

# Environmental Assessment and Review Framework

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**IND: Karnataka Integrated Urban Water  
Management Investment Program (Tranche 2)**

Prepared by Karnataka Urban Infrastructure Development and Finance Corporation, Government of Karnataka for the Asian Development Bank.

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## CURRENCY EQUIVALENTS

(as of 11 May 2018)

Currency unit	–	Indian rupee (₹)
₹1.00	=	\$0.0149
\$1.00	=	₹67.090

## ABBREVIATIONS

ADB	–	Asian Development Bank
CFE	–	consent for establishment
CFO	–	consent for operation
CRZ	–	coastal regulation zone
DLIC	–	District Level Implementation Committee
EAC	–	expert appraisal committee
EARF	–	environmental assessment and review framework
EIA	–	environmental impact assessment
EMP	–	environmental management plan
EMR	–	Environmental Monitoring Report
IEE	–	initial environmental examination
KISWRMIP	–	Karnataka Integrated and Sustainable Water Resource Management Investment Program
KIUWMIP	–	Karnataka Integrated Urban Water Management Investment Program
KSPCB	–	Karnataka State Pollution Control Board
KUIDFC	–	Karnataka Urban Infrastructure Development Finance Corporation
MFF	–	multitranches financing facility
MOEF	–	Ministry of Environment and Forests
NGO	–	nongovernment organization
NMA	–	National Monuments Authority
O&M	–	operation and maintenance
PID	–	project information document
PMDSC	–	Project Management, Design and Construction Supervision Consultant
PMU	–	Program Management Unit
RPMU	–	Regional Project Management Unit
SCMU	–	Safeguards Compliance and Monitoring Unit
SEIAA	–	State Environment Impact Assessment Authority
SPS	–	Safeguard Policy Statement
STP	–	sewage treatment plant
TOR	–	terms of reference
ULB	–	urban local body
UWSS	–	Urban Water Supply and Sanitation
WTP	–	water treatment plant



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## I. INTRODUCTION

### A. Background

1. The Asian Development Bank (ADB) approved the multitranche financing facility (MFF) for the Karnataka Integrated Urban Water Management Investment Program (KIUWMIP) for an aggregate amount not exceeding \$150 million from ADB's ordinary capital resources on 28 March 2014. The investment program supports the Government of India's strategy to provide sustainable urban infrastructure and services by improving access to water supply, sanitation, and other urban infrastructure in the selected cities in the state of Karnataka. KIUWMIP aims to improve water resource management in urban areas in a holistic and sustainable manner. Investment support will be provided to modernize and expand urban water supply and sanitation (UWSS), while strengthening relevant institutions to enhance efficiency, productivity, and sustainability in water use. The Investment Program focuses on priority investments and institutional strengthening in water supply and sanitation within an Integrated Water Resource Management (IWRM) context.

2. The executing agency is the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC) and implementing agencies for the investment program are the respective urban local bodies (ULBs) of the project towns. The first loan under the MFF, Tranche 1 or Loan 3148-IND, amounting to \$75 million, was approved by ADB on 29 July 2014, signed on 30 December 2014 and made effective on 7 May 2015. Project 1, supported by Tranche 1 funds, included subprojects for improvement of water supply and sewerage infrastructure in the project towns of Byadgi, Davangere and Harihar. Project 2 supported by Tranche 2 funds will include water supply and sewerage infrastructure improvement in the towns of Kundapura, Mangalore, Puttur, and Udupi.

3. In accordance with ADB's Safeguard Policy Statement (SPS), 2009, an MFF investment approach requires the preparation of an environmental assessment and review framework (EARF). The EARF for the KIUWMIP was prepared and agreed between the government and ADB during the loan processing for the Project 1 (Tranche 1). This EARF has been updated to reflect the current scope of the overall program and Tranche 2, and also to reflect changes, if any, in policy and regulatory framework.

### B. Purpose of the Environmental Assessment and Review Framework

4. The EARF aims to provide guidance on safeguard screening, assessment, institutional arrangements, and processes to be followed for components of the project, where design takes place after Board approval. The subproject selection will be in accordance with the environmental project selection criteria as outlined in this EARF. The borrower will agree with ADB on screening and categorization, environmental assessment, preparation and implementation, monitoring, and updating existing safeguard plans for the subprojects to facilitate compliance with the requirements specified in ADB SPS, 2009 and government Acts, Rules and Regulations.

5. The purpose of this EARF is to do the following: (i) describe the proposed projects in the MFF; (ii) explain the general anticipated environmental impacts of the projects to be financed under the proposed loan; (iii) specify the requirements that will be followed in relation to project screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements and, where applicable, safeguard criteria that are to be used in selecting projects and/or components; (iv) assess the adequacy of the clients' capacity to implement national laws and ADB's requirements and identify needs for capacity building; (v) specify implementation

procedures, including the budget, institutional arrangements, and capacity development requirements; (vi) specify monitoring and reporting requirements; and (vii) describe the responsibilities of the clients and of ADB in relation to the preparation, implementation, and progress review of safeguard documents of projects. The project selection will be in accordance with the environmental project selection criteria as outlined in this EARF.

6. The mandatory requirements applicable to KIUWMIP require the proposed components to go through environmental assessment at an appropriate level. Hence, considering these issues, and particularly to provide the borrowing ULBs with definite environmental criteria to be met for implementation of KIUWMIP components and sub-components, this EARF has been prepared in accordance with ADB SPS, 2009, Government of India and Government of Karnataka requirements.

7. Above all, this exercise ensures that the KIUWMIP, in its investment program cycle, will not deteriorate or interfere with the environmental sensitivity, but will improve the environmental quality of the program area through development of infrastructure facilities. The details of components and subcomponents financed under the KIUWMIP are given below.

## II. OVERVIEW OF THE TYPE OF SUBPROJECTS TO BE ASSESSED

8. The impact of the proposed investment program is improved sustainable water security in selected river basins in Karnataka. The expected outcome will be improved water resource management in urban areas in selected river basins in Karnataka.

9. The investment program has three outputs:

- (i) **Output 1: Urban water supply and sanitation infrastructure expanded and upgraded.** The investment program will finance physical investments associated with (a) the rehabilitation and upgrading of inefficient water supply systems in subprojects that prioritize water efficiency (e.g., water loss minimization through non-revenue water (NRW) reduction programs), and water security (e.g., restoration of riverbank reservoirs); and (b) the expansion of sanitation (through an output-based toilet program), sewerage networks, sewage treatment capacity, and effluent reuse infrastructure for subprojects that promote environmental protection, and improvement of water bodies (e.g., preventing discharge of untreated sewage), and water productivity and financial sustainability (e.g., effluent reuse for industry).
- (ii) **Output 2: Water resource planning, monitoring, and service delivery improved.** Output 2 will finance the following non-physical investments: (a) establishment and operationalization of the ULB Incentive Fund (UIF) to finance reform activities among candidate ULBs; (b) development and roll-out of information technology (IT)-based ULB water modules for water audits, water tariffs, asset management, and water quality disclosure by the Karnataka Municipal Reform Cell; (c) drafting of a state guidelines on public stand posts; (d) assistance to manage and implement water utilities under public-private partnerships; and (e) development of improved communication and citizen participation strategies.
- (iii) **Output 3: Institutional capacity of executing agency and ULBs strengthened.** Output 3 will finance nonphysical investments associated with (a) project management, (b) capacity development and restructuring of KUIDFC to strengthen its financial intermediary function, and (c) ULB administrative capacity building.



10. The subsectors to be included in the investment program are (i) potable water supply, and (ii) wastewater collection and safe disposal, within urban areas. Land drainage and solid waste management are excluded from the project. Rural areas will be included only to the extent that water can be made available to rural communities from transmission mains passing close to communities. Any supplies made available are of untreated water. Peri-urban areas will be included where they are within local ULB development plans.

11. **Subprojects.** Infrastructure subprojects proposed under the investment program are primarily related to urban water supply and sewerage. The main types of infrastructure and their principal components are shown in Table 1, and their potential environmental impacts are summarized in Appendix 1. This review is based on subprojects developed for the first and second tranche of investments and is not intended to be a complete list. Impacts will always need to be examined by a process of environmental assessment (involving an environmental impact assessment, initial environmental examination, or environmental review as appropriate), as the nature and significance of an impact can change with location and the specific details of the project.

**Table 1: Proposed Subprojects and Components**

<b>Subproject</b>	<b>Main Components</b>	<b>Infrastructure (New or Refurbished)</b>
Water Supply	Source Augmentation	Surface water intake
		Pumps and pump house
		Raw water transmission
		Raw water storage
	Treatment and Storage	Water Treatment Plant
		Chlorination facility
		Overhead reservoirs
		Ground level reservoirs
	Water Transmission	Transmission main (clear water)
		Pumps and pump houses
	Water Distribution Network	Distribution mains
		Distribution network
	Miscellaneous Works	Bulk valves and flow meters
		Service connections
Meters		
Sewerage and Sanitation	Sewer Network (collection and conveyance)	Secondary sewers
		Tertiary sewers
		Service connections
		Trunk sewer
		Sewage lifting/pumping stations
	Sewage Treatment, Reuse and Disposal	Treatment facility Facultative Aerated Lagoon/Oxidation Pond/ Sequential Batch Reactor
		Reuse (irrigation/industries/ponds/fish culture)
		Outfall sewer for treated effluent
		Household level and community toilets and service connections

12. **Implementation Schedule.** The investment program will be implemented over a period of 10 years from 2014 to 2024 and will comprise two tranches: (i) Tranche 1 from 2014 to 2019; (ii) Tranche 2 from 2017 to 2023.

### III. COUNTRY'S ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURES

#### A. Constitutional Provisions and Environmental Policy

13. The Constitution of India guarantees the protection and preservation of the environment. The Constitution declares it a fundamental duty of every citizen of India to protect and improve the natural environment, including forests, lakes, rivers, and wildlife, and to have compassion for living creatures. The Constitution's Directive Principles of State Policy guarantee the environment's protection—"the state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country."

14. **National Environment Policy, 2006.** India's National Environmental Policy 2006 seeks to extend the coverage and fill in gaps, building on the earlier policies such as National Forest Policy 1988, National Conservation Strategy and Policy Statement on Environment and Development 1992, and Policy Statement on Abatement of Pollution 1992. The objectives of the National Environment Policy 2006 are:

- (i) Conservation of critical environmental resources;
- (ii) Intra-generational Equity: Livelihood Security for the Poor;
- (iii) Inter-generational Equity;
- (iv) Integration of Environmental Concerns in Economic and Social Development;
- (v) Efficiency in Environmental Resource Use;
- (vi) Environmental Governance; and
- (vii) Enhancement of Resources for Environmental Conservation.

#### B. Environmental Assessment

15. The Government of India EIA Notification of 2006 (replacing the EIA Notification of 1994) sets out the requirement for environmental assessment in India. This states that environmental clearance is required for specified activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts.

16. Category A projects require environmental clearance from the national Ministry of Environment and Forests (MOEF). The proponent is required to provide preliminary details of the project in the form of a notification, after which an expert appraisal committee (EAC) of the MOEF prepares comprehensive terms of reference (TOR) for the EIA study, which are finalized within 60 days. On completion of the study and review of the report by the EAC, MOEF considers the recommendation of the EAC and provides the environmental clearance, if appropriate.

17. Category B projects require environmental clearance from the State Environment Impact Assessment Authority (SEIAA). The State-level EAC categorizes the project as either B1 (requiring EIA study) or B2 (no EIA study), and prepares TOR for B1 projects within 60 days. On completion of the study and review of the report by the EAC, the SEIAA issues the environmental clearance based on the EAC recommendation. The notification also provides that any project or activity classified as category B will be treated as category A if it is located in whole or in part

within 10 km from the boundary of protected areas, notified areas, or interstate or international boundaries.

18. Considering the type, nature, and scale of subprojects to be implemented under the Investment Program, it is unlikely that any subprojects will fall under the ambit of the EIA Notification, 2006. None of the Tranche 1 subprojects required environmental clearance, and Tranche 2 subprojects will also not require environmental clearance. However, this will need to be reviewed on a case-to-case basis for all subprojects including amended Tranche 2 subprojects, if any, during the design stage.

### **C. Other Environmental Laws and Regulations**

19. Besides Expression of Interest Notification, 2006, following are the acts, rules, policies, and regulations currently in force in India that deal with environmental issues that could apply to infrastructure development.

- (i) The Water (Prevention and Control of Pollution) Act, 1974, amended 1988;
- (ii) The Water (Prevention and Control of Pollution) Rules, 1975;
- (iii) The Air (Prevention and Control of Pollution) Act 1981, amended 1987;
- (iv) The Air (Prevention and Control of Pollution) Rules, 1982;
- (v) The Environment (Protection) Act, 1986, amended 1991 and including the following Rules/Notification issued under this Act:
  - The Environment (Protection) Rules, 1986, including amendments;
  - Municipal Solid Waste Management Rules, 2016;
  - Construction and Demolition (C&D) Waste Management Rules, 2016.
  - The Hazardous Wastes (Management and Handling) Rules, 1989;
  - The Bio-Medical Waste (Management and Handling) Rules, 1998;
  - Noise Pollution (Regulation and Control) Rules, 2000;
  - Eco-Sensitive Zone Notification: Restricting location of industries, mining and other activities
  - Environmental Impact Assessment Notification, 2006; and
  - Environmental Standards of Central Pollution Control Board (CPCB).
- (vi) The Indian Wildlife (Protection) Act, 1972, amended 1993;
- (vii) The Wildlife (Protection) Rules, 1995;
- (viii) The National Green Tribunal Act, 2010;
- (ix) Coastal Regulation Zone Notification, 2011;
- (x) Wild Life (Protection) Amendment Act, 2002;
- (xi) The Indian Forest Act, 1927;
- (xii) Forest (Conservation) Act, 1980, amended 1988:
  - Forest (Conservation) Rules, 1981, amended 1992 and 2003;
  - Guidelines for diversion of forest lands for non-forest purpose under the Forest (Conservation) Act, 1980; and
- (xiii) The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and its Amendment, 2010:
  - Ancient Monuments and Archaeological Sites and Remains Rules, 1959, and the Government of India Notification of 1992, under these Rules.

20. Because of the relatively minor negative impacts, most of the subprojects likely to be developed under the Investment Program may not fall within the scope of these legal

instruments. The specific requirements to ensure compliance by these components and subprojects are shown in Table 2.

**Table 2: Action Required to Ensure Subproject Compliance with National Environmental Laws**

<b>Component</b>	<b>Applicable Legislation</b>	<b>Compliance</b>	<b>Action Required</b>
All components that require acquisition of forest land	Forest (Conservation) Act, 1980; Wildlife (Protection) Act, 1972	Approval of Ministry of Environment and Forests (MOEF)	Identify non-forest land and formulate an afforestation program
Sewage treatment plant (STP)	Water (Prevention and Control of Pollution) Act, 1974	Consent for establishment (CFE) and consent for operation (CFO) from Karnataka State Pollution Control Board (KSPCB)	Based on project review and site inspection, KSPCB provides CFE before construction, and stipulates the disposal standards to be met during operation.  After completion of construction, CFO is issued confirming compliance with the CFE conditions, if any.
		Renewal of CFO during operation (STP only)	Based on the performance of the STP and its compliance with the disposal standards, CFO is renewed every year.
All subproject components location in coastal regulation zone (CRZ) categorized as CRZ I, II, III and IV	Coastal Regulation Zone Notification, 2011	-Groundwater abstraction in the CRZ is restricted -All project activities falling in the CRZ requires clearance from the Karnataka State Coastal Zone Management Authority	Clearance requires conduct of rapid EIA study by an accredited consultant
All subproject components situated within 300 m of protected monuments/sites	Ancient Monuments and Archaeological Sites and Remains Act, 1958  Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010  • The Government of India declared the area around protected monuments, up to 100 m, as prohibited area, and further 200 m, i.e. from 100 to 300 m, as regulated area. No	Any construction work in the regulated area requires permission of National Monuments Authority (NMA)	Application to be submitted to regional office of the Archaeological Survey of India (ASI), which will forward to NMA; after review of application and site visit report from ASI, NMA issues clearance

Component	Applicable Legislation	Compliance	Action Required
	construction work is allowed in the prohibited area.		

#### IV. SPECIFIC PROCEDURES TO BE USED FOR SUBPROJECTS

##### A. Responsibilities and Authorities

21. The following committees, agencies, and entities are proposed:
22. **Empowered Committee.** The established State level Empowered Committee whose members include Additional Chief Secretary (Committee Chair), MD of KUIDFC (Committee Secretary), Principal Secretary of the Urban Development Department, Principal Secretary of the Planning Department, Secretary for municipalities and urban development authorities of Urban Development Department, secretary for expenditure of the finance department, and the director/commissioner of the Directorate of Municipal Administration, will continue.
23. **Executing Agency.** KUIDFC will continue as the nodal executing agency (EA). Investment Program implementation activities are monitored by KUIDFC through a separate program management unit (PMU) set up within KUIDFC. The Managing Director of the KUIDFC heads the PMU, and will be assisted by a Task Manager at head office and Deputy Project Director at the regional office of KUIDFC at Mangalore to oversee the investment program progress.
24. **Central Project Management Unit.** A PMU established in the KUIDFC to assist with the implementation of Tranche 1 investments, will also support implementation of Tranche 2. A team of senior technical, administrative, and financial officials will assist the task Manger in controlling and monitoring Investment Program implementation activities. A small team within the PMU will be established to focus on environmental, social, and gender issues applicable to UWSS service provision. The unit will comprise full-time KUIDFC employees, contract employees, and, as required, short-term national and international consultants.
25. The PMU will be supported by two new regional offices established at Davangere and Mangalore. A consultant team will be appointed under Deputy Project Director (Mangalore) for Tranche 2, and will be involved in project planning, preparation of subproject and cost estimates, coordination, technical guidance and supervision, financial control, training, and overall subproject management.
26. **Implementing Agency.** Respective urban local bodies of each of project town will be the implementing agencies and will oversee subproject component implementation at the town level.
27. A project implementation unit (PIU) is to be established in each ULB, unless one or more of the ULBs decide to form a single PIU.
28. Other than the above institutional setup, a district-level program Steering Committee will be set up in each district to monitor implementation of subprojects and institutional reforms. The district-level program steering committee shall consist of the Deputy Commissioner of the district, the deputy project Director from the concerned divisional office, Municipal Commissioners'/Chief Officers of Investment program ULBs, the President/Chair of the investment program ULB and

Executive Engineer of respective PIUs. The district level programme Steering Committee will report to KUIDFC.

29. **Consultancy Selection Committee.** The KUIDFC will set up a consultancy selection committee to evaluate the request for consultant services and consultancy contract negotiations. The recommendations of the committee will be submitted to the steering committee for approval.

30. **Tender Evaluation Committee.** The KUIDFC will set up a tender evaluation committee to evaluate tenders and prepare evaluation reports for submission to the steering committee for approval.

31. **Environmental Safeguards — Implementation and Compliance.** At the executing agency (i.e. KUIDFC), environmental issues will be coordinated centrally by the Safeguards Compliance and Monitoring Unit (SCMU) established under task manager of KUIWMIP within the PMU. SCMU is staffed with a Safeguards Compliance and Monitoring Officer (SCMO) with overall responsibility for environmental and social safeguards, and two safeguards specialists—Assistant Executive Engineer (AEE—Environment), and Social Development Officer (SDO), responsible for environment and social safeguards, respectively. SCMU will ensure that all subprojects comply with environmental safeguards. In each regional office at Davangere and Mangalore, a Safeguards Officer will assist in and coordinate safeguard tasks. For enhancing the monitoring role of environmental safeguards, KUIDFC will consider assigning the environmental officers at the regional offices in implementation stage. In each PIU, an Assistant Engineer (Safeguards) will coordinate the safeguard tasks at PIU/town level. For Tranche 2, PIUs are established at Kundapura, Mangalore, Puttur, and Udupi. A project management, design and construction supervision consultant (PMDSC) will assist PMU, regional office and PIUs in implementation of the entire investment program including compliance with the EARF. PMDCSC is stationed at Mangalore with the field teams in each of the PIUs. PMDCSC team include an Environmental Specialist and a Social Development Specialist to prepare, implement and monitor all safeguard activities and ensure compliance with the EARF. At the civil works stage, Contractor staff will include Safeguards/Environment, Health and Safety (EHS) engineer to supervise and report on environmental management plan (EMP) implementation (Figure 1).

32. The responsibilities of the PMU Environment Safeguards officer (AEE—Environment) include the following:

- (i) Prepare the rapid environmental assessment (REA) checklist, to finalize the environmental impact assessment/ IEE and to disclose the approved environmental impact assessment/ IEE in the website;
- (ii) Ensure that Environmental Clearance, Consent to Establishment and Consent to Operate and other certificates, as required, are obtained in time from appropriate authorities and to ensure compliances with conditions imposed;
- (iii) Ensure incorporation of the EMP, environmental mitigation and monitoring measures into the contract documents;
- (iv) Monitor disclosure and public consultation arranged by the design and monitoring project management design and supervision consultant (PMDSC) during IEE process and to ensure that comments are reflected in the IEE report;
- (v) Ensure disclosure of information throughout the duration of the subproject through suitable visual means and publications;
- (vi) Provide necessary input for grievance redress;
- (vii) Approve contractor's proposed locations for construction work camps, storage areas, hauling roads, lay-down areas, and disposal areas for solid and hazardous wastes on recommendations of DMSC;

- (viii) Guide the Contractor for drawing up of site environmental management plan and to approve the same;
  - (ix) Induct the Contractor for taking up the construction following environmental and social safeguards;
  - (x) Facilitate scheduled monitoring during implementation of the project;
  - (xi) Carry out regular onsite monitoring and guide the Contractor to adopt the required site management standards;
  - (xii) Ensure the required health and safety measures at work sites;
  - (xiii) Obtain in time and to review the monthly monitoring report of the Contractors;
  - (xiv) Prepare semi-annual environmental monitoring report (SEMR), including the status of project compliance, statutory clearances and relevant loan covenants, and submit the approved 6-monthly report to ADB and seek permission to disclose the same in the investment program website; and
  - (xv) Prepare monitoring report on post-construction activities by the contractors as specified in the EMP.
33. The responsibilities of PMDCSC Environment Specialist include:
- (i) Overall assistance and guidance to PMUs and PIUs on safeguard related tasks to ensure compliance with EARF, ADB SPS (2009), and government regulations;
  - (ii) Subproject selection, categorization, preparation, implementation, monitoring and reporting of all subproject in compliance with EARF and respective IEE and EMP;
  - (iii) Monitor implementation of EMPs; field monitoring at least fortnightly and advice contractor for additional/ rectification of mitigation measures as per ground condition;
  - (iv) Review monthly contractor's EMP monitoring reports;
  - (v) Guide the PIUs as and when necessary;
  - (vi) Review and finalize all reports in consultation with the PMU safeguards officer;
  - (vii) Provide project management support;
  - (viii) Prepare environmental assessment reports;
  - (ix) Conduct capacity building and training programs on environmental management of the PMU, contractors, and line departments through capacity development support and training;
  - (x) Prepare periodic monitoring reports<sup>1</sup> and submit PMU for onward submission to ADB;
  - (xi) Guide and supervise contractors in: revise/update of the draft IEEs after finalization of the design; and field implementation of EMPs; and
  - (xii) Assist in public consultation and disclosure activities.
34. The PIU Safeguards Officer will be responsible for both environmental and social safeguards. Tasks related to environmental and social safeguards include:
- (i) Coordinate public consultation and information disclosure;
  - (ii) Liaise with local offices of regulatory agencies in obtaining clearances /approvals; assist PMU for clearances obtained at state level;
  - (iii) Review and approve contractors updated EMPs;
  - (iv) Oversee day-to-day implementation of EMP by contractors, including compliance with all government rules and regulations;

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<sup>1</sup> The monitoring report will focus on the progress of implementation of the IEE and environmental assessment and review framework, issues encountered and measures adopted, follow-up actions required, if any, as well as the status of compliance with subproject selection criteria, and relevant loan covenants. Monitoring report format is given in the EARF

- (v) Take necessary action for obtaining rights of way;
- (vi) Ensure continuous public consultation and awareness;
- (vii) Coordinate grievance redress process and ensure timely actions by all parties;
- (viii) Review monthly contractor's EMP monitoring reports;
- (ix) Review and forward quarterly monitoring reports to PMU;
- (x) Inform PMU of unanticipated impacts and formulate corrective action plan; and
- (xi) Recommend issuance of work construction work completion certification to the contractor upon verification of satisfactory post-construction clean-up.
- (xii) inform affected persons on (a) the project cutoff date; (b) public notice for schedule of land acquisition/occupation; (c) entitlement matrix; and (d) compensation packages against different categories of loss, and tentative schedule of land clearing/ acquisition for starts of civil works activities;
- (xiii) coordinate valuation of assets, such as land, trees of various species, etc.;
- (xiv) facilitate the land acquisition and compensation processes in consultation with the district administration; coordinate, supervise and monitor disbursement of compensation; undertake negotiated settlement with third party certification;
- (xv) obtain NOCs, land documents, third party certifications as required for the subproject;
- (xvi) assist in the implementation, monitoring and reporting of resettlement plans/due diligence reports (DDR)/gender equality and social inclusion (GESI) plan.
- (xvii) take corrective actions when necessary to ensure no adverse impacts; and
- (xviii) submit monthly social and environmental monitoring reports to PMU.

35. The contractor shall appoint one safeguards/ EHS engineer who will be responsible for EMP implementation on a day-to-day basis. The responsibilities of Contractor include:

- (i) Preparing Site Environmental Management Plan (SEMP)/ updated EMP per detailed design, works implementation schedule, and site conditions;
- (ii) Ensuring implementation of EMP;
- (iii) Implementing corrective action plans as required;
- (iv) Coordinating with the resident engineer and environment specialists (at all levels);
- (v) Community liaison, consultation with interested/ affected parties and grievance redressal; and
- (vi) Monthly reporting on EMP implementation.

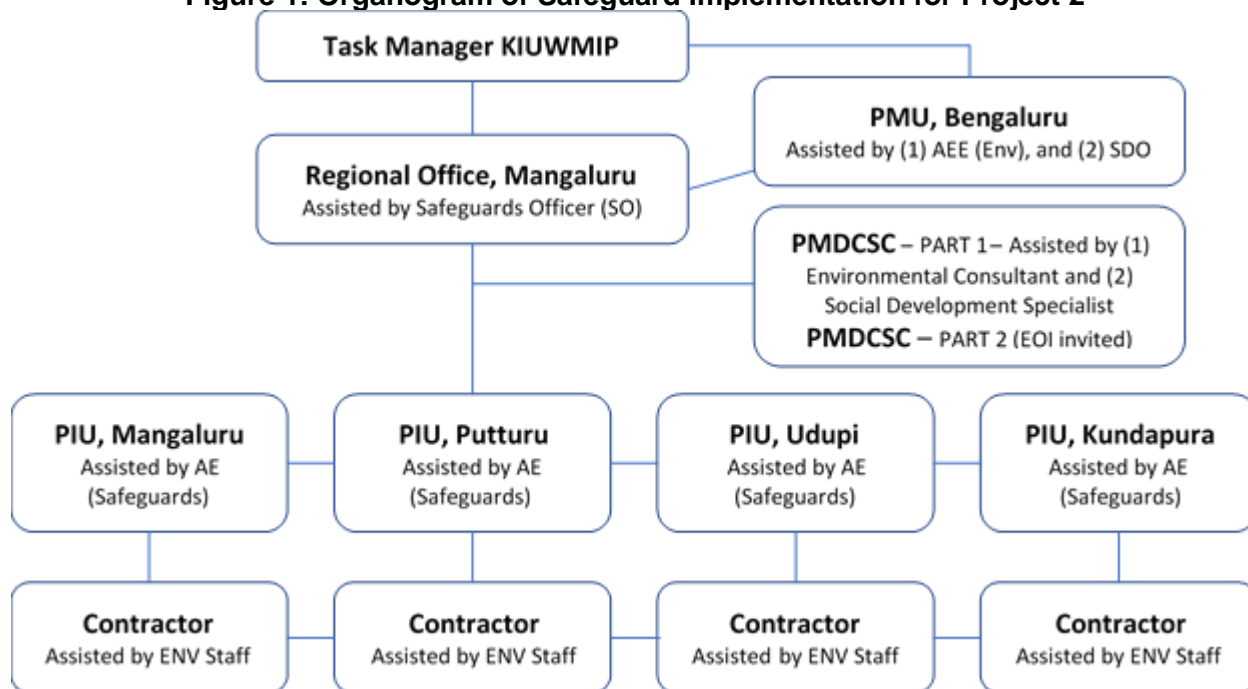
36. The IEE/EIA reports will be prepared by PMDCSC and will be reviewed by SCMU as per ADB SPS, 2009 and Environmental Guidelines, 2003, and approved and further submitted to ADB for review and approval.

37. The responsibility fulfilling environmental requirements of the Government of India and the Government of Karnataka and conducting required environmental assessment as per ADB guidelines lies with the implementing agencies. PMDCSC team will assist the IAs/PIUs in this regard.

38. The mitigation measures identified through IEE/EIA will be incorporated into the investment program cycle and subproject design. Mitigation measures, which are to be implemented by the contractor, shall form part of the contract documents. During the construction phase, PMDCSC team will monitor the implementation of the EMP and report to the PMU. The PMU will be responsible for compiling these results and sending semi-annual Environmental Monitoring Reports to ADB for review and disclosure.



**Figure 1: Organogram of Safeguard Implementation for Project 2**



AE = Assistant Engineer, AEE = Assistant Executive Engineer, ENV = environment, EOI = Expression of Interest, KIUWMIP = Karnataka Integrated Urban Water Management Investment Program, PIU = Project Implementation Unit, PMDCSC = Project Management, Design and Construction Supervision Consultant, PMU = Project Management Unit, SDO = Social Development Officer.

## **B. Grievance Redress Mechanism**

39. A project specific grievance redress mechanism (GRM), on the similar lines of Project 1 GRM, will be established to receive, evaluate and facilitate concerns of, complaints and grievances of affected persons in relation to project's social and environmental performances. The main objective of the GRM will be to provide time bound action and transparent mechanism to resolve social and environment concerns.

40. Project GRM will cover the project's towns for all kinds of grievances and will be regarded as an accessible and trusted platform for receiving and facilitating project related complaints and grievances. The multi-tier GRM for the program will have realistic time schedules to address grievances and specific responsible persons identified to address grievances and whom the affected persons have access to interact easily.

41. Awareness on grievance redress procedures will be created through Public Awareness Campaign with the help of print and electronic media and radio. The Safeguards Officer will ensure that vulnerable households are also made aware of the GRM and assured of their grievances to be redressed adequately and in a timely manner.

42. There will be multiple means of registering grievances and complaints by dropping grievance forms in complaint/ suggestion boxes at accessible locations, or through telephone hotlines, email, post or writing in a complaint registrar book in PIU/ULB's project office. There will be complaint registrar book and complaint boxes at construction site office to enable quick response of grievances/ complaints for urgent matters. The name, address and contact details of

the persons with details of the complaint / grievance, location of problem area, date of receipt of complaint will be documented. The regional project management units' (RPMU) Safeguards Officer, assisted by respective Assistant Engineer (safeguards) at PIUs, will be responsible at the project level for timely resolution of the environmental and social safeguards issues and registration of grievances, and communication with the aggrieved persons. The draft project information document (PID) is to be distributed to all affected communities and displaced persons which include the contact numbers of the respective ULB officer(s) responsible for the KIUWMIP.

### **C. Grievance Redress Process**

43. There will be several tiers for grievance redress process. Simple grievances for immediate redress will first be resolved at site by Contractor. If not redressed satisfactorily in 7 days of its receipt, the complainants may go to PIU officer in ULB responsible for resettlement/social issues. Project engineer and the resettlement nongovernment organization (NGO) will assist in resolving the issues. Name, designation and contact number of personnel responsible for grievance redress at ULB and RPMU, will be posted at Contractor's and PMDSC's site office in full visibility of public. NGO will be involved in community mobilization and awareness campaign among the communities. Grievances of immediate nature should be resolved at site/ within ULB/PIU level within 15 days of registration of grievances.

44. All the grievances that cannot be resolved at ULB/PIU within 15 days will be forwarded to the grievances redress committee (GRC) headed by Deputy Project Director, RPMU at Subdivision level who will review and resolve within 15 working days of grievance being registered with assistance of the concerned PIU/ ULB personnel if required. The grievances of critical nature and those cannot be resolved at GRC level should be referred to District Level Implementation Committee (DLIC) set up at district level headed by Deputy Commissioner who will review the grievances and to be settled within 30 days. All documents related to grievances, follow up action taken to resolve along with explanatory note on nature, seriousness and time taken for grievance redress shall be prepared by RPMU Safeguard Officer and circulated to DLIC members at least a week prior to scheduled meeting. The decision taken at the DLIC level will be communicated to the complainant by Safeguard Officer, RPMU through ULB/PIU

45. For any issues that remain unresolved by the GRC or Steering Committee or the decision taken at such meetings are not acceptable, the complainants/displaced persons can approach the Court of Law as per Government of Karnataka and Government of India legal procedure.

### **D. Grievance Redress Committee/Steering Committee Composition and Selection of Members**

46. The GRC for the project will be headed by: (i) Special Land Acquisition Officer/ Assistant Commissioner of the concerned sub-Division as Chairman of the sub Division with members as follows: (ii) ULB Commissioners/ Chief Officer of the concerned ULB towns; (iii) Deputy Project Director as member Secretary and Convener; (iv) PMDCSC Engineer; (v) Affected Community member/NGO; and (vi) Safeguards Officer RPMU KIUWMIP Mangalore member and will shoulder responsibility of keeping records of grievances/complaints in details. The Safeguard Officer of RPMU will be responsible for coordinating with all GRC members and the displaced persons for grievance redressal. The grievances of critical nature and those cannot be resolved at Divisional level should be referred to DLIC set up at District level they will determine the merit of each grievance and attempt to resolve the same within a month from the date of lodging of complaints. The decision of DLIC is final and cannot be contested in any other forum except in the Courts of Law.

47. **Recordkeeping.** Records of all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were effected and final outcome will be kept by PIU (with the support of PMDCSC) and submitted to PMU.

48. **Information Dissemination Methods of the Grievance Redress Mechanism.** The PIU, assisted by PMDCSC/Community Awareness, Participation, Rehabilitation and Resettlement Consultant (CAPRRC) will be responsible for information dissemination to affected persons and general public in the project area on grievance redress mechanism. Public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures is generated. The campaign will ensure that the poor, vulnerable and others are made aware of grievance redress procedures and entitlements per agreed entitlement matrix including. whom to contact and when, where/ how to register grievance, various stages of grievance redress process, time likely to be taken for redress of minor and major grievances, etc. Grievances received and responses provided will be documented and reported back to the affected persons. The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PIU, offices, ULB notice boards and on the web, as well as reported in the semi-annual environmental and social monitoring reports to be submitted to ADB.

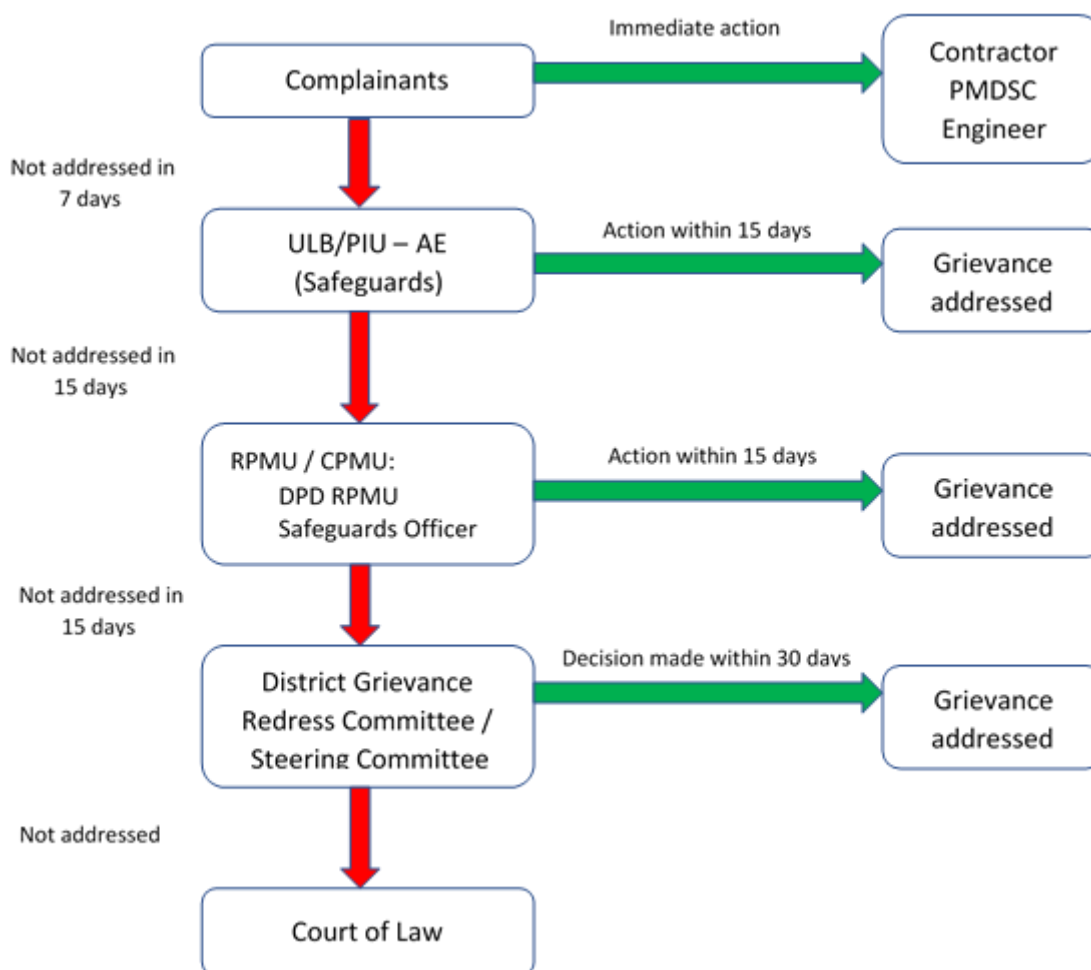
49. **Periodic Review and Documentation of Lessons Learned.** The PMU will periodically review the functioning of the GRM and record information on the effectiveness of the mechanism, especially on the PIU's ability to prevent and address grievances.

50. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the respective PIU. Cost estimates for grievance redress are included in resettlement cost estimates.

51. **Country Legal Procedure.** An aggrieved person shall have access to the country's legal system at any stage and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM.

## **E. ADB Accountability Mechanism**

52. In the event when the established GRM is not in a position to resolve the issue, Affected Person also can use the ADB Accountability Mechanism through directly contacting (in writing) the Complain Receiving Officer (CRO) at ADB headquarters or to ADB Indian Resident Mission (INRM). The complaint can be submitted in any of the official languages of ADB's developing member countries (DMCs). Before submitting a complaint to the Accountability Mechanism, it is recommended that affected people make a good faith effort to resolve their problems by working with the concerned ADB operations department (in this case, the India Resident Mission). Only after doing that, and if they are still dissatisfied, they could approach the Accountability Mechanism. The ADB Accountability Mechanism information will be included in the project relevant information /PID to be distributed to the affected communities, as part of the project GRM. The PID will be prepared by the design, build, and operation (DBO) contractor in coordination with the PIU and consultant and get it approved by the EE/AEE in charge of the project. Proposed Grievance Redress Mechanism is shown in the Figure 2.

**Figure 2: Grievance Redress Process**

AE = Assistant Engineer, CPMU = central project management unit, DPD RPMU = Deputy Project Director Regional Project Management Unit, PIU = Project Implementation Unit, PMDCSC = Project Management, Design and Construction Supervision Consultant, ULB = urban local body.

## F. Environmental Guidelines for Subproject Selection

53. The avoidance of negative impacts (by sensitive site selection, amending features of the design, etc.) is a key facet of environmental assessment, as it both protects the environment and can save considerable time, effort, and cost downstream in a project by avoiding the need for difficult and costly environmental mitigation and compensation measures. It is important therefore that environmental impacts are taken into account throughout the development of projects and subprojects, beginning in the earliest stages, and that decisions are made on the basis of environmental criteria, as well as feasibility and cost.

54. The analysis of the potential impacts of the types of project likely to be considered within KIUWMIP UWSS component (Appendix 1) enables the formulation of certain criteria that, if taken into account in selecting and developing subprojects, should reduce their environmental impacts. These are presented in Table 3 below.

**Table 3: Subproject Selection Guidelines**

Subproject	Environmental Selection Criteria
All subprojects	<ul style="list-style-type: none"> <li>• Comply with all requirements (as amended and in force) of relevant national law, including the EIA Notification, 2006, and other laws in specific sectors as indicated below</li> <li>• Avoid involuntary resettlement by using vacant government land where possible, and taking all possible measures in design and selection of site or alignment to avoid/minimize resettlement impacts</li> <li>• Avoid disturbance and alteration to any natural water courses during infrastructure development</li> <li>• Subprojects involving facilities and/or business activities that already exist or are under construction will be funded under KIUWMIP only with a pre-environmental audit of those associated facilities to check the compliance with the government regulatory framework and ADB SPS 2009; If any non-compliance is identified, a corrective action plan is to be prepared and implemented</li> </ul>
Water supply	<ul style="list-style-type: none"> <li>• Comply with all requirements of relevant national law, including the Water (Prevention and Control of Pollution) Act, 1974</li> <li>• New water source development and augmentation of water abstraction from existing sources shall be as per KIUWMIP recommendations only; this project will allocate water to ULBs and recommend sources and quantities based on the water balance</li> <li>• Avoid water-use conflicts</li> <li>• Ensure appropriate source water quality; avoid unprotected sources; include necessary source protection measures in the project</li> <li>• Locate all new facilities (water treatment plant or WTP, pumping stations, etc.) away from houses, shops, or any other premises used by people, thus establishing a buffer zone to reduce the effects of noise, dust, and the visual appearance of the site</li> <li>• Locate WTP at sites where there is no risk of flooding or other hazards that might impair functioning of the plant or present a risk of damage to the plant or its environs</li> <li>• Locate pipelines within the right-of-way (ROW) of other linear structures (roads, irrigation canals) as far as possible, to reduce the acquisition of new land</li> <li>• Ensure that water supplied to consumers meets national drinking water standards at all times, and confirm this by regular monitoring at the WTP and in domestic premises</li> <li>• Ensure that improvements in the water supply system are combined with improvements in sewerage and drainage to deal with the increased discharge of domestic wastewater</li> </ul>
Sewerage and sanitation	<ul style="list-style-type: none"> <li>• Comply with all requirements of relevant national law, including the Water (Prevention and Control of Pollution) Act, 1974</li> <li>• Plan for reuse of treated wastewater as per the recommendations of Karnataka Integrated and Sustainable Water Resource Management Investment Program (KISWRMIP); the subproject design shall include reuse components and budget in compliance with KISWRMIP recommendations</li> <li>• Locate sewage treatment plants (STPs) 200-300 m from any inhabited areas, in locations where no urban expansion is expected in the next 20 years, so that people are not affected by odor or other nuisance from the plant</li> <li>• Locate STP at sites where there is a suitable means of disposal for the treated wastewater effluent (e.g., into a natural water course)</li> <li>• Locate STP and sewage lifting stations at sites where there is no risk of flooding or other hazards that might impair functioning of the plant and present a risk of damage to the plant or its environs</li> </ul>

Subproject	Environmental Selection Criteria
	<ul style="list-style-type: none"> <li>• Ensure that sewage is treated at all times to national wastewater discharge standards, and confirm this by regular monitoring of effluent from the STP</li> <li>• Ensure that no wastewater is discharged into a water course in which it could be a hazard to downstream users (e.g., a waterway that is used for as a source of water for domestic or municipal supply)</li> <li>• Include measures to ensure the safe disposal of sewage sludge without causing an environmental hazard, and if possible, to promote its safe and beneficial use as an agricultural fertilizer</li> <li>• Locate sewage pipelines within the right-of-way (ROW) of roads wherever feasible, to reduce the acquisition of new land</li> <li>• Avoid locating sewage pumping stations and wet wells within 100 m of any inhabited areas, and within 200 m of sensitive sites such as hospitals, schools, temples, etc., to minimize nuisance impacts from odor, rodents, etc.</li> </ul>

**G. Procedures for Environmental Assessment of Subprojects**

55. Subprojects prepared for investment under KIUWMIP UWSS component must comply with national legislation and ADB policy. Relevant national laws are listed in Section 3 of this report, the specific requirements for compliance by subprojects are summarized in Table 2, and Government of India and ADB environmental assessment procedures are described below. In practice, KUIDFC will liaise with the Karnataka State Pollution Control Board (KSPCB), SEIAA, MoEF, and the ADB Regional Department to determine the specific requirements for environmental assessment of each subproject. If the environmental criteria shown in Table 3 are followed in the selection and development of subprojects, then most should have relatively minor environmental impacts, and the procedure for environmental assessment should then be straightforward and can be modelled on the approach adopted during Tranche 1. The principal steps in each process are described below.

**1. ADB Safeguard Policy Statement (2009)**

56. **Environmental Classification.** According to ADB SPS (2009), the environmental classification of subprojects is determined by the Environment and Social Safeguards Division (SDES) of ADB. The rapid environmental assessment checklist is in Appendix 2. There are three possible outcomes:

- (i) **Category A.** A subproject is classified as category A if it could have significant adverse environmental impacts. Such subprojects require EIA;
- (ii) **Category B.** A subproject is classified as category B if it could have some negative impacts, but these will be less significant than those of category A projects. These subprojects require an Initial Environmental Examination (IEE); and
- (iii) **Category C.** A subproject is classified as category C if it is not expected to have any environmental impacts. In this case, no EIA or IEE is required, although environmental implications are still reviewed.

57. The classification of a project is reviewed on completion of the studies and may be revised if appropriate by ADB’s Chief Compliance Officer.

58. **Preparation of Initial Environmental Examinations.** An IEE describes the studies to identify the potential environmental impacts of a proposed development and is prepared when impacts are unlikely to be highly significant and can be mitigated relatively easily. Under a MFF, a separate IEE is required for each category B subproject, so several IEEs are likely to be needed

for each town (covering water supply and sewerage subprojects). The content and format of the IEE are described in the Annex to Appendix 1 of the ADB SPS (2009). Refer to Appendix 3 of this report for format of the IEE.

**59. Preparation of Environmental Impact Assessments.** Given the subproject selection guidelines prescribed (Table 2 above), it is most unlikely that subprojects prepared for funding under KIUWMIP component are classified as category A, requiring an EIA. An EIA fulfils the same purpose as an IEE but is generally a more detailed study and more comprehensive document because of the greater severity of the potential impacts. In the unlikely event of a subproject being classified as category A, an EIA would be required to comply with ADB SPS (2009), and the content and format of the EIA are described in the Annex to Appendix 1 of SPS (2009). Refer to Appendix 3 to this report for format of the EIA.

**60. Environmental Audit of Existing Facilities.** ADB SPS requires an environmental audit, if a subproject involves facilities and/or business activities that already exist or are under construction, including an on-site assessment to identify past or present concerns related to impacts on the environment. The objective of this compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients, and to identify and plan appropriate measures to address outstanding compliance issues. Where noncompliance is identified, a corrective action plan will be prepared. The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. The audit report (including corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements of the EARF.

**61. Environmental Management Plans.** EMPs describe the environmental management measures that will be carried out to mitigate negative impacts or enhance the environment during implementation of a project, and the environmental monitoring to be conducted to ensure that mitigation is provided and is effective in reducing impacts, or to determine the long-term impacts of a project. The EMP is normally prepared as part of the EIA or IEE, although it may be presented in a separate volume or document. The preparation and content of an EMP are described in the ADB SPS, 2009 and are more detailed when conducted for an EIA than for an IEE. EMPs for category A and B subprojects should outline specific mitigation measures, environmental monitoring requirements, and related institutional arrangements, including budget requirements.

**62. Public Consultation and Information Disclosure.** Public consultation is the process of exchanging information with those persons and organizations with a legitimate interest in a project, and/or who are likely to be affected by the project (stakeholders). It is a two-way process that informs and involves the community in developing a project, and informs the proponent about issues and concerns, which can then be addressed in project design. Information disclosure involves stakeholders in monitoring the development and implementation of a project and fosters openness in decision-making by presenting documents and other project materials for public scrutiny.

**63.** Consultation and disclosure are mandatory under ADB Safeguards Policy Statement (2009), and best practice approaches should be followed. This involves meaningful consultation with stakeholders at an early stage of executing agency preparation, and throughout project implementation. A variety of approaches can be adopted. As a minimum, stakeholders should be consulted regarding the scope of the environmental study before work has commenced in earnest, and should then be informed about the likely impacts of the subproject and proposed mitigation once the IEE or EIA report is under preparation. The report should record the views of

stakeholders and indicate how these have been taken into account in project development. There are a variety of approaches for such contacts, including public meetings, focus group discussions, workshops, public information campaigns, etc., and several methods should be used in order to reach all sectors of society, as well as institutional stakeholders, NGOs, etc.

64. Meaningful consultation will:

- i) be carried out on an ongoing basis throughout the project cycle;
- ii) involve timely disclosure of relevant information. Affected peoples and stakeholders will have access to relevant project information prior to any decision-making that will affect them;.
- iii) be conducted free of intimidation or coercion;
- iv) be gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups.

65. Information is disclosed through public consultation, and more formally by making documents and other materials available in a form and at a location in which they can be easily accessed by stakeholders. This normally involves making draft reports available at public locations in the town, providing a mechanism for the receipt of comments, and making documents available more widely by posting them on the ADB and the executing agency's website. For category A projects, the full EIA must be made available to the public at least 120 days before ADB's Board of Directors considers the loan. Any updates made on the EARF/IEE/EIAs will be subject to ADB's review. Updated documents will be disclosed in the government and ADB website.

66. **Review of Environmental Assessment.** ADB will review draft final reports of:

- (i) category A subprojects;
- (ii) amended/modified IEEs of Tranche 1 subprojects;
- (iii) IEEs of Tranche 2 subprojects;
- (iv) amended/modified IEEs of Tranche 2 subprojects.

67. Comments will be provided on format, content, and compliance with ADB procedures, and these will be addressed by the consultant in preparing the final reports. The final IEE or EIA documents are submitted to ADB by the executing agency for consideration by ADB's Board of Directors. Completed reports are made available worldwide by ADB through the ADB website.

## **2. Government of India/Government of Karnataka Environmental Clearance Procedures**

68. The requirements of national environmental laws that apply to Karnataka Integrated and Sustainable Water Resource Management Investment Program (KISWRMIP) subprojects are summarized in Table 2. This indicates that, in terms of compliance, subprojects may be of three types: (i) subprojects that attract the EIA notification; (ii) subprojects that require clearance/no objection certificates or consent from competent government agencies; and (iii) subprojects that require no environmental related clearances/approvals, etc. The procedures for subprojects (i) and (ii) are as follows:



69. **Environmental Classification.** Under the Government of India EIA Notification (2006), the environmental classification of projects is determined by the MoEF, and there are two possible outcomes:

- (i) **Category A.** A subproject is classified as category A if it is likely to have significant negative impacts and is thus one of the types of project listed in this category in the EIA notification. Such projects require EIA, plus environmental clearance from MoEF; and
- (ii) **Category B.** A subproject is classified as category B if it is likely to have fewer negative impacts and is listed in this category in the EIA notification. These projects require environmental clearance from the SEIAA, which classifies the project as B1 (requiring EIA) or B2 (no EIA), depending on the level of potential impacts. Projects classified as B2 require no further study.

70. **Preparation of Environmental Impact Assessments.** An EIA is mandatory for category A and B1 projects. Projects in category A are those with major negative impacts, so it is very unlikely that any subprojects developed under KISWRMIP would fall into this group. However, certain subprojects (sewage treatment plants) are included in category B, and these may be classified by SEIAA as B1. These would then require EIA, which should follow the content and format shown in Appendix 1 of the EIA notification; this includes social impact assessment studies and rehabilitation and resettlement action plans.

71. **Environmental Monitoring and Environmental Management Plans.** The EIA notification requires that the EIA include a comprehensive program for monitoring the effectiveness of mitigation measures. This should specify measurement methodologies, frequency, locations, data analysis, reporting schedules, emergency procedures, and detailed budget and procurement schedules. An environmental management plan is also required, identifying mitigation measures and specifying administrative arrangements to ensure that mitigation measures are implemented, and their effectiveness monitored after approval of the EIA. A budget for the EMP should also be provided.

72. **Public Consultation and Information Disclosure.** Public consultation and disclosure are required for A and B1 projects and consist of (i) a public hearing at or near the proposed site, and (ii) responses in writing from stakeholders. The public hearing is conducted by the appropriate Pollution Control Board, in this case the Karnataka State Pollution Control Board (KSPCB). Disclosure is also handled by KSPCB, which posts the summary EIA report on their website and invites responses from stakeholders. The draft EIA report is available on request until the public hearing.

73. **Review of Environmental Assessment Reports by Government Agencies.** After completion of the public consultation, the proponent addresses all material concerns expressed during consultation and disclosure by appropriate changes in the draft EIA and EMP, which are then submitted for approval. The report is reviewed by an EAC, constituted by the MoEF for category A projects and SEIAA for B1 projects. The EAC provides its recommendation to the appropriate authority, which then decides, on the basis of the recommendation, whether to issue or deny the environmental clearance. An issued environmental clearance will normally include certain conditions, with which the proponent must comply.

74. **Post Environmental Clearance Monitoring:** Under the EIA notification, it is mandatory for the project proponent to submit half-yearly compliance reports in respect of the stipulated environmental clearance conditions.

75. **Other Mandatory Environmental Requirements.** Construction and operation of sewage treatment plants (STPs) attract the Water (Prevention and Control of Pollution) Act, 1974, and/or the Air (Prevention and Control of Pollution) Act, 1981. If this is the case, consent will be required from KSPCB for construction/establishment (consent for establishment or CFE) as well as consent for operation (CFO).

76. After obtaining environmental clearance (if required by the EIA Notification), the project proponent (implementing agency) submits to KSPCB the necessary application forms, plus maps and other documents describing the site, the project, and the process. CFE/CFO is issued upon review of documents, supplemented by site visits. The board issues CFE before the start of construction and CFO on completion of construction, provided CFE conditions, if any, are satisfied. During the operation period, the treated effluent must conform to applicable environmental standards as per the consent order. The CFO is considered for renewal every year based on the operational performance of the facility.

#### **V. CONFIRMATION THAT THE ENVIRONMENTAL ASSESSMENT AND REVIEW FRAMEWORK CONFORMS TO ADB'S SAFEGUARD POLICY STATEMENT**

77. ADB SPS (2009) sets out the policy objectives, scope, ad triggers, and principles for three key safeguard areas: (i) environmental safeguards, (ii) involuntary resettlement safeguards, and (iii) indigenous people safeguards. Policy principles and implementation processes for these are in Appendix 1, 2, and 3 of the ADB SPS (2009), while the ADB Environmental Assessment Guidelines (2003) and Handbook on Social Analysis (2007) provide detailed guidance on practical implementation.

78. As part of preparation for the tranche 2 of KIUWMIP detailed studies on involuntary resettlement, gender, and indigenous peoples, and an updated resettlement framework was prepared describing how these issues would be addressed in development and implementation of subprojects in the future. This is a companion volume to the updated EARF described in this document, as together the two documents should ensure that subprojects and the KIUWMIP as a whole comply with ADB policies.

79. Table 4 below shows how the EARF complies with the environmental safeguard policies as described in SPS (2009), Appendix 1. This is based on a table provided in the executing agency guidelines, which summarize the environmental assessment requirements for project loans (because under MFF, the first tranche is considered a project). Table 4 lists the individual executing agency requirements and indicates where in the EARF the procedure to be followed is described.

**Table 4: Confirmation that the Environmental Assessment and Review Framework Conforms to ADB Environmental Safeguard Policies**

<b>Project Category</b>	<b>Basic Environmental Impact Assessment Requirements</b>	<b>Approach Described in Environmental Assessment and Review Framework Paragraph No.</b>
A: Potential for significant adverse environmental impacts	Preparation of environmental impact assessment (EIA) and EIA report	41,44
	Public consultation (at least twice)	46-48
	Preparation of environmental management plan (EMP) and budget	45
	EIA circulated to board	48
	EIA disclosed to public	48

Project Category	Basic Environmental Impact Assessment Requirements	Approach Described in Environmental Assessment and Review Framework Paragraph No.
	EIA available to public on request	48
B: Some adverse environmental impacts, but less significant than category A	Preparation of Initial Environmental Examination (IEE) and IEE report	41, 44
	Public consultation	46-48
	IEE disclosed to the public	48
	Preparation of EMP and budget	48
	IEE available to public on request	48
C: Unlikely to have adverse impacts	No IEE or EIA	41
	Environmental implications summarized in report and recommendation of the President	-

## VI. STAFFING REQUIREMENTS AND BUDGET

80. The executing agency will implement this EARF and ensure that all Implementing Agencies comply with its provisions. The implementing Agency (through the consultant team) will be responsible for conducting the IEE studies for category B subprojects and EIA studies for category A subprojects based on ADB SPS (2009). The consultant team will also be responsible for incorporation of mitigation measures in design and construction, and baseline and construction-stage environmental quality monitoring. PMU will review and approve IEEs or EIAs, and will monitor the implementation of the environmental monitoring plan and environmental management plan where required. The civil works contractor/DBO contractor will implement mitigation measures in construction. Implementation of mitigation and monitoring measures during the operation and maintenance (O&M) will be the responsibility of the respective implementing agencies. Government regulatory agencies such as KSPCB will also monitor the environmental performance according to government regulations.

81. Costs required for operating this environmental assessment and review framework (EARF) should cover the following:

- (i) conducting environmental assessment and preparation of IEE/EIA reports for new urban water supply and sewerage subprojects to be funded under the KISWRMIP;
- (ii) implementation of environmental management plans; and
- (iii) implementation of environmental monitoring plans.

82. For budgeting purposes, based on the sample subprojects, it is assumed that all subprojects to be proposed under the Investment Program will be category B, as per the ADB SPS 2009. These require preparation of IEE. These reports should follow the IEE reports prepared for tranche 1 subprojects.

83. Each IEE prepared to date involves 1 month of effort by an experienced environmental specialist, conducting the following activities:

- (i) site visit to assess environmental conditions and potential impacts of the scheme;
- (ii) liaison with the local authority to obtain any environmental/social data that might be available (e.g., population figures, designated sites, etc.);
- (iii) consultation with the local community to inform them about the scheme and identify their views and concerns;

- (iv) assessment of impacts and development of mitigation with affected communities with the use of ADB executing agency checklists; and
- (v) desk study and report preparation.

84. Most of the construction work is straightforward; however, it may still take between 24 and 36 months. Environmental monitoring should be straightforward, and during construction, will involve periodic site observations and interviews with affected persons, local community, and construction workers. This will require a few days of effort per month per subproject by the environmental specialist. During the construction, it will also require periodic monitoring of ambient air and/or water quality. This will be conducted by the construction contractor, with help from a CPCB recognized laboratory, and the costs of which need to be included in the civil works contract.

85. The cost of these various inputs is shown in Table 5, which shows that the budget cost of implementing the EARF is ₹19,000,000 in Tranche 2.

**Table 5: Cost of Environmental Assessment and Review Framework Implementation**

Item	Quantity	Unit Cost (₹)	Total Cost (₹)	Remarks
<b>1. Project Management Unit (PMU) – Karnataka Urban Infrastructure Development Finance Corporation, Bangalore</b>				
Assistant Executive Engineer (Environment)	Full time	-	-	PMU staff
<b>2. Regional Office</b>				
Safeguards Officer	Full time			Regional PMU staff
<b>3. Project Implementation Units (PIUs)</b>				
Assistant Engineer (Environment) one in each PIU	full time	-	-	PIU staff
<b>4. Consultant – Project Management, Design and Construction Supervision Consultant</b>				
Environmental Specialist	30 months	250,000	7,500,000	Consultancy costs
Environmental engineers, - 4, nos. – one in each PIU	100 months	40,000	4,000,000	Consultancy costs
<b>5. Contractors</b>				
Safeguards / Environmental, Health and Safety engineer – one in each package	Full time during contract implementation	-	-	Contractors' cost
<b>6. Environmental management plan (EMP) implementation and monitoring</b>				
Ambient environmental monitoring	Per package lump sum	500,000	2,500,000	Project cost
Implementation of EMP measures	Per package lump sum	1,000,000	5,000,000	Project Cost
<b>TOTAL</b>			<b>19,000,000</b>	

## VII. MONITORING AND REPORTING

86. During the planning and preparation stage, the PMU will review and approve IEEs or EIAs and oversee disclosure and consultation. During construction, the PIU will monitor the implementation of the environmental monitoring plan and environmental management plan, and the PMU will oversee the compliance. Implementation of mitigation and monitoring measures during the O&M of infrastructure will be the responsibility of the respective implementing agencies, which are also the O&M agencies. Government regulatory agencies like the KSPCB will also

monitor the environmental performance according to the government regulations. The O&M agencies will report the environmental performance of required facilities (particularly, STP) to the KSPCB as per the applicable acts/rules.

87. The IEEs/EIAs will be submitted to ADB for review and approval. Any updates made on the EARF/IEE/EIAs will be subject to ADB's review. Updated documents will be disclosed in the government and ADB website. For Category B, semi-annual EMRs on the implementation of the EMPs, mitigation measures under the IEE/EIA, and environmental monitoring shall be carried out as a part of project implementation for review and disclosure in accordance with ADB's Public Communications Policy (2011). The EMR will include a section on grievance redress, which will present the details of complaints received and the action taken to redress them. Refer to Appendix 4 for format and content of the EMR.

88. In case any major non-compliance is discovered in the course of the review of on-going subprojects, a corrective action plan including associated costs and schedule will be prepared and submitted to ADB for approval. Prior to the preparation of each periodic financing request (PFR), the applicability and relevance of EARF will be reviewed and updated to ensure relevance and consistency with applicable country legal frameworks and ADB's safeguards policies, as amended from time to time.

89. ADB's monitoring and supervision activities are carried out on an ongoing basis until a project completion report (PCR) is issued. ADB issues a PCR within 1-2 years after the project is physically completed and in operation.

**PRELIMINARY SCREENING OF SUBPROJECT IMPACTS**

**Table A1.1: Water Supply – Construction**

Element of Scheme →	Supply Augmentation <sup>a</sup>		New or Refurbished Mains		New Reservoirs in City		Water Treatment Plant		Network Repair/Expansion	
	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale
<b>Physical</b>										
Atmosphere	NS	Construction of intake in surface water body, with local impacts; increase in pumping capacity—no impacts envisaged	NS	Local impacts mitigated by good practice (dust reduction, waste removal). No use of toxic materials.	NS	Local impacts mitigated by good practice	NS	Local impacts mitigated by good practice (dust reduction, waste removal). No use of toxic materials. Construct in dry season	NS	Small-scale localized impacts, mitigated by good practice—avoid trenching in rains, remove waste, cover dry material
Topography and soil	NS		NS		NS					
Surface water	Mitigate		NS		NS					
Groundwater	NS		NS		NS					
Geology/seismology	NS		NS		NS					
<b>Ecology</b>										
Fisheries	Mitigate	Intake construction can pollute water; sensitive areas to be confirmed, but any sensitive areas can be avoided if necessary.	NS	No ecologically sensitive areas in town or environs. To be confirmed, but any sensitive areas can be avoided if necessary.	NS	No ecologically sensitive areas	NS	No ecologically sensitive areas in town or environs, but any sensitive areas can be avoided if necessary	NS	Water supply networks are buried in roads so pipes can be repaired or laid without ecological impacts.
Aquatic biology	NS		NS		NS					
Wildlife	NS		NS		NS					
Forests	NS		NS		NS					
Endangered species	NS		NS		NS					
Protected areas	NS	NS	NS	NS						
<b>Economic Development</b>										
Industries	NS		Mitigate		NS		NS		Mitigate	

Element of Scheme →	Supply Augmentation <sup>a</sup>		New or Refurbished Mains		New Reservoirs in City		Water Treatment Plant		Network Repair/Expansion	
↓Aspect of Environment	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale
Infrastructure	NS	Avoid impacts by locating intake, raw water tank, pump house etc. on unused government land. Reduce traffic disruption by careful planning of construction.	Mitigate	Locate in ROW of roads/canals if possible. In town: avoid sensitive locations; maintain access; compensate business for loss of income. Provide traffic diversions.	NS	Avoid impacts by locating reservoirs on unused government land. Plan work with police and local administration to provide traffic diversions.	NS	Avoid impacts by locating WTP on un-used government land. Reduce traffic disruption by careful planning of construction.	Mitigate	Conduct work quickly. Maintain access; compensate business for loss of income; plan work with local authority to provide effective traffic diversions.
Transport	Mitigate		Mitigate		Mitigate					
Land use	Mitigate		NS		Mitigate					
Power	NS		NS		NS					
Agriculture, minerals, tourism	NS		Mitigate		NS					
<b>Social/ Cultural</b>										
Population/ communities	NS	The facilities shall be mostly outside the towns; no major historic /archaeological areas; to be confirmed, but any sensitive areas can be avoided if necessary.	NS	Select route to avoid sensitive sites. Consult Archaeology Dept. to assess archaeological potential of route (change route if necessary). Develop protocol to identify and protect any chance finds.	NS	Avoid sensitive sites (schools, etc.). Determine archaeological potential of proposed sites and change if necessary. Apply protocol to protect	NS	Avoid sensitive sites (schools, etc.). Determine archaeological potential of proposed sites and change if necessary. Apply protocol	NS	Conduct work quickly. Maintain access (facilities, houses). Assess archaeological potential of areas. Apply protocol to protect chance finds.
Health facilities	NS		Mitigate		NS					
Education facilities	NS		Mitigate		NS					
Socioeconomics	NS		Mitigate		NS					
Cultural heritage	NS		Mitigate		NS					
Traditional land uses	NS		Mitigate		NS					
Historical/ archaeological	NS		Mitigate		Mitigate					

Element of Scheme →	Supply Augmentation <sup>a</sup>		New or Refurbished Mains		New Reservoirs in City		Water Treatment Plant		Network Repair/Expansion	
↓ Aspect of Environment	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale
						chance finds.		to protect chance finds.		Trenching to be observed by archaeologist.

Note: NS = No significant impacts expected; Mitigate = Negative impact can be easily mitigated (see Rationale); ISSUE = Sensitive issue, needs careful mitigation (see Rationale).

<sup>a</sup> Assumes increased surface water abstraction via an existing or a new intake; however, no new structure like impounding reservoir etc. are expected as these would be considered and evaluated under the KISWRMIP–water resources component.

**Table A1.2: Sewerage – Construction**

Element of Scheme →	New Treatment Plant STP		New/Refurbished Main Sewer		Pump Stations: New/Repair		Network Repair/Expansion	
↓ Aspect of Environment	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale
<b>Physical</b>								
Atmosphere	NS	Localized impacts at a site outside city; construct in dry season to avoid water collecting in excavated areas.	NS	Local impacts mitigated by good practice (dust reduction, waste removal). No use of toxic materials.	NS	No significant physical impacts from small-scale localized building work.	NS	Small-scale localized impacts, mitigated by good practice—avoid trenching in rains, remove waste, cover dry material.
Topography and soil	NS		NS					
Surface water	Mitigate		NS					
Groundwater	Mitigate		NS					
Geology/seismology	NS		NS					
<b>Ecology</b>								
Fisheries	NS	Avoid ecological impacts by locating STP at a site where there is no ecological interest.	NS	Land around existing main was disturbed when constructed, so it is unlikely to be ecologically	NS	Pump stations are located in the towns, where there is little ecological interest.	NS	Sewer networks are buried in roads so pipes can be repaired or laid without
Aquatic biology	NS		NS					
Wildlife	NS		NS					
Forests	NS		NS					
Endangered species	NS		NS					
Protected areas	NS		NS					



Element of Scheme →	New Treatment Plant STP		New/Refurbished Main Sewer		Pump Stations: New/Repair		Network Repair/Expansion	
↓ Aspect of Environment	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale
				sensitive. Ensure that route of new main avoids any areas designated for nature conservation.				ecological impacts.
<b>Economic Development</b>								
Industries	NS	STP will be located on land that is not used for any economic purpose (including farming if possible).	Mitigate	Locate main in RoW of roads if possible. In town: avoid sensitive locations; maintain access; compensate business for loss of income. Provide traffic diversions.	NS	No impacts at existing sites, which are small and self-contained. New sites should be on unused government land to avoid land-use conflicts.	Mitigate	Conduct work quickly. Maintain access; compensate business for loss of income; plan work with local authority to provide effective traffic diversions.
Infrastructure	NS		Mitigate		NS			
Transport	NS		Mitigate		NS			
Land use	NS		Mitigate		Mitigate			
Power	NS		NS		NS			
Agriculture, minerals, tourism	NS		Mitigate		NS			
<b>Social/Cultural</b>								
Population/communities	NS	STP will be located outside the town; no major historic /archaeological areas; to be confirmed, but any sensitive areas can be avoided if necessary.	NS	Select route (in and outside the town) to avoid sensitive sites. Maintain access to affected locations. Assess	NS	No impacts from refurbishment at existing sites. New sites should be on unused government land of low archaeological potential if	NS	Conduct work quickly. Maintain access (facilities, houses). Assess archaeological potential of areas. Apply protocol to
Health facilities	NS		Mitigate		NS			
Education facilities	NS		Mitigate		NS			
Socioeconomics	NS		Mitigate		NS			
Cultural heritage	NS		Mitigate		NS			
Traditional land uses	NS		Mitigate		NS			
Historical/archaeological	NS		Mitigate		NS			

Element of Scheme →	New Treatment Plant STP		New/Refurbished Main Sewer		Pump Stations: New/Repair		Network Repair/Expansion	
↓ Aspect of Environment	Impact	Rationale	Impact	Rationale	Impact	Rationale	Impact	Rationale
				archaeology potential of route and change route, if necessary, in sensitive areas.		possible. Apply protocol to protect any chance finds.		protect chance finds in sensitive areas.

Note: NS = No significant impacts expected; Mitigate = Negative impact can be easily mitigated (see Rationale); ISSUE = Sensitive issue, needs careful mitigation (see Rationale).

**Table A1.3: Operation of Water Supply and Sewerage Subprojects**

Element of Scheme →	Water Supply		Sewerage	
↓ Aspect of Environment	Impact	Rationale	Impact	Rationale
<b>Physical</b>				
Atmosphere	NS	Since the increased abstraction will be based on Integrated Water Resource Management principles, no impacts. Sewerage system may need to be improved to carry increased wastewater.	NS	STP should be located where treated effluent can be discharged to natural watercourse or for reuse; design will include safe sludge disposal or use in farming.
Topography and soil	NS		NS	
Surface water	NS		Mitigate	
Groundwater	NS		Mitigate	
Geology/seismology	NS		NS	
<b>Ecology</b>				
Fisheries	NS	As above; these will be assessed and mitigated as part of KISWRMIP–water resources component	NS	STP effluent will be treated to Indian discharge standards so should not affect ecology of receiving water body. Effluent will not be discharged into any protected area.
Aquatic biology	NS		NS	
Wildlife	NS		NS	
Forests	NS		NS	
Endangered species	NS		NS	
Protected areas	NS		NS	
<b>Economic Development</b>				
Industries	Benefit	Improved infrastructure may bring economic benefits to town as a	Benefit	Improved infrastructure may bring economic benefits to town as a
Infrastructure	Benefit		Benefit	
Transport	NS		NS	

<b>Element of Scheme →</b>	<b>Water Supply</b>		<b>Sewerage</b>	
<b>↓ Aspect of Environment</b>	<b>Impact</b>	<b>Rationale</b>	<b>Impact</b>	<b>Rationale</b>
Land use	NS	whole from a healthier population (not quantifiable).	NS	whole from a healthier population. Agriculture should benefit from use of sludge as fertilizer.
Power	NS		NS	
Agriculture, minerals, tourism	NS		Benefit	
<b>Social/Cultural</b>				
Population/communities	Benefit	Improved water supply will improve health and well-being of people and communities. People should also be better off, spending less on healthcare.	Benefit	Improved sanitation will improve health and well-being of people and communities. People should also be better off, spending less on healthcare.
Health facilities	Benefit		Benefit	
Education facilities	NS		NS	
Socioeconomics	Benefit		Benefit	
Cultural heritage	NS		NS	
Traditional land uses	NS		NS	
Historical/archaeological	NS		NS	

Note: NS = No significant impacts expected; Mitigate = negative impact can be easily mitigated (see Rationale); ISSUE = Sensitive issue, needs careful mitigation (see Rationale).

## RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST

**WATER SUPPLY**
**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
<b>A. Project Siting</b>			
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>B. Potential Environmental Impacts</b>			
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 operation and maintenance (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?			

<b>Screening Questions</b>	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
▪ 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?			

## SEWAGE TREATMENT

**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
<b>A. Project Siting</b>			
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>B. Potential Environmental Impacts</b>			
Will the Project cause...			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ interference with other utilities and blocking of access to buildings; nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			

Screening Questions	Yes	No	Remarks
▪ impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?			
▪ overflows and flooding of neighboring properties with raw sewage?			
▪ environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?			
▪ noise and vibration due to blasting and other civil works?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards during project construction and operation?			
▪ discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?			
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?			
▪ road blocking and temporary flooding due to land excavation during the rainy season?			
▪ noise and dust from construction activities?			
▪ traffic disturbances due to construction material transport and wastes?			
▪ temporary silt runoff due to construction?			
▪ hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?			
▪ deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?			
▪ contamination of surface and ground waters due to sludge disposal on land?			
▪ health and safety hazards to workers from toxic gases and hazardous materials which maybe contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unstabilized sludge?			
▪ large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?			
▪ social conflicts between construction workers from other areas and community workers?			
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in			



Screening Questions	Yes	No	Remarks
injury to the community throughout project construction, operation and decommissioning?			

Climate Change and Disaster Risk Questions	Yes	No	Remarks
The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.			
<ul style="list-style-type: none"> <li>• Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes (see Appendix I)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Could changes in temperature, precipitation, or extreme events patterns over the Project lifespan affect technical or financial sustainability (e.g., changes in rainfall patterns disrupt reliability of water supply; sea level rise creates salinity intrusion into proposed water supply source)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by using water from a vulnerable source that is relied upon by many user groups, or encouraging settlement in earthquake zones)?</li> </ul>			

## CONTENT AND FORMAT OF ENVIRONMENTAL ASSESSMENT DOCUMENTS

1. This initial environmental examination (IEE) template is prepared for infrastructure developments that can qualify as category 'B' project under Safeguard Policy Statement (SPS) 2009. While the general layout of the template will be similar for all kinds of development, scope of impact assessment and mitigation measures may vary.
2. In preparing an IEE report the essential steps that should be kept in mind are:
  - (i) Establish the objectives of the proposed activity
  - (ii) Establish the needs
  - (iii) Assess the options and select the preferred option (proposed activity)
  - (iv) Define the activity
  - (v) Undertake the assessment
  - (vi) Establish the link to environmental management measures
3. Accordingly, the following **Table of Content** (TOC) is provided for guidance. The content of each topic in the TOC is also described following the TOC structure:

### *Executive Summary*

1. *Introduction*
2. *Policy and Legislative Framework*
3. *Analysis of Alternatives*
4. *Proposed Description*
  - 4.1 *The Study Area*
  - 4.2 *Description of Site and Surroundings*
  - 4.3 *The Proposal*
5. *Assessment of Environmental Impacts and Safeguards*
  - 5.1 *Existing Environment*
    - 5.1.1 *Landforms, Geology and Soils*
    - 5.1.2 *Climatic Condition*
    - 5.1.3 *Water Quality*
    - 5.1.4 *Air Quality*
    - 5.1.5 *Acoustic Environment*
    - 5.1.6 *Biodiversity*
    - 5.1.7 *Physical and Cultural Heritage*
    - 5.1.8 *Socio-economic Conditions*
  - 5.2 *Impacts and Mitigation Measures*
    - 5.2.1 *Erosion Hazards*
      - 5.2.1.1 *Mitigation Measures*
    - 5.2.2 *Impacts on Water Quality*
      - 5.2.2.1 *Mitigation Measures*

- 5.2.3 *Impacts on Air Quality*
  - 5.2.3.1 *Mitigation Measures*
- 5.2.4 *Noise and Vibration Impacts*
  - 5.2.4.1 *Mitigation Measures*
- 5.2.5 *Impacts on Flora and Fauna*
  - 5.2.5.1 *Mitigation Measures*
- 5.2.6 *Impacts on Physical Cultural Resources*
  - 5.2.6.1 *Mitigation Measures*
- 5.2.7 *Impact due to Waste Generation*
- 5.2.8 *Impacts on Occupational and Community Health and Safety*
- 5.2.9 *Greenhouse Gas Emissions (GHG)*
- 5.2.10 *Cumulative Impacts*
- 6. *Information Disclosure, Consultation and Participation*
- 7. *Grievance Redress Mechanism*
- 8. *Environmental Management*
- 9. *Conclusion and Recommendations*

## **Executive Summary**

4. For an IEE, this section can be very brief (should not be more than 3 pages) and need not summarize each chapter of the report. Summary information on the following is recommended:
- (i) Project proponent, need, components and location;
  - (ii) Exactly what national legislation will apply and what approval/permits are required (if any) and how is it meeting ADB SPS (2009);
  - (iii) A very brief outline of the status of current environment, what significant impact (excluding all routine ones) is anticipated and what measure has been proposed; and
  - (iv) Highlight any special measure that may have been proposed to enhance institutional capacity, offsetting biodiversity impacts etc.

## **1.0 Introduction**

5. In this section the **project history** (if any) could be described which should then logically flow to the 'objective'. Later on, when considering the justification for carrying out the proposed activity it will need to be established if the 'objective' is achieved against the environmental impacts identified through the assessment process.
6. Say the **reasons** for preparing the IEE briefly – can cite national requirements (if any) and ADB SPS policy.
7. Regarding the '**need for the project**' – establish the 'fit' of the proposed activity with

**strategic** issues as well as why is it needed **now**. Example: a narrow initial analysis might determine that a new bridge and approaches are required but broader consideration might result in a different definition of need, such as an improved river crossing. Similarly, a sewage treatment plant is needed for a particular town, but that plant will benefit the waterway which serves the whole region. Proposed activities cannot sit in isolation and it has implications on the broader land use, transport planning issues etc. and their environmental impacts. It is therefore essential that links are established at the strategic level. The '**need for 'now'**' can be established in respect with operational requirements e.g. safety, traffic efficiency, power requirements etc., and environmental and amenity improvement.

8. **Key features of project, timeframes and proponent** can be included in this section which should usually not exceed half a page.

## 2.0 Policy and Legislative Framework

- (i) Identify zoning (where appropriate) and all approving authorities for the project and legislative (national) and policy (both ADB and national) requirements including requirements for IEE and EIA;
- (ii) Identify any international agreements, national and/or local environmental planning instruments that may apply to the project and how the project design meet those requirements;
- (iii) Advise on any strategies being developed by the government which may affect the proposal, yet may not be reflected in any formal planning documents;
- (iv) A matrix of any gap analysis between national/local and ADB requirements should be provided;
- (v) Status of any approval (where appropriate) from relevant authority; and
- (vi) Search result of all national and local database (including any archaeological Society) to identify environmentally significant zones/species/heritage structures.

## 3.0 Analysis of Alternatives

9. Usually the proponent would have gone through a process of examining sites, design features, and technologies, in order to maximize the potential viability and profitability of a project, or in the case of provision of services, addressing needs in the most critical areas; there may not be a lot of alternatives (if any; for example, this is often the case with hydropower projects where the optimal location depends on topography and water storage potential).

10. Nevertheless, **reasonable alternatives** within the scope of viable project operations need to be presented and assessed from the point of view of possible environmental and social impacts (positive and negative). The IEE will need to refer to these alternatives that are usually described and assessed in the feasibility study report and emphasize the environmental perspective (where possible) for selecting or rejecting a particular option. This somehow comes as a coarse filter before the detailed project impact predictions and assessments are done for the preferred alternative.

## 4.0 Proposal Description

### 4.1 The Study Area

11. At the outset it is essential to provide **exact boundaries** (with good legible maps and colored indicating sensitive areas) of the area where impacts are presumed and have been

studied. **A description of the overall study area in relation to the project site should be made.**

#### **4.2 Description of Site and surroundings**

12. Give a general description of the site and its surrounding locality in terms of its physical geography, vegetation cover, land use and built environment. The environmental sensitivity of the site (if any) and surroundings should be discussed. Relationship between the site and surroundings should be noted. This should include proximity to forest/native vegetation area, national park or other natural heritage reserve, watercourses, wetlands, estuaries or coastline, schools, hospitals, religious structures/place, heritage sites, residential areas, shopping centers or other significant built or natural features.

13. Adequate photographic coverage is essential and should illustrate the location of the proposed activity within the context of the area. Captions, identifying key items within each photograph should be indicated. A map indicating where the photographs were taken and the direction of their view should also be provided. References to relevant photos should be made throughout the IEE.

#### **4.3 The Proposal (define the activity)**

14. The correct 'packaging' of the activity – for example, is it a demolition of existing structure or is the more accurate and inclusive 'package' is a 'new' structure with associated facilities and can have impact on existing structure?

15. All relevant **associated activities**, such as batching plant, site compound, stockpiles, geotechnical and surveying investigations, borrow and soil/waste disposal sites should be included in the description. If the sites are not likely to be determined until closer to construction, the activities can still be included and assessed by indicating the most likely sites for these activities, as well as the areas where they would not be established.

16. Each step in the **construction methodology and activities** (as per construction staging) will be elaborated including type of plant and equipments to be used, working hours and the approximate duration at each stage of the construction period.

#### **Visual Aids:**

- (i) A good general locality map showing the location, form and physical dimensions of the project in relation to major environmental constraints; and
- (ii) Photographs at various angles taken of the project sites and associated surroundings should be part of this section, any relevant diagrams and photomontages based on aerial photographs are a plus point.

### **5.0 Assessments of Environmental Impacts and Safeguards**

#### **5.1 Existing Environment**

##### **5.1.1 Landforms, Geology and Soils**

17. This (landforms) can be undertaken by analyzing the area in terms of its slope and terrain through ground survey and interpretation of aerial photos or topographical maps. Landforms

include such features as ridges, hills, gorges, rivers, alluvial plains etc. Give a brief geological setting if such a survey in the form of geotechnical investigation has been done. Erosion hazard is related to both landform and geology and also the types of soils occurring in the area and their susceptibility to erosion should also be noted.

### **5.1.2 Climatic Condition**

18. Features that need consideration are:

- (i) Rainfall (seasonal intensity and annual distribution);
- (ii) Winds (average velocity, duration and prevailing direction); and
- (iii) Annual and daily temperature range, evaporation characteristics.

### **5.1.3 Water Quality**

19. Describe the existing natural and built drainage systems within and surrounding the boundaries of the proposed activity and illustrate with a photograph if appropriate. Provide baseline condition through referencing any monitoring data that would have been done by local authorities or if not available then taking samples in strategic locations which can represent the water quality of the area. Basis for choosing the representative samples should be provided. Parameters that need to be measured depend on the type of development proposed. However, **as a minimum, water should be tested for turbidity, total dissolved solids, pH, and dissolved oxygen.** If an existing landfill site is under consideration for improvement, then sampling of leachate from the site will be necessary.

### **5.1.4 Air Quality**

20. Local and to a lesser extent regional air quality can be affected at the construction stage by dust, construction vehicle emissions while for operational stage by vehicle emissions and odors (in case of sewage treatment plant (STP) or solid/liquid waste management facility). While these factors need consideration, detailed investigation of baseline condition is usually required when a new road, STP or waste management facility is being built within populated urban areas. For any proposed development taking account of surroundings is fundamental, accordingly, if there are industries or any other pollution generating activities within the proximity then it goes without saying that an account of ambient air quality will be necessary. For all other cases qualitative rather than quantitative description will be sufficient. In an environment where it is anticipated that existing air pollution is high, parameters that need to be measured to assess baseline conditions, **as a minimum, are Total Suspended Particulates, Dust deposition (Opacity), and Sulphur Dioxide.**

21. Odors are normally invisible and can vary in accordance to weather conditions. Odors can be an issue only for STPs and waste management facilities. Assessment of any pre-existing odors prior to progressing with the proposed works initially will have to be based on subjective measurement and survey of neighborhood perception. If there are evidence of any major resentments among the surrounding population then as part of the baseline assessment there will be need for measurement of toxic substances like hydrogen sulphide or any other substances e.g. chlorine, acid gases etc., thought to be the reason for adverse odor emissions.

### **5.1.5 Acoustic Environment**

22. In most circumstances noise intrusion becomes an issue only during the construction period rendering it to be a temporary nuisance. For example, road reconstructions that follow the

existing road alignment and do not involve any design changes in traffic volume or mix is not anticipated to generate any adverse impact and could avoid elaborate assessment of existing ambient noise environment. Operational noise can become an issue in case of new roads, power plants, STPs or waste management facilities etc which demands that the existing background noise levels be established against which any future noise compliance can be measured.

23. Vibration assessment and prediction of new rail, metro or roads will be relevant where there are heritage structures in reasonable proximity.

#### **5.1.6 Biodiversity**

24. The most important criterion for establishing the significance of flora and fauna in an area is to identify the species that occur there and their habitat. A thorough search of information (**all known local and international database search**) and field surveys should be undertaken by a **competent qualified person**. The nature and scale of the proposed activity will no doubt determine the depth and detail required however, all flora and fauna assessments of the existing environment should include:

- (i) A list of plant and animals occurring in the area (i.e. the construction site and within the study area). Marine species is to be included where relevant;
- (ii) A list of aquatic and terrestrial species and its communities occurring in the study area;
- (iii) A list of threatened, vulnerable and endangered species in the study area, if any;
- (iv) A map of the study area indicating the distribution; and
- (v) Information indicating if there is a corridor of vegetated area that links or joins to larger areas of natural habitat.

#### **5.1.6 Physical and Cultural Heritage**

25. Any building, sites or items of heritage significance listed by the local and/or national authority and/or internationally (UNESCO) and that occur within or adjacent to the proposed activity should be identified and indicated on a locality map. A statement on the heritage significance should be provided. Any matters of cultural heritage in addition to archeological relics should also be discussed if these are identified.

#### **5.1.8 Socio-economic Considerations**

26. Factors to consider and stock take are:

- (i) Land use;
- (ii) Type of community spread;
- (iii) Socio-economic status;
- (iv) Existing provisions for pedestrians and other forms of transport; and
- (v) Other existing amenities for community welfare.

27. Reference should be made to the resettlement plan (RP) and/or indigenous peoples plan (IPP) (where applicable) to highlight specific social impacts on individuals. There is **no need for repetition from resettlement plan or IPP** but simply give the number of people/households affected and for details on mitigation measures reader should be directed to specific sections within the RP/IPP.

## 5.2 Impacts and Mitigation Measures

### 5.2.1 Erosion Hazards

28. The erosion hazard rating of an area indicates its erosion potential following land disturbance, including vegetation clearing and excavation. Accordingly, soil erosion is inherent in all physical development activities. Impacts are associated with soil type, slope gradients and lengths, and weather conditions which would have been described and analyzed in section 5.1.1 and 5.1.2. Based on that analysis one should be able to determine any site-specific erosion risks or hazards. A schematic of the site can be prepared superimposed on topography of the site indicating erosion risk areas.

#### 5.2.1.1 Mitigation Measures

29. Few basic principles need to be followed in designing mitigation measures and these are:

- (i) Minimize the extent and duration of disturbance, particularly around drainage lines and watercourses. For example, mark out the limits of disturbance, stage works, and progressively carry out re-vegetation and stabilization;
- (ii) Sub-divide the whole site into separate catchment areas, including drainage path;
- (iii) Keep 'clean' and 'dirty' water separate. This can be done through intercepting 'clean' upslope, run-on water around or through the site. Do not allow dirty longitudinal site drainage to mix with clean cross drainage unless it has been treated first;
- (iv) Minimize the slope length and catchment areas on the works;
- (v) Manage water at non-erosive velocities;
- (vi) Keep loose soil material and stockpiles out of drains, flow-lines and watercourses;
- (vii) Install, complete and stabilize cross-drainage structures early; and
- (viii) Schedule the installation of structural control measures (both above and below the site) prior to commencing earthworks.

30. An indication should be made on type of control measures (sediment fence, sand bags, check dams, stacked rock, sediment ponds etc.) that will be used for the project. Ideally a draft erosion and sediment control plan in schematic form can be produced during concept stage which then can be added as an appendix to the IEE.

### 5.2.2 Impacts on Water Quality

31. Major impacts on water quality from roads and other urban development works will be from sediment runoff and deposition which has been covered under section 5.2.1 above. In case of STPs, landfill sites, and solid waste management it needs to be established if the baseline conditions are being exceeded through comparing it with designed data on treated effluent quality.

32. Sometimes proposed activities are performed within the waterways itself under the following scenarios (within brackets activity and its impacts are indicated):

- (i) Installing a side-track, haul road or similar access, which involves crossing a watercourse (reclamation);
- (ii) Installing a temporary culvert (dredging/reclamation/blocking fish passage);
- (iii) Installing a temporary bridge (dredging/reclamation);



- (iv) Blocking, diverting or altering a watercourse in any way (blocking fish passage); and
- (v) Removing mangroves, sea grasses or other aquatic vegetation (habitat for aquatic organisms)

### **5.2.2.1 Mitigation Measures**

33. Some of the erosion and sediment control measures will overlap with water quality mitigation measures. Any additional measures will need to be developed specific to the type of proposed activity.

34. Dredging works may be required to construct the footings or foundations for the crossing or to clear sediment from channels. Reclamation works could include the construction and placement of pylons and abutments for bridges, creation of in-stream construction pads to access the works or the placement of material in a waterway to construct temporary or permanent waterway crossings. All these activities can cause local disturbance, sedimentation, fish passage blockage or impact on their habitat and it is important to set up appropriate mitigation measures prior to any disturbance of the area. Among some measures could be coffer dams, check dams, diversion channels etc. If the water system is non-perennial then construction of any bridges/culverts should be done during summer months only. Culvert designs should be carefully done to ensure no excessive internal flow velocity/turbulence, adequate internal flow depth, no excessive variation in water level across the culvert outlet, debris collection, all of which may pose fish passage blockage and/or impact on habitats.

### **5.2.3 Impacts on Air Quality**

35. General construction impacts e.g. dust and fumes are usually the inherent impacts which can be easily mitigated. **There is no need for monitoring of whole lot of chemical compounds e.g. sulphur dioxide, oxides of nitrogen, PM<sub>10</sub> or PM<sub>2.5</sub> if there are no stationary combustion sources nearby.**

36. If through the baseline assessment it is established that odor issues are prevalent which can be exacerbated with the proposed activities then odor modeling should be done to predict the significance of impact.

#### **5.2.3.1 Mitigation Measures**

37. Standard mitigation measures e.g. regular inspection regime established to monitor visually any excessive dust emission; elaboration on dust suppression methods and sequence should be highlighted. In case an air quality dispersion (specifically odor) modelling was done specific control measures proposed to reduce the predicted impact will need to be elaborated.

### **5.2.4 Noise and Vibration Impacts**

38. This type of impacts can become an issue if construction activities are performed out of business hours especially in densely populated urban areas. It is therefore essential to describe the construction hours, assess the sensitivity of any impacts through identifying sensitive locations and distances from noise sources.

### 5.2.4.1 Mitigation Measures

39. As applicable, some standard mitigation measures are suggested below:
- a. All construction and associated activities shall be restricted to the hours of 7:00 am to 6:00 pm (Monday to Friday) and 8:00am to 1:00 pm (Saturday), and at no time on Sundays and public holidays. Outside these hours, only work that has been permitted by relevant authority shall be undertaken and shall include:
    - (i) any works that do not cause noise emissions to be audible at any nearby residential property;
    - (ii) the delivery of materials which is required outside these hours as requested by Police or other authorities for safety reasons;
    - (iii) emergency work to avoid the loss of lives, property and/or to prevent environmental harm;
    - (iv) Local residents shall be informed of the timing and duration of approved work outside normal hours at least 48 hours prior to commencement of the work.
    - (v) Rock breaking or other activities that result in impulsive or tonal noise shall only be undertaken during the hours of 8:00 am to 12:00 pm Monday to Saturday and 2:00 pm to 5:00 pm Monday to Friday. Where these noisy activities are undertaken for a continuous three (3) hours, a minimum respite period of at least one (1) hour shall be scheduled before that activity recommences.
    - (vi) The entry and departure of heavy vehicles to and from the site shall only occur between the hours of 7:00 am to 6:00 pm Monday to Friday, 8:00 am to 1:00 pm Saturdays and no time on Sundays/Public Holidays.
    - (vii) Vibration from the construction zone and other work areas shall comply with (specify the applicable standards) for potential vibration impacts on structures, and (specify the applicable standards) for potential vibration disturbance to people.
    - (viii) Some additional best practice noise mitigation measures that can be applied during construction period include:
      - (ix) maintenance of machinery to manufacturer's specifications
      - (x) maximizing the offset distance between noisy plant items and nearby noise sensitive receivers;
      - (xi) avoiding the co-occurrence of noisy plant working simultaneously close together and adjacent to sensitive receivers;
      - (xii) minimizing consecutive night time works in the same locality;
      - (xiii) orienting equipment away from sensitive areas;
      - (xiv) carrying out loading and unloading away from sensitive areas; and,
      - (xv) selecting site access points and roads as far as possible away from sensitive receptors.

### 5.2.4 Impacts on Flora and Fauna

40. Following baseline study, it becomes essential to establish the significance of any potential impacts. SPS 2009 and ADB's Environment Safeguards Sourcebook provides helpful guidance note on this aspect and should be followed for impact identification. Where there is possibility of impacting on critical habitats specialist services of a **local ecologist** should be sought.

### **5.2.5.1 Mitigation Measures**

41. Measures will depend on country specific requirements especially in terms of any offset requirements. Some general measures that apply to all developments are suggested below (both pre-construction and construction stage measures):

- (i) All vegetation cleared from the site could be weed infested and therefore shall not be used in the rehabilitation works but shall be disposed off at a licensed landfill facility;
- (ii) All soil and leaf litter stripped from the site could be weed infested and shall therefore be treated and stockpiled for later re-use;
- (iii) All reasonable measures shall be undertaken to ensure that no native fauna is harmed or placed at risk during the course of the clearing activities;
- (iv) Any animals injured during the clearing and felling operations shall be taken to the local veterinary surgery;
- (v) The areas of vegetation on the site that is to be retained shall be protected using appropriate fencing, usually placed one meter from the maximum drip line limit of the retained tree;
- (vi) Mature trees that occur in close proximity to the construction zone shall be assessed on an individual basis to determine if it is possible to retain these within the project's design;
- (vii) To minimize the disturbance on native species, where possible, ancillary structures and work compounds shall be located in areas already cleared of native vegetation or sites that have been highly disturbed by past activities;
- (viii) If during the course of construction, suspected threatened species are identified that may be significantly affected and have not been considered in the impact assessment stage site management responsible for environment protection shall be immediately consulted regarding the appropriate action;
- (ix) Weed infested topsoil shall not be re-used in the rehabilitation works unless it is sterilized; and
- (x) Measures shall be implemented to control weed re-invasion during the works such as cleaning of tyres of plant and trucks coming to and going from the site and the use of clean, sterile topsoil in rehabilitation works.

### **5.2.5 Impacts on Physical Cultural Resources**

42. If any such items are identified under section 5.1.7 then impacts would need to be assessed for the proposed activity if the heritage item were to be removed or indirectly impacted e.g. through noise and vibration. Please further be guided by SPS (2009) and ADB's Environment Safeguards Sourcebook for impact evaluation and mitigation measures.

### **5.2.7 Impact due to Waste Generation**

43. Identify major waste streams and propose measures for their management. ADB SPS (2009) provides guidance on wastes that is useful to follow. Besides general housekeeping measures, as part of the mitigation measure, describe what steps have been taken to ensure the cost-effective use of recycled material in the proposed activity. Identify disposal methods, sites and treatments for remaining wastes.

### **5.2.8 Impacts on Occupational and Community Health and Safety**

44. Please be guided by ADB SPS (2009) and ADB's Environment Safeguards Sourcebook.

### **5.2.9 Greenhouse Gas Emissions (GHG)**

45. Not all kind of development proposals will require this assessment. SPS 2009 specifies that projects generating or expected to generate significant amount of GHG (100,000 CO<sub>2</sub> equivalent per year) will need quantification of all direct and indirect source of emissions. Energy proposals are obvious candidates for such assessments (natural gas or coal-based power plants). Although it is very difficult to take account of all GHG emissions, especially when in many cases there are not well-defined carbon emission factors for our DMCs, there are benefits in highlighting positive steps taken to reduce GHG emissions. These steps could be use of renewable energy sources, production of biogas from landfill/STPs, optimization of use of natural resources and even any climate adaptive design that has been included as part of the project. An overall estimation of GHG offset by the proposed project is always handy and desirable.

### **5.2.10 Cumulative Impacts**

46. The cumulative effect can be assessed by taking into account (i) the project site impacts, (ii) associated activities or facilities e.g. pipelines, transmission lines, borrow pits, construction camp, stockpile and/or dumping sites etc.; (iii) known information of planned extension of the project; (iv) any on-going or proposed developments in the vicinity. This is mainly a desk top exercise and information on other developments can be sourced from environmental assessment reports done for those developments.

47. For mitigation measures one should refer back to the issues addressed during strategic stage when the need for the project was evaluated on a local and regional context and discuss how the proposed activity will by itself, or in conjunction with other activities in the geographical area, affect those issues. Some answers to the following will help to write this section:

- (i) What contribution would the proposal make to the local environment (more from water, air perspective but could also be natural resource replenishment e.g. renewable energy projects)?
- (ii) Is there evidence of already ecologically stressed river/land system, both documented and undocumented?
- (iii) What would be the flow-on effects of the proposal on land use planning on a local or regional scale?
- (iv) Would the proposal attract other development which would adversely affect the environment, and which would not otherwise have located or occurred in the area?

## **6.0 Information Disclosure, Consultation, and Participation**

48. There are both informal and formal consultation processes. For example, pre-arranged gathering of various stakeholders mainly community groups organized by project proponent and publishing the draft IEE report on the government and ADB web page is a formal form of communication. Prior to web posting of draft IEE report there should be as a minimum two formal consultation sessions conducted which should be gauged at different stages of a project formation preferably, concept stage and before finalizing the detail design. There can also be informal consultations held between interested/affected individuals or particular agency, which can be unlimited, depending on the project needs. These informal meetings are often helpful to alleviate

particular concerns, and ease coordination between utility agencies which does not need elaboration under this section.

49. Initial community participation will usually have occurred before the IEE preparation and the outcome will need to be reported in the IEE report. Reporting on community involvement should include types and numbers of meetings held with focus groups/consultative committee, contact with government agencies and interest groups like NGOs; what was discussed and summary of issues/concerns, and supporting remarks. Any outcomes of the stakeholder consultation should be assessed in light of the IPSA commitments. If it is assessed that consultation was not meaningful and the outcomes are inconclusive then the PPTA team should conduct its own consultation process. The initial public consultation meeting should include the following:

- (i) Provision of information on the strategic background to and the identified need for the proposed activity and obtain feedback from the community;
- (ii) Identification of all issues and constraints to project development and various options under consideration – combining explanation with visual aids e.g. photomontage, schematics and drawings of concept design on the proposed project; and
- (iii) Recording of feedback with photographic evidence on attendance of participants.

50. The second meeting should be done at a stage when concept design has been finalized, prior to draft IEE web disclosure. Many public comments on proposed activities are concerned with the reasons for selecting the preferred option. Because of this, it is essential to hold a stakeholder consultation session once a preferred option is selected. In this session the proponent (aided by PPTA team, where applicable) should be able to demonstrate that:

- (i) All feasible options have been examined;
- (ii) That all relevant factors (environmental, social, economic), including feedback from initial consultation process, have been part of the decision-making process; and
- (iii) How the decision on the preferred option was made.

## **7.0 Grievance Redress Mechanism (GRM)**

51. The aim of a GRM process should be simplicity, transparency and responsive. Aggrieved party should not feel it as an arduous task that is impregnable and non-responsive. Please refer to template for 'Guidance Note on Preparing a Resettlement Plan' for criteria (9.1 – 9.7, GRM for RP) to set up a combined (environment and social) GRM. The basis for the IEE write up can be derived as follows.

52. Concerns of strategic nature (need for the project, option selection etc) should usually be dealt during stakeholder consultation at concept design stage. On the other hand, concerns arising due to the project implementation activities, mainly during construction stage, will need to be resolved through GRM process. GRM should be pitched at a level that is conducive to environmental impact and potential risks of a particular project and usually will comprise site level management (PIU-comprising first tier), and project level management (PMO-comprising second tier). The GRM committee should include representatives from PIU, PMO and community representative. There should always be reference to the third tier – scope for availing country's legal system which can be availed at any time irrespective of lodging any concerns in the first and second tier of GRM.

53. Basically, all attempts will be made to solve issues at site level and for that to materialize there is a need for user friendly instructions for public and a robust project quality system. Accordingly, the project proponent (executing agency and implementing agency) will need to assign designated staff to address all potential complaints for both construction and operation phase. Any complaints which concern any aspect of the project will be recorded and investigated by the responsible staff promptly. A Complaints Register will be maintained which will show the details and nature of the complaint, the complainant, the date and actions taken as a result of the investigation. It will also cross-reference any non-compliance report and/or corrective action report or other relevant documentation. The arrangement for complaints management will be reflected in the contractor's EMP to cover construction phase and the company's system documentation to cover operational phase. When construction starts, a sign will be erected at the site providing the public with updated project information and summarizing the GRM process. In addition, all complaints will be recorded in the incident report and forwarded to the PMO within a specified time (usually 3 days of the incident occurring). PMO, in turn, will forward the incident report to ADB within a week after becoming aware of it. Such project specific arrangement needs to be discussed and agreed with the executing agency and implementing agency before proposing it in the IEE report.

## 8.0 Environmental Management

54. This section will mainly describe the **process** by which it is proposed to ensure that the safeguard measures detailed in the IEE would be **implemented**. The processes involved are:

- Budgeting** – it may not be possible to indicate cost for each of the mitigation measure however, there should be an indication what % of total project cost has been allocated for environmental management; what are the capital and recurrent costs and source of funds.
- Institutional Support and responsibilities** – this should include the structure of project management for the specific project with reference to environmental responsibilities on and off site.
- Technical Procedures, Checklists, forms** – depending on the proposed activity there may be need for preparing technical procedures e.g. Operation of sediment pond and scrubbers, working in acid sulfate soil, operation of on-site toilets, emergency procedure, specific chemical handling procedure etc. There could be forms and checklists for inspection of sites, incident management etc.
- Specific Management Plans** – e.g. environmental management plan, erosion and sediment control plan, vegetation management plan, waste management plan etc.
- Management of any design changes and drafting of Contract Specifications** – will need to specify how design changes will be accommodated through referring to the project quality system. Also prescribe the arrangement to transfer environmental safeguard requirements as contract specifications.
- Monitoring and reporting** – some justification should be cited for choosing the environmental parameters that is to be monitored during the implementation of the project. National or international standards that applies and has to be maintained should also be cited (a sample table is suggested in Annex 2). Reporting structure and frequency will be specified.

55. A short description on each of the above aspect, specific to the project, will be appropriate and desirable. Section 8.0 should be prepared in a manner so that it will act principally as an **environmental operations manual** for the project manager. It would provide a basis for environmental management of the proposed works and be in a form that is useable as a day-to-day reference tool on the site.

56. A summary of impacts and mitigation measures corresponding to **project stage and activity** should be provided in this section (a sample table is suggested in Annex 1).

## **9.0 Conclusion and Recommendations**

57. This section will highlight the outcomes of impact assessment. List the major outcomes and provide a summary of its justification. Justification will usually relate to whether the adverse environmental impacts are balanced or outweighed by the beneficial effects of the proposal. If the outcomes are dependent on some specific measures that is to be undertaken by the project authority e.g. capacity development training, institutional reforms etc., that is to be funded possibly by a TA grant or hiring of external monitors then that should be mentioned by way of recommendation.

**Table A3.1: Summary of Environmental Management Process (Populate the table as per specific project impacts)**

Activity	Environmental Aspect (part of the activity that could have an impact on the environment)	Environmental Impact	Mitigation Measures	Implementation Responsibility	Supervision Responsibility	Estimated Cost
1.1 Approval, Licenses and Permits						
Pre-Construction Stage						
Obtain all necessary approvals from relevant authorities	Project personnel and management are unaware of regulatory requirements	Non-compliance with relevant environmental legislation that can lead to potential harm to the environment.	All necessary approvals, permits and licenses required by environmental legislation will be obtained prior to construction commencing.	Implementing Agency	Executing Agency	
During Construction Stage						
Maintain and monitor requirements under the approval/permit/license	Project personnel and management lack environmental safeguard awareness	Non-compliance with relevant environmental legislation	All approvals, permits and licenses shall be maintained and complied with during the construction period. Should there be any changes to the project which would require additional permit licenses, these shall be obtained.	Implementing Agency	Executing Agency	
Operation Stage (where applicable)						
1.2 Access						
Pre-construction						
Planning to construct or provide access to project site	Ignoring surrounding land user groups	Harm to public amenities	Where possible, all works shall be programmed and undertaken in a manner least disruptive to local businesses and access ways shall not	Implementing Agency	Executing Agency	



Activity	Environmental Aspect (part of the activity that could have an impact on the environment)	Environmental Impact	Mitigation Measures	Implementation Responsibility	Supervision Responsibility	Estimated Cost
			<p>be blocked at any time.</p> <p>All landowners potentially impacted by construction works or associated activities shall be consulted regarding any practicable and cost-effective measures to minimize impacts which may be beneficially implemented prior to the commencement of construction or within such time frame as agreed with the relevant landowner. Local residents shall be notified in advance of potential disruption to property accesses and traffic flow. The work site will be appropriately fenced to prevent unauthorized access.</p>			
During Construction						
Use of access road to project sites	Not maintaining communication protocol with affected parties	Harm to public amenities	Access to properties affected by the proposal shall be maintained throughout the construction period. Should there be a need to close	Implementing Agency	Executing Agency	

Activity	Environmental Aspect (part of the activity that could have an impact on the environment)	Environmental Impact	Mitigation Measures	Implementation Responsibility	Supervision Responsibility	Estimated Cost
			any access temporarily, then owners of the affected property shall be given notification of the extent, timing and duration at least 24 hours prior to it happening. Any legal access way affected by the works shall be reinstated to an equivalent standard or adequate compensation shall be negotiated with the relevant landowner(s).			
1.3 Clearing Vegetation						
1.4 Site Compound & Facilities						
1.5 Earthworks						
1.6 etc. (and so on so forth)						

**Table A3.2: Summary Environmental Monitoring Plan (Populate the table as per specific project requirements)**

Mitigation measures	Phase	Parameters to be monitored	Location	Standards	Monitoring frequency	Cost
Baseline Surveys of water quality	Design	Turbidity, Total Dissolved Solids, pH and dissolved oxygen	Representative sample location (provide specifics)	(Quote country specific requirements)	Once only before construction	
Etc.						

**CONTENT AND FORMAT OF SEMI ANNUAL ENVIRONMENTAL MONITORING REPORT**  
**SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT**

**I. INTRODUCTION**

- Overall project description and objectives
- Environmental category as per ADB Safeguard Policy Statement, 2009
- Environmental category of each subproject as per national laws and regulations
- Project Safeguards Team

Name	Designation/Office	Email Address	Contact Number
1. PMU			
2. PIUs			
3. Consultants			

- Overall project and sub-project progress and status
- Description of subprojects (package-wise) and status of implementation (preliminary, detailed design, on-going construction, completed, and/or O&M stage)

Package Number	Components/List of Works	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) <sup>a</sup>	Contract Status (specify if under bidding or contract awarded)	On-going Construction	
				%Physical Progress	Expected Completion Date

<sup>a</sup> If on-going construction, include %physical progress and expected date of completion.

**II. COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS<sup>a</sup>**

Package No.	Subproject Name	Statutory Environmental Requirements <sup>b</sup>	Status of Compliance <sup>c</sup>	Validity if obtained	Action Required	Specific Conditions that will require environmental

							<b>monitoring as per Environment Clearance, Consent/Permit to Establish<sup>d</sup></b>

<sup>a</sup> All statutory clearance/s, no-objection certificates, permit/s, etc. should be obtained prior to award of contract/s. Attach as appendix all clearance obtained during the reporting period. If already reported, specify in the “remarks” column.

<sup>b</sup> Specify (environmental clearance? Permit/consent to establish? Forest clearance? Etc.)

<sup>c</sup> Specify if obtained, submitted and awaiting approval, application not yet submitted.

<sup>d</sup> Example: Environmental Clearance requires ambient air quality monitoring, Forest Clearance/Tree-cutting Permit requires 2 trees for every tree, etc.

**III. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS**

<b>No. (List schedule and paragraph number of Loan Agreement)</b>	<b>Covenant</b>	<b>Status of Compliance</b>	<b>Action Required</b>

**IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT PLAN (REFER TO EMP TABLES IN APPROVED IEE/S)**

- Confirm if IEE/s require contractors to submit site-specific EMP/construction EMPs. If not, describe the methodology of monitoring each package under implementation.

**Package-wise Implementation Status**

<b>Package Number</b>	<b>Components</b>	<b>Design Status (Preliminary Design Stage/Detailed Design Completed)</b>	<b>Final IEE based on Detailed Design</b>				<b>Site-specific EMP (or Construction EMP) approved by Project Director? (Yes/No)</b>	<b>Remarks</b>
			<b>Not yet due (detailed design not yet completed)</b>	<b>Submitted to ADB (Provide Date of Submission)</b>	<b>Disclosed on project website (Provide Link)</b>	<b>Final IEE provided to Contractor/s (Yes/No)</b>		

- Identify the role/s of Safeguards Team including schedule of on-site verification of reports submitted by consultants and contractors.
- For each package, provide name/s and contact details of contractor/s’ nodal person/s for environmental safeguards.
- Include as appendix all supporting documents including **signed** monthly environmental site inspection reports prepared by consultants and/or contractors.

- With reference to approved EMP/site-specific EMP/construction EMP, complete the table below
- Provide the monitoring results as per the parameters outlined in the approved EMP (or site-specific EMP/construction EMP when applicable).
- In addition to the table on EMP implementation, the main text of the report should discuss in details the following items:
  - (i) **Grievance Redress Mechanism.** Provide information on establishment of grievance redress mechanism and capacity of grievance redress committee to address project-related issues/complaints. Include as appendix Notification of the GRM (town-wise if applicable).
  - (ii) **Complaints Received during the Reporting Period.** Provide information on number, nature, and resolution of complaints received during reporting period. Attach records as per GRM in the approved IEE. Identify safeguards team member/s involved in the GRM process. Attach minutes of meetings (ensure English translation is provided).
- Confirm if any dust was noted to escape the site boundaries and identify dust suppression techniques followed for site/s.
- Identify muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads.
- Identify type of erosion and sediment control measures installed on site/s, condition of erosion and sediment control measures including if these were intact following heavy rain;
- Identify designated areas for concrete works, chemical storage, construction materials, and refueling. Attach photographs of each area.
- Confirm spill kits on site and site procedure for handling emergencies.
- Identify any chemical stored on site and provide information on storage condition. Attach photograph.
- Describe management of stockpiles (construction materials, excavated soils, spoils, etc.). Provide photographs.
- Describe management of solid and liquid wastes on-site (quantity generated, transport, storage and disposal). Provide photographs.
- Provide information on barricades, signages, and on-site boards. Provide photographs.
- Provide information on
- Checking if there are any activities being under taken out of working hours and how that is being managed.

**Summary of Environmental Monitoring Activities (for the Reporting Period)<sup>a</sup>**

<b>Impacts (List from IEE)</b>	<b>Mitigation Measures (List from IEE)</b>	<b>Parameters Monitored (As a minimum those identified in the IEE should be monitored)</b>	<b>Method of Monitoring</b>	<b>Location of Monitoring</b>	<b>Date of Monitoring Conducted</b>	<b>Name of Person Who Conducted the Monitoring</b>
<b>Design Phase</b>						
<b>Pre-Construction Phase</b>						
<b>Construction Phase</b>						
<b>Operational Phase</b>						

<sup>a</sup> Attach Laboratory Results and Sampling Map/Locations

**Overall Compliance with CEMP/EMP**

No.	Sub-Project Name	EMP/ CEMP Part of Contract Documents (Y/N)	CEMP/ EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required

**V. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT**

- Brief description on the approach and methodology used for environmental monitoring of each sub-project

**VI. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (ambient air, water quality and noise levels)**

- Brief discussion on the basis for monitoring
- Indicate type and location of environmental parameters to be monitored
- Indicate the method of monitoring and equipment to be used
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements

*As a minimum the results should be presented as per the tables below.*

**Air Quality Results**

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 $\mu\text{g}/\text{m}^3$	SO2 $\mu\text{g}/\text{m}^3$	NO2 $\mu\text{g}/\text{m}^3$

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 $\mu\text{g}/\text{m}^3$	SO2 $\mu\text{g}/\text{m}^3$	NO2 $\mu\text{g}/\text{m}^3$

**Water Quality Results**

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity $\mu\text{S}/\text{cm}$	BOD $\text{mg}/\text{L}$	TSS $\text{mg}/\text{L}$	TN $\text{mg}/\text{L}$	TP $\text{mg}/\text{L}$

Site No.	Date of Sampling	Site Location	Parameters (Monitoring Results)
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			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L

**Noise Quality Results**

Site No.	Date of Testing	Site Location	LA <sub>eq</sub> (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA <sub>eq</sub> (dBA) (Monitoring Results)	
			Day Time	Night Time

VII. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

- Summary of follow up time-bound actions to be taken within a set timeframe.

APPENDIXES

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection report
- Other



SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT

Project Name  
Contract Number

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_ DMA: \_\_\_\_\_  
LOCATION: \_\_\_\_\_ GROUP: \_\_\_\_\_

WEATHER CONDITION:

\_\_\_\_\_

INITIAL SITE CONDITION: \_\_\_\_\_

CONCLUDING SITE CONDITION:

Satisfactory \_\_\_\_\_ Unsatisfactory \_\_\_\_\_ Incident \_\_\_\_\_ Resolved \_\_\_\_\_ Unresolved \_\_\_\_\_

INCIDENT:  
Nature of incident:

\_\_\_\_\_

Intervention Steps:

\_\_\_\_\_

Incident Issues

Resolution

Project Activity Stage	Survey	
	Design	
	Implementation	
	Pre-Commissioning	
	Guarantee Period	

**Inspection**

Emissions	Waste Minimization
Air Quality	Reuse and Recycling
Noise pollution	Dust and Litter Control
Hazardous Substances	Trees and Vegetation

Site Restored to Original Condition      Yes       No

Signature \_\_\_\_\_

**Sign off**

Name \_\_\_\_\_  
Position \_\_\_\_\_

Name \_\_\_\_\_  
Position \_\_\_\_\_

1.