quickly as possible at the local level through a process of conciliation, and if that is not possible, to provide clear and transparent procedures for appeal. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedures will be publicized through an effective public information campaign. An aggrieved affected person (AP) or affected household (AH) will be free from any fees in connection with the lodging and resolution of complaints, as the costs will be borne by the Executing Agency and the appointed contractors.

A. Type of Grievances

83. Complainants are entitled to lodge complaints regarding any aspect of the project. Any affected person will be able to submit a grievance if they believe a practice is having a detrimental impact on the community, the environment, or on their quality of life. Eligible grievances or complaints include:

a) Negative impacts on a person or a community (e.g. financial loss such as from loss of water, loss of roadside trees, health and safety issues, nuisances, etc.).
b) Dangers to health and safety or pollution of the environment.
c) Hazards due to construction activities (e.g. noise, dust, disruption of access, etc.)
d) Impacts on social infrastructure.
e) Failure to comply with standards or legal obligations.
f) Improper conduct or unethical behaviour of contractor leading to nuisance of affected person(s).
g) Misuse of funds and other irregularities.
h) Grievances due to land acquisition, resettlement, compensation, relocation and unaddressed losses.
i) Complaints related to gender issues.

B. Grievance Resolution Process

84. Complaints can be made verbally or in written form. It is recognized that in many cases, complainants do not have the writing skills or ability to express their grievances verbally, however, complainants are encouraged to seek assistance from family members or village heads, to have their grievances recorded in writing and to ensure that where disputes do occur, and all the details have been recorded accurately enabling all parties to be treated fairly. In the case of verbal complaints, a written record of the complaint will be made during the first meeting with the complainant. Complainants who present their complaints within the prescribed procedures will be exempt from all administrative fees incurred. In addition, complainants who lodge complaints and appeals to district courts will be provided with free legal representation.

1. Arbitration Committees

85. The subproject's GRM will rely on the existing village arbitration units that have already been established in the villages. The Village Development Committee (VDC) generally consists of the village chief, deputy chief, village secretary, and village representative of the Lao Women's Union, Lao Front for National Construction, village elders, youth, and village land taxation unit. The VDC is responsible for settling disputes between villagers through conciliation and negotiation. In the absence of these units, the members of the village committee (if formed) or the village leaders will act as grievance officers.

86. Project entry points to the GRM will also be identified and displayed. The contact details of the PIU, GRM Focal Contact Persons and Construction Manager will be prominently displayed in the respective construction areas for the reference of the affected communities/persons. Complaints and grievances can be directly filed, both written and verbal, to the concerned entities. This will provide alternative entry points to the village complaint system.

87. The affected households (AHs) may present their complaints to the concerned local administrative officials and resettlement committees. The complaint can be filed first at the village level and can be elevated to the highest or provincial level if the affected persons (APs) are not satisfied with the decisions made by the VDC at village level.

88. At the district and provincial levels, the district and provincial steering committees of the project will act on grievances or complaints that have not been resolved at the VDC. The District Project Steering Committee (DPSC) are composed of the Vice District Governor, Director of the DPWT, and representatives of the District Natural Resources and Environment Office, health office, police office, education office, Lao Women's Union, Lao Front for National Construction, and youth office. A representative of the PIU of the subproject is a member of the district project steering committee.

89. The Provincial Project Steering Committee (PPSC) is headed by the Vice Provincial Governor and is composed of representatives of provincial departments such as the DPWT, DONRE, health department, police department, and education department, Lao Women's Union, Lao Front for National Construction, and provincial youth department. The representatives of the PIU and the PNP are members of the Provincial Project Steering Committee.

2. Grievance Redress Procedures

90. All complaints and resolutions will be properly documented by the concerned committee and be available for public review and for monitoring purposes. As a general policy, the PNP and

PIU will work proactively toward preventing grievances through the implementation of impact mitigation measures and community liaison activities that anticipate and address potential issues before they become grievances. Nonetheless, during construction and operation it is possible that unanticipated impacts may occur if the mitigation measures are not properly implemented, or unforeseen issues occur. The procedures for the grievance resolution process are detailed in Table 5.

Table 5: Grievance Redress Procedures

NO.	STAGES
1	• **Stage 1 (Village – Subproject Area).** In the first instance, complainants will raise complaints or grievances to the Village Development Committee or other designated village grievance officers. The committee will organize a meeting with the complainants to resolve the issue using its traditional methods of conciliation and negotiation. The meeting will be held in a public place and will be open to other members of the community to ensure transparency. The VDC aims at clarifications and amicable solution with the complainant. This mediation aims at a village internal immediate solution agreed with the subproject. If the complaint cannot be solved at this stage, the next step will apply.
2	• **Stage 2 (District Implementing Level).** If within 5 days of lodging the complaint and no understanding or amicable solution can be reached or no response is received from the Village Development Committee, the complainant can bring the complaint to the District Project Steering Committee (DPSC). The DPSC will meet with the complainant to discuss the complaint and provide a decision within 10 days of receiving the appeal.
3	• **Stage 3 (Provincial Implementing Level).** If the complainant is not satisfied with the decision of the DPSC or in the absence of any response, the complainant can appeal to the Provincial Project Steering Committee (PPSC) with contribution of authorities and village representative/s. The PPSC will meet the complainant to clarify the complaint and will inform the complainant about its decision aiming to solve the complaint. The PPSC will provide a decision on the complaint within 10 days.
4	• **Stage 4 (Ministerial Project Executive Level).** If the AP is still not satisfied with the decision of the PPSC, or in the absence of any response within the stipulated time, the complainant can submit his/her grievance to Department of Water Supply and Sanitation (DWSS). The DWSS acting on behalf of the MPWT will verify with the PPSC and DPSC. DWSS might consider an independent external opinion in this matter. The DWSS will render a decision within 10 days of receiving the complaint. Before the next stage is applied additional efforts should be made to find an agreement with the AP.
5	• **Stage 5 (Country Level).** As a last resort, the complainant may submit his/her case to the Court of Law. The complaint will be lodged with the Court of Law. The Court will take note and register the case and will provide the final juristic decision. The DWSS will be responsible for forwarding the complaint and ensuring its process in the courts.

91. Normally complaints related to construction and environmental issues are resolved at the VDC level wherein the conciliation and negotiation are promptly attended to by the PIU and contractors. Complaints related to resettlement and land disputes are normally elevated to the district and provincial levels, and at times to the Court. At each stage of the grievance redress process, written records will be maintained. The VDC will submit reports to the DPSC documenting: (i) complaints received; (ii) names and other pertinent information about complainants; (iii) dates of the original complaint, meetings and any other actions; and (iv) outcomes and/or resolution. The DPSC, PPSC, and DWSS will each maintain similar records for appeals that are submitted to them. The records of grievances will be included in regular progress reporting on the subproject.

92. If efforts to resolve complaints or disputes remain unresolved and unsatisfactory following the government GRM, the affected persons/households have the right to send their concerns or problems directly to ADB's Operations Department, i.e., Urban and Water Division, Southeast Asia Department (SERD) or through ADB Lao PDR Resident Mission. If the AP is still not satisfied with the responses of SERD, he/she can directly contact the ADB's Office of the Special Project Facilitator (OSPF) as outlined in the "Information Guide to the Consultation Phase of the ADB Accountability Mechanism". The Information Guide can be downloaded through this link: https://www.adb.org/documents/information-guide-consultation-phase-adb-accountability-mechanism. Those who want to make a complaint with the ADB can refer to the sample letter of complaint adapted from the Information Guide as shown in Figure 1.

Figure 2: Sample Complaint Letter

Date:

Office of the Special Project Facilitator
Asian Development Bank
6 ADB Avenue, 1550 Mandaluyong City
Metro Manila, Philippines

Tel: (+632) 632-4825
Fax: (+632) 636-2490
Email: spf@adb.org

Dear Special Project Facilitator,

We, _____ *[(name of your group) or name of representative authorized by your group]*, whose names and addresses are attached, live in _____ *[location and country]*.

We hereby present this complaint to the Special Project Facilitator. *[If the complaint is filed through a representative, please provide the names of the project-affected people with their addresses and evidence of authority to represent them.]*

1. We are currently experiencing problems due to an ADB-assisted project *[specify name and description of project, and specify the site and country where it is located].*
2. The direct harm we experience is/are the following: *[describe the problem].*
3. We seek the following outcomes and remedies through the help of the Special Project Facilitator: *[describe what you would like to happen, how the harm or problem can be resolved].*
4. We have previously made efforts to address our problem with the EA/IA and ADB Operations Department concerned in the following manner: *[list and attach correspondence, details of meetings, emails, and other communications].*
5. We do not request that our identities be kept confidential
   [or]
   We request that our identities be kept confidential for the following reason: *[state reason].*
6. You can contact us at: *[specify directions how to set a meeting with you and/or your authorized representative].*

_____

Signatures:
Names:
Addresses:
Other contact information:
Tel:
Fax:
Email:
Attachments: *[complete list of complainants and addresses; representative's letter of authorization, if any]*

Some matters not eligible for complaints/requests

- Allegations of fraud and corruption
- Procurement of goods, services, and consulting services
- Projects with a project completion report
- ADB personnel matters

93. Semi-annual safeguard monitoring reports will include the following aspects pertaining to progress on grievances: (a) number of cases registered with the Grievance Redress Committee (GRC), level of jurisdiction (first, second, and third tiers), number of hearings held, decisions made, and the status of pending cases; and (b) lists of cases in process and already decided upon may be prepared with details such as name, ID with unique serial number, date of notice, date of application, date of hearing, decisions, remarks, actions taken to resolve issues, and status of grievance (i.e. open, closed, pending).

CAPACITY BUILDING PLAN (CBP)

94. The consultant will provide support to PCU and PIU focal person during the preparation of IEE and EMP. The PCU and PIU's environmental focal person will participate in the preparation of REA, public consultations and meetings with DoNRE during the presentation of the IEE to the local authorities. The environmental specialists of the consultant will continue providing support to the PCU, PIU and the PIA consultant's construction supervisor in implementation and monitoring of the EMP. The PIA consultant will provide orientation training on EMP implementation and reporting to PIU and contractor. The construction supervisor will support the contractor in preparation of monthly and quarterly progress reports.

STAFFING REQUIREMENTS AND BUDGET

95. An International Environment Specialist will be required to provide intermittent support in IEE preparation and monitoring support over 10 years, supported by a National Environment Expert who will provide direct support to Provincial Implementation Units (PIUs) in IEE preparation monitoring and reporting. These specialists will be required for 17 months and 26 months respectively. Table 6 below provides the cost estimate and budget for the environmental safeguards expertise required for the project.

Table 6: Cost Estimate and Budget for Environmental Safeguards Expertise

ITEM	UNIT COST (US$)	QUANTITY	TOTAL COST (US$)
Key Staff			
• International Environment Specialist	20,000	17	340,000
• National Environment Specialist	3,300	26	85,800
• Construction Supervisors: 5% of time	500,000		25,000
• PCU Deputy Manager	Position filled by the government staff member		
• PIU Water Supply / Sanitation Engineer 10% of time	100,000		10,000
•			
Air Travel and Per Diem			
• International Air Travel	2,500	10	25,000
• Domestic Air Travel	220	10	2,200
• Per Diem: International Specialist	90	500	45,000
• Per Diem: National Specialist in provinces	40	150	6,000
•			
Supplies and Communications			
• Office support costs	Lump Sum		4,000
• Office Consumables	Lump Sum		2,000
• Report printing and copying	Lump Sum		2,000
• Communications (month)	Lump Sum		1,000
Total			547,000

TERMS OF REFERENCE FOR THE ENVIRONMENT SPECIALISTS

96. The Environment Consultants should have a masters' degree in environmental engineering or related discipline or equivalent and at least 10 years' experience in environmental management and impact assessments, preferably with project experience on donor-funded projects. The consultants should primarily ensure that the various subprojects conform to ADB's Safeguard Policy Statement 2009 particularly to the environmental aspects. The consultant should also assess compliance with applicable national environment laws and update environmental safeguard documents as may be necessary.

97. The Environment Consultants will assist the Team Leader and Feasibility Study Specialist to prepare environmental assessments for the feasibility studies of the identified subprojects and provide capacity development in environmental assessment and monitoring to PCU and PIU staff. The International Environmental Specialist will work closely with the National Environmental Expert.

98. The International Environment Specialist will have the following specific tasks:

a) Provide orientation to PCU and PIU staff in environmental assessment and management. The capacity development should cover purposes, methods of assessment, reporting requirements, grievance redress procedure, public consultation process, effective EMP preparation, inclusion of EMP into works contracts, and compliance monitoring during supervision. Further, the capacity development should be based on the Environmental Assessment and Review Framework (EARF) for the Project.
b) Prepare/accomplish/update ADB's rapid environmental assessment (REA) checklist/s for the identified subprojects.
c) Prepare the required environmental assessment report for the sub-projects identifying direct, indirect, cumulative and induced impacts of the project including the relevant climate and/or climate-induced impacts in accordance with the EARF.
d) Provide advice and support to the National Environment Expert and staff of PCU and PIU for the preparation of IEEs, providing guidance on site in the subproject towns.
e) Provide design inputs to technical specialists on environmentally sustainable good practices on design of sludge management, waste water systems and sanitation strategies to ensure upstream "avoidance" of environment impacts.
f) Provide inputs on capacity awareness programs
g) Assist in the conduct of the information campaigns and public consultation.
h) Incorporate EMP requirements in the civil construction contract documents.
i) Assist PCU and PIUs to design and implement environmental monitoring programs;
j) Assist PCU to prepare standard reporting formats for environmental monitoring reports in accordance with the EARF.
k) Assist PCU and PIUs to undertake consultations with local communities on environmental issues to ensure that their needs and concerns are incorporated in subproject design and implementation.
l) Provide inputs to feasibility studies, progress reports and project completion report.

m) Ensure that the IEEs/EMPs meet the requirements of the Government and ADB's Safeguard Policy Statement 2009 and carry out or arrange for any further tasks such as site investigations, design of mitigation measures or additional reporting.
n) Visit subproject towns during construction and provide guidance relating to supervision and compliance monitoring, advising PIUs of any actions required to ensure compliance with the EMP.
o) Periodically review monitoring reports and identify any adaptations or improvements necessary to ensure that the EMP is being properly implemented.
p) Guide the National Environmental Expert on all the above aspects

99. The National Environment Specialist will have the following specific tasks:

a) Assist the International Environment Specialist, in designing and carrying out orientation to PCU and PIU staff in environmental assessment and management, including the preparation of material and instruction in the Lao language.
b) Visit each subproject town and provide assistance on IEE/EMP report preparation, in accordance with the EARF for the Project.
c) Participate in the design development of the ECA and VEI to ensure that adequate environmental consideration is incorporated into the designs.
d) Coordinate with the resettlement specialist to ensure that environment management plans are prepared for relocation sites in-case there is large resettlement and specific sites need to be planned for the same.
e) Assist with preparation and review of IEEs/EMPs, and co-ordinate with PIUs for any further investigations ore reporting that may be necessary.
f) Provide inputs to feasibility studies, progress reports and project completion report.
g) Visit subproject towns during construction and provide guidance relating to supervision and compliance monitoring, advising PIUs of any actions required to ensure compliance with the EMP.
h) Visit subproject towns where construction has been completed and assist with establishing environmental monitoring procedures for the operation phase of the subprojects.
i) Assist the EAs or LAs and IAs or PCU/PIUs in securing environmental clearance certificates for each project component as required by the Lao PDR Government. Prepare and document necessary information to comply with such government guidelines. and
j) Train contractors on implementation of EMP, reporting and monitoring.

APPENDIX

APPENDIX A
RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST FOR WATER SUPPLY PROJECTS

RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

Instructions:

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

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

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

Country/Project Title: _____

Sector Division: _____

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area…			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected Area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
B. Potential Environmental Impacts Will the Project cause…			
▪ pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ hazard of land subsidence caused by excessive ground water pumping?			
▪ social conflicts arising from displacement of communities?			
▪ conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?			
▪ unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?			
▪ delivery of unsafe water to distribution system?			

Screening Questions	Yes	No	Remarks
▪ inadequate protection of intake works or wells, leading to pollution of water supply?			
▪ over pumping of ground water, leading to salinization and ground subsidence?			
▪ excessive algal growth in storage reservoir?			
▪ increase in production of sewage beyond capabilities of community facilities?			
▪ inadequate disposal of sludge from water treatment plants?			
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?			
▪ impairments associated with transmission lines and access roads?			
▪ health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals?			
▪ health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ noise and dust from construction activities?			
▪ increased road traffic due to interference of construction activities?			
▪ continuing soil erosion/silt runoff from construction operations?			
▪ delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?			
▪ delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?			
▪ accidental leakage of chlorine gas?			
▪ excessive abstraction of water affecting downstream water users?			
▪ competing uses of water?			
▪ increased sewage flow due to increased water supply?			
▪ increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant?			
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?			
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector:

Subsector:

Division/Department:

Screening Questions		Score	Remarks[7]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

Other Comments: _____
_____

Prepared by: _____

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

APPENDIX B
CHECKLIST FOR PROJECT ENVIRONMENTAL SAFEGUARDS MONITORING

1. INTRODUCTION AND PROJECT OVERVIEW

PROJECT NUMBER AND TITLE:	•

REPORTING PERIOD:	• This section can include, among others, the following:
	  • Activities of Proponent
	  • Progress of Work (% physical completion)
	  • Changes of Surrounding Environment
	  • Status of Permits

MONITORING PERIOD COVERED	•
KEY SUB-PROJECT ACTIVITIES IMPLEMENTED SINCE LAST REPORT:	•
REPORT PREPARED BY:	•

2. ENVIRONMENTAL PERFORMANCE MONITORING

A. STATUS OF COMPLIANCE WITH EMP REQUIREMENTS (ENVIRONMENTAL PERFORMANCE)

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
I. PRE-CONSTRUCTION PHASE			
• Impact on land acquisition and community assets • • Loss of community assets due to land acquisition and damage to properties. •	• Implement the land acquisition and compensation plan that was approved by the ADB for the subproject. • • Design access roads to minimum necessary width and installation of pipelines within the Right-of-Way when feasible.	External LACP monitoring report	
• Impact of location of raw water intake on other water users • • Downstream river uses such as irrigation, bathing, washing, and fishing will be affected if excessive water abstraction will occur.	• The abstraction rate for the water supply subproject will be limited to the xxxx m^3/day capacity of the WTP. There is minimal conflict with other water users of xxxxx River because there is still enough water in the river that will meet other river uses at the downstream. •	River level assessments at the intake on a monthly basis	
• Impact to Natural resources and protected areas	• Cutting of trees will be undertaken as per approved design and only upon approval.	N/A	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
• • Impact on natural resources and protected areas from cutting/clearing of trees and other vegetation.	Avoid cutting of trees as much as possible and minimize damage to native vegetation. Trees that need to be cut in private land will be compensated in cash in accordance with the approved Land Acquisition and Compensation Plan		
• Impact on Historical and Archaeological Sites • • Damage to relics and artifacts during the conduct of the works. •	• The Contractor will ensure that the workforce is briefed that in the event of accidental finds relics they should immediately cease any works in the area and promptly report the find to their supervisor.	Accidental finds	
II. CONSTRUCTION PHASE			
• Temporary disruption of existing community roads, pathways, and accesses • • Pipe laying will cause temporary disruption of community services and access to properties. • • Particularly at pipe road crossings, construction activities along narrow roads may lead to temporary blockage or closure of roads and hamper movement of vehicles and people in the community. • • Community access to areas in the vicinity of the WTP, pump station, reservoir, and intake will be affected.	• Walking access will be maintained to affected properties and access routes will be temporarily lined with timber or similar material. Attention will be given to ensuring safety along roads and paths used by pedestrians. • • Side street parking of construction vehicles on prolonged basis will not be allowed. • • Install barriers and safety warning signs on road sections and if necessary deploy traffic aides/ flag persons at affected locations. Information boards at blocked roads will provide information about the temporary closure of roads, schedule of works and the traffic-rerouting plan. • • Require the contractor to immediately rehabilitate the excavated areas and any damaged road and path sections. • • Enclose the WTP; pump station, reservoir, and intake perimeters so that pathway use, and stream access remains unimpeded.	Contract documents to include the EMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
• Community access to areas in the vicinity of schools, temples, village offices, market places and meeting halls will be affected during construction of public latrines. •	• Enclose the latrine construction site to prevent access and limit disruption for the use of the schools and public buildings.		
• Air pollution • • Dust and air emissions from earthworks and movement of vehicles can pose nuisance to nearby communities	• Require the contractor to cover materials with tarpaulin or other suitable materials while in transit to avoid spillage of materials. • • Moisten earthen roads during dry and dusty conditions, particularly roads near residences and through the town core area. • • Impose speed limits on construction vehicles. • • Conduct regular maintenance on construction equipment and vehicles to control air emissions during vehicle operation.	Contract documents to include the EMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	
• Noise • • Operation of construction equipment such as jackhammer will cause excessive noise resulting in nuisance to communities.	• Limit construction activities, particularly operation of noise generating equipment at night. • • Position any stationary equipment that produce high noise levels such as diesel generators as far as practical from sensitive receptors. • • Erect temporary barriers around construction sites especially near schools, hospitals, and houses. • • Install noise suppression devices to noise generating equipment. • • Require drivers to minimize blowing of horn and to comply with speed limits. • • Provide information to community on schedule of	Include EMP in bid documents and contract. Report any complaint received from the community to PIU.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
	construction activities through billboard/signs.		
• Impact of borrow materials • • Quarrying of aggregates on xxxxxx River will cause siltation and affect the ecological condition of the river.	• The contractor will be prohibited from quarrying materials directly from xxxxxxx River. • • Construction materials will be procured from Government-permitted sources / suppliers only.	Include EMP in bid documents and contract. Report any complaint received from the community to PIU.	
• Impact on ecological resources • • Construction workers may undertake hunting of wildlife and cutting of wood upstream of the intake.	• The contractors will prohibit activities such as cutting wood for cooking, hunting, or wildlife trade.	Include EMP in bid documents and contract Report any complaint received from the community to PIU.	
• Clearing of vegetation • • Poor planning and execution of tree clearing/vegetation removal at project facilities and along pipeline alignments can result in loss of vegetation and general landscape •	• Cutting of trees will be undertaken as per approved design and only upon approval of relevant authorities. Avoid cutting of trees as much as possible and minimize damage to native vegetation. Trees that need to be cut in private land will be compensated in cash accordance with the approved Land Acquisition and Compensation Plan. • • Roads and paths to the intake, WTP, and reservoir will only be sufficiently wide to accommodate construction vehicles/equipment to minimize land take. • • Manual labor will be utilized in sloping terrain where use of heavy equipment would cause unnecessary damage. Steep exposed slopes will be graded and covered with bush and grass to minimize erosion. • • Implement landscaping and planting of trees/vegetation at sites of the proposed facilities.	Include EMP in bid documents and contract Report any complaint received from the community to PIU.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
• Water pollution - Sediment runoff • • Sediment runoff undertaken during excavation, earthworks and grading in the rainy season will cause siltation of rivers	• Construct silt traps, deviation channels, mounting barriers or trenches around the stockpiles of materials.	Include EMP in bid documents and contract Report any complaint received from the community PIU.	
• Water Pollution - Worker's camp • • Domestic wastewater from worker's camp would result to the discharge of sewage into drainage canals. • • Unsanitary conditions at the worker's camp will occur without the provision of necessary sanitation arrangements.	• Provide adequate water supply and temporary toilet facilities at the worker's camp. •	Include EMP in bid documents and contract Report any complaint received from the community to PIU.	
• Water pollution - Generation of residual chlorine during pipeline and reservoir disinfection • • Prior to commissioning, disinfection will be undertaken on the pipeline and reservoir. • • Discharge of residual chlorine above the allowable limits is toxic to fish and other aquatic life.	• Follow the recommended dosage of chlorine during the disinfection of pipes and reservoir. Discharge of water with high chlorine concentration to soil at the end of pipelines to be controlled to minimize soil erosion. • • Use chlorine test kit and use 10x15x dilution with distilled water or use high range chlorine test kit with high range tablets to detect chlorine residual before flushing.	Include EMP in bid documents and contract	
• Generation of construction waste - Generation of excavated soil	• During pipe laying, excavated material will be utilized to backfill the trench. The contractor will be required to properly reinstate	Include EMP in bid documents and contract	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
• • Generation of excavated materials during pipe laying and foundation works for WTP, tanks and reservoirs.	the excavated trench after completion of pipe laying. • • Surplus excavated material/cut soil from construction of the WTP and reservoir will be used as backfill material for low-lying areas that have been identified by the village authority.	Report any complaint received from the community to PIU.	
• Generation of construction wastes – Solid, Inert and Hazardous Wastes • • Solid wastes, inert construction wastes, and hazardous wastes during construction will result to pollution of land and receiving water bodies.	• Provide appropriate segregation bins or areas for construction wastes. • • Secure and control storage of all hazardous materials including fuels. • • Reuse recyclable construction wastes such as wood, steel, and scaffoldings or sell to junk shops. • • Solid waste to be collected and disposed in approved disposal site of the District.	Include EMP in bid documents and contract Report any complaint received from the community to PIU.	
• Community health and safety • • Community may be exposed to dangers of open excavation	• Install barricades/barriers and sturdy plate covers in open excavations during non-working time. • • Install warning signs in the area.	Include EMP in bid documents and contract Report any complaint received from the community to PIU.	
• Occupational health and safety • • Construction activities may pose hazards to workers because of the use of heavy equipment, lifting of heavy loads, and exposure to open excavations and chemicals. • • Potential conflict with local people will occur if migrant workers will be brought to the site.	• Require the contractor to implement the construction health and safety plan in accordance with the World Bank EHS Guidelines (http://www.ifc.org/ehsguidelines) as a minimum standard. The contractor will appoint an environment, health and safety officer to ensure implementation of the plan. The plan will at minimum include: • ◦ Provision of first-aid facilities readily accessible by workers. ◦ Provision of personal protective equipment (PPEs) such as hard hats, gloves, rubber boots, etc., ◦ Wearing of PPEs while working onsite will be a mandatory requirement for workers.	Contract documents to include the EMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
	• Posting of safety signs/reminders in strategic areas within the construction area. • Installation of sufficient lighting at night. • Employ only trained personnel in handling chlorine during the line disinfection process. • Ensure that vehicle and equipment operators are properly licensed and trained. • Provide staff with communicable disease and HIV-related awareness training. • • The contractor will be required to provide priority hiring of qualified construction workers from the villages and to consult with the local to avoid conflict if migrant workers will be brought to the site.		
III. OPERATION PHASE			
• Generation of incremental wastewater and increased burden on drainage systems • • • Increased water supply to public buildings and households will generate additional quantities of wastewater.	• As project policy, water connection will be provided only if the household has an approved sanitation facility to cope with the increased wastewater generated. This policy and the public awareness raising initiatives was presented to the villages under the Village Environmental Improvements (VEI) component. • • The public institution shall sign a service and management agreement before construction and have sufficient funds to maintain the facility.	Monitor the number of households with latrines and with water connections, population served and billed water volume. Monitor that the service and management agreements are followed, and facilities are properly maintained.	
• Deterioration of water quality • • Potential deterioration in quality of raw water supply and of treated water • • • • Potential risk on public health in deterioration of treated water	• Monitor community activities in the catchment area to check activities at the upstream that may cause contamination of raw water quality. • • Provide laboratory test equipment and training to allow the PNP to conduct regular monitoring of raw and treated water quality parameters. • • Follow O&M standard operating procedures in accordance with	Monitor the following parameters: Daily at the inlet to the treatment plant: turbidity, pH Daily after the reservoir: pH, turbidity, residual chlorine, temperature Weekly at several locations in the network: residual	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
quality due to use of poor quality treatment chemicals •	the water treatment plant manuals. • • Use of potable grade chemicals, especially PAC, and request a Supplier product specification data sheet signed off by a reputable external laboratory.	chlorine, pH, turbidity Annually after Clearwater tank: chloride (Cl), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), sodium (Na), sulfate ion, zinc (Zn), conductivity, total hardness as CaCO3	
• High Pressure and Leaks on the Pipeline • • The proposed distribution network will have sections located at low elevations which may experience high water pressure which may potentially result in leakages in the line and ultimately water loss	• This risk will be minimized by: (i) the use of durable standard pipes for the main and secondary (rider mains) lines, (ii) use of pressure reducing valves for the rider mains, (iii) careful construction supervision by the Project Implementation Assistance Consultants PIA to ensure that pipe laying and jointing is done to the highest standard by the contractor, and (v) regular inspection of the network and prompt isolation and repair when leaks occur.	Daily visual monitoring of pipelines.	
• Disposal of backwash water and sediments from WTP • • Backwash water and sludge from the sedimentation tanks will be generated from the cleaning of filters and tanks. Backwash water and sludge contain high total suspended solids.	• Filter backwash water and periodic discharges from the sedimentation tanks will be collected to a detention pond to separate the concentrated waste sludge or sediments. Land application of wastes with high dissolved solids concentrations from the detention pond is preferred over discharge to a landfill.	Check condition of detention ponds; report frequency/schedule of backwashing	
• Occupational health and safety • • • • Potential hazards to WTP workers	• Provide secure, dry and well-ventilated storage facilities for chlorine and other hazardous chemicals. • • Use chlorine compounds in power form, which is safer than gas.	Training undertaken for staff on chemicals handling and monitoring and reporting of incidents	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE
due to accidental release of chlorine	• • Training of staff and allocation of responsibility to ensure that materials are properly handled.		
• Generation of Sludge from Detention Ponds • • • Increased volume of sludge in detention ponds.	• The sludge that will be generated from the detention ponds will be dredged and disposed as backfill material in low-lying areas to be identified by the village leaders. No land application of the generated sludge without the required approval by the village authorities.	Quarterly check on the volume of sludge in the detention ponds.	
• Community health and safety • • Potential hazards to residents in affected communities.	• Facilities (Intake, WTP and Laboratory, Office and Reservoir) properly fenced and secured and watchmen/security personnel to be employed on a 24-hour basis.	Daily log of security personnel	

Summary of EMP Compliance Status: _____

_____

B. RESULTS OF ENVIRONMENTAL MONITORING

- PNP operational report
- Complaints resolution
- EMP implementation
- Water quality
- River level
- Backwashing activities
- Training/capacity building

C. ISSUES FOR FURTHER ACTION

ISSUE	REQUIRED ACTION	RESPONSIBILITY AND TIMING	RESOLUTION
OLD ISSUES FROM PREVIOUS REPORTS			
List of EMP measures or activities not completed (last column of previous table)			
NEW ISSUES FROM THIS REPORT			

3. CONCLUSION

- Important results from the implementation of EMP monitoring
- Recommendations to improve EMP management, implementation, and monitoring

4. ATTACHMENTS

- Permits
- Monitoring data (water quality, etc.)
- Photographs
- Maps

APPENDIX C
SEMI-ANNUAL INTEGRATED SAFEGUARDS MONITORING REPORT TEMPLATE

Safeguards Monitoring Report

Semi-annual Report
xxx {month} 20xx

Lao PDR: xxx {Project name}, xxx {sub-project name, if report covers only one sub-project}

Prepared by the Project Management Unit of {complete name of Implementing Agency} for the {complete name of the borrower} and the Asian Development Bank.

NOTE

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

This safeguards monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

1. EXECUTIVE SUMMARY

1. {Read and delete: Provide short summary of the following items:
2.

- Summary of EMP/RP Implementation
- **Description of monitoring activities** carried out (e.g. field visits, environment effect monitoring, survey questionnaire, public consultation meetings, focus group discussions, etc.)
- Key issues, any corrective actions already taken, and any grievances
- Key activities planned in the next reporting period
- Recommendations

Use the paragraph numbering format provided below throughout the report}

2. xxx

3. xxx

2. PROJECT OVERVIEW, GENERAL SAFEGUARD MATTERS

2.1 PROJECT OVERVIEW

{Read and delete: Briefly describe project objectives, scope and components – can be taken from PAM or other relevant document}

4. xxx

5. xxx

2.2 PROJECT PROGRESS

{Read and delete: Using most recent project progress report, describe status of project implementation, including full list of contracts, status of contract awarding and implementation, name of contractor, Engineer, Project Supervision Consultant.}

6. xxx

7. xxx

Table 1: Project Overview, Snapshot of Project Progress

Project Number and Title:		
Safeguards Category	Environment	
	Indigenous Peoples	
	Involuntary Resettlement	
Reporting period:		

Last report date:	
Key sub-project activities since last report:	{Read and delete: This section should include, among others, the following:} • Contract awarding • Progress of Work (% physical completion) • Status of Safeguard Approvals / Permits / Consents
Report prepared by:	

2.3 SAFEGUARD PLANS IMPLEMENTATION ARRANGEMENTS

{Read and delete: Describe institutional arrangements and responsibilities for EMP and RP implementation, internal and external monitoring, and reporting, defining roles of PMU, Engineer, Implementation Consultant, Contractors. (Table format as needed)}

8. xxx

9. xxx

2.4 UPDATED EMPS AND RPS, INCORPORATION OF SAFEGUARDS REQUIREMENTS INTO PROJECT CONTRACTUAL ARRANGEMENTS

{Read and delete: Define manner by which EMP and RP requirements are incorporated into bidding documents, contracts.
Indicate when updated EMPs and RPs were submitted for approval to ADB (Table format appropriate).}

10. xxx

11. xxx

3. ENVIRONMENTAL PERFORMANCE MONITORING

3.1 STATUS OF EMP IMPLEMENTATION (MITIGATION MEASURES)

{Read and delete: Summarize main mitigation/protection measures implemented in the reporting period (narrative section). Structure in accordance to phases (detailed design, construction preparation, construction, and operation).}

12. xxx

13. xxx

{Read and delete: Include EMP table or updated EMP table if applicable. Assess compliance of environmental management activities with the original or updated EMP. For that purpose, include additional columns entitled “Compliance Status”, "Comment or Reasons for Non-Compliance", and "Issues for Further Action". Example is provided below.}

Table 2: Compliance with EMP Requirements (Environmental Performance)

EMP Requirements	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
Use environmental impact as main heading and EMP as listing (see example below)	Use EMP list as basis for rating/evaluating compliance (see example below)		
Rise of employment opportunities: • Job openings of the project should give priority to local communities. • Recruitment of local laborers should be stipulated in the contract for construction	• Field inspections and interviews with communities - DONE • Note each complaint case in the field – 3 COMPLAINTS RECEIVED • Set up grievance centre and report as part of monitoring action plan – NOT DONE		

Table 3: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
List of EMP measures or activities not completed (last column of previous table)			
New Issues from This Report			

3.2 HEALTH AND SAFETY

{Read and delete: Provide narrative of occupational and community health and safety issues that occurred during the reporting period. Any accident involving injury or death of workers or community members must be reported. Include investigation report of DOLISA as attachment to the report. Provide details in the Table below}.

14. xxx

15. xxx

Table 4: Health and Safety Issues

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
New Issues from This Report			

3.3 ENVIRONMENT EFFECT MONITORING

16. **Monitoring plan.** xxx {Read and delete: Present the environment effect monitoring plan as defined in the EMP or the updated monitoring plan. Refer to Table 4. Describe monitoring responsibilities}

17. **Monitoring activities in the reporting period.** Xxx {Read and delete: Describe the environment effect monitoring activities in the reporting period, including number of monitoring campaigns, number of samples, etc. Confirm compliance with the monitoring plan, or justify any deviation from the plan}

Table 4: Environment Effect Monitoring Results in the Reporting Period
{Read and delete: Present monitoring result in a Table (see example below, adjust as needed). Any non-compliance should be highlighted for attention and follow-up.}

Location	Parameter	Date	Monitoring value	Relevant government standard, standard value

18. **Assessment.** Xxx {Read and delete: Compare monitoring results with baseline conditions (if baseline data is available) and relevant government standards in qualitative terms. Additional explanatory comments should be provided as necessary. Possible reasons for non-compliance should be identified.}

4. INVOLUNTARY RESETTLEMENT PERFORMANCE MONITORING

{Read and delete: Provide narrative of status of implementation of the RP(s), including but not limited to: status of RP or Resettlement Framework updating; number of households relocated during the reporting period; outstanding resettlement activities; etc}.

19. xxx

20. xxx

Table 6: Summary of Compliance with RP Requirements

RP Requirements	Compliance status Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action[8]
Establishment of personnel in PMU/PIU			
Public consultation and socialization process		Provide information on: • Public consultation, participation activities carried out • Inclusive dates of these activities To be elaborated on in Item 5	
Land area to be acquired is identified and finalized			
Resettlement plan(s) updated after detailed design			
Land acquisition completed			
Establishment of Resettlement Site(s)		Please state: • Number of AHs to be relocated as per agreed RP • Number of AHs already relocated • Number of houses built • Status of installation of community facilities to be provided as per agreed RP	
Compensation payments for affected assets is completed		Please state: • Total Number of Eligible AHs and APs (as per agreed RP) • Number of AHs and APs compensated as of this monitoring period	

[8] *To be elaborated further in table 3.b (Issues for Further Action)*

		• Total Budget allocation as per agreed RP • Total budget disbursed to AHs as of this monitoring period	
Transport assistance for relocating affected households		As above	
Additional assistance to vulnerable affected household		Please state: • Total Number of vulnerable AHs and APs (as per agreed RP) • Agreed forms of assistance as per RP • Number of AHs and APs assisted as of this monitoring period	
Income Restoration Program		Please state progress per income restoration feature/activity and actual period of implementation	
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)		Please state: • Total Number of AHs affected by temporary impacts as per agreed RP • Actual Number of AHs and total area affected by temporary impacts (if this differs from the projected number, such as in cases of unforeseen project impacts) • Status of restoring affected property	
Capacity building activities			

Table 7: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
List of RP activities not completed (last column of previous table)			
New Issues from This Report			

5. COMPLIANCE WITH SAFEGUARDS RELATED PROJECT COVENANTS

{Read and delete: List all environment and resettlement related loan covenants, and assess project's compliance with the covenants (Table format is appropriate, with concluding statement on compliance, partial compliance or non-compliance, and corrective actions as needed)

Schedule	Para No.	Covenant	Remarks/Issues (Status of Compliance)
Schedule 5	xxx		Complied with / Partially complied with / Not complied with. {Identify reason for partial or non-compliance}

6. PUBLIC CONSULTATION, INFORMATION DISCLOSURE, CAPABILITY BUILDING

{Read and delete: Describe public consultation activities during the reporting period. Confirm compliance with consultation plan defined in the IEE/EMP and the RP(s) or justify deviation from these plans. Present planned consultation activities in next reporting period. Use Tables as appropriate.}

- Field Visits (sites visited, dates, persons met)
- Public Consultations and meetings (Date; time; location; agenda; number of participants disaggregated by sex and ethnic group, not including project staff; Issues raised by participants and how these were addressed by the project team)
- Training (Nature of training, number of participants disaggregated by gender and ethnicity, date, location, etc.)
- Press/Media Releases

- Material development/production (e.g., brochure, leaflet, posters)
- Information disclosure

7. GRIEVANCE REDRESS MECHANISM

{Read and delete: Describe mechanisms established to address and redress public complaints and grievances related to social and environment safeguards. Summarize grievances received, if any, and measures implemented to redress them.}

- Number of new grievances, if any, since last monitoring period: ____
- Number of grievances resolved: _____
- Number of outstanding grievances: _____

Type of Grievance	Details (Date, person, address, contact details, etc.)	Required Action, Responsibility and Timing	Resolution
Old Issues from Previous Reports			
New Issues from This Report			

8. CONCLUSION

{Read and delete: Highlight important results from the implementation of EMP and RP monitoring; recommendations to improve EMP and RP management, implementation, and monitoring; key activities planned in next reporting period}.

21. xxx

22. xxx

9. ATTACHMENTS

- Consents / permits
- Monitoring data (water quality, air quality, etc.)
- Inspection checklists
- Photographs
- Others

APPENDIX D
MINISTRY OF PUBLIC HEALTH DRINKING WATER QUALITY STANDARDS (2014)

Appendix D: Ministry of Public Health Drinking Water Quality Standards (2014)

parameter	Unit	permissible limits	exceptions	Monitoring frequency		
				weekly	monthly	yearly
Microbial						
E. Coli	Units / 100 mL	<0	-		✓	
Chemical						
Aluminium (Al)	mg/l	<0.2	There is no exception if aluminum-based coagulants are used		✓	
Arsenic (As)	mg/l	<0.01	There is no exception if source is groundwater			✓
Chloride Cl-	mg/l	<250				✓
Chlorine Cl2 (free residual)	mg/l	0.1 – 2	There is no exception if chlorine is used for disinfection	✓		
Copper (Cu)	mg/l	<2	There is no exception if copper pipe work is used			✓
Cyanide (Cn)	mg/l	<0.5	There is no exception if source is surface water and catchment includes gold mining / processing			✓
Fluoride (F)	mg/l	<1.5	There is no exception if source is groundwater or fluoride is added to water in the treatment process			✓
Iron (Fe)	mg/l	<0.3				✓
Lead (Pb)	mg/l	<0.01				✓
Manganese (Mn)	mg/l	<0.1				✓
Mercury (Hg)	mg/l	<0.006				✓
Nitrate (NO3-)	mg/l	<50		✓		
Nitrite (NO2-)	mg/l	<3		✓		
Sodium (Na)	mg/l	<200				✓

parameter	Unit	permissible limits	exceptions	Monitoring frequency		
				weekly	monthly	yearly
Sulfate ion (SO_4^{2-})	mg/l	<250				✓
Zinc (Zn)	mg/l	<3				✓
Physical						
Colour	TCU	<5		✓		
Taste		Acceptable		✓		
pH		6.5-8.5		✓		
Conductivity	uS/cm	<1000				✓
Turbidity	NTU	<5		✓		
Total hardness as $CaCO_3$	mg/l	<300				✓