Environmental Assessment and Review Framework

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India: Kolkata Municipal Corporation Sustainability, Hygiene, and Resilience (Sector) Project

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CURRENCY EQUIVALENTS
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Currency unit	–	Indian rupee (₹)
₹ 1.00	=	$ 0.01
$ 1.00	=	₹ 83.68

ABBREVIATIONS

ADB	–	Asian Development Bank
ASI	–	Archaeological Survey of India
CBO		Community based organization
CPCB	–	Central Pollution Control Board
CRZ	–	Coastal Regulation Zone
CTE	–	consent to establish
CTO	–	consent to operate
DMA	–	district metered area
EAC	–	expert appraisal committee
EARF	–	environmental assessment and review framework
EIA	–	environmental impact assessment
EKW	–	East Kolkata Wetlands
EKWMA	–	East Kolkata Wetland Management Authority
EMP	–	environmental management plan
EMS	–	environmental management specialist
ESZ	–	Eco Sensitive Zone
GOWB	–	Government of West Bengal
HSGO	–	head, safeguards and gender officer
HTL	–	high tide line
IEE	–	initial environmental examination;
KOPT	–	Kolkata Port Trust
KSHARP	–	Kolkata Municipal Corporation Sustainability, Hygiene, and Resilience (Sector) Project
LTL	–	Low tide line
L & L R Department	–	Land & Land Reforms Department
MOEFCC	–	Ministry of Environment, Forest and Climate Change
MSWM	–	municipal solid waste management
NEP	–	National Environment Policy
NOC	–	No Objection Certificate
O&M	–	operation and maintenance
PAM	–	Project Administration Memorandum
PIU	–	Project Implementation Unit
PMDC	–	Project Management and Design Supervision Consultant
PMU	–	Project Management Unit
PWD	–	Public Works Department
REA	–	rapid environmental assessment
ROW	–	right-of-way
SCADA	–	Supervisory Control and Data Acquisition
SEIAA	–	State Environmental Impact Assessment Authority

SGC	–	safeguards and gender cell
SPS	–	Safeguard Policy Statement
STP	–	Sewage treatment plant
UNFCCC	–	United Nations Framework Convention on Climate Change
UNESCO	–	United Nations Educational, Scientific and Cultural Organization
WBPCB	–	West Bengal Pollution Control Board
WLS	–	Wildlife Sanctuary

WEIGHTS AND MEASURES

^{o}C	–	degree centigrade
dB	–	Decibels
dia	–	diameter
kg	–	kilogram
Kl	–	kilolitre
km	–	Kilometre
kmph	–	kilometre per hour
ha	–	Hectare
HP	–	Horsepower
LPCD	–	liters per capita per day
lps	–	liters per second
m^3	–	cubic meter
mg	–	milligram
mm	–	Millimetre
mcm	–	million cubic meter
sq.km	–	square kilometre

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I. INTRODUCTION

A. Overview

1. Kolkata is the seventh largest metropolitan cities in India and the state capital of West Bengal. According to the last Census in 2011, it had a population of 4.5 million. The continuous improvement of urban services is necessary for a better urban environment which will improve the overall health condition of the citizen. Over the last decade, different development authorities had undertaken some significant planning and positive improvements in urban services e.g. removal of pavement encroachments, upgrading of slums, extensive plantations, expansion of the water supply network and sewerage & Drainage (S&D) network, widening of roads, development of parks and better solid waste management in Kolkata. While the core area of the city, covering ward no. 7 to 100 has an organized sewer network, the 'added areas' of the city annexed under Kolkata Municipal Corporation (KMC) after 1984 (Borough XI to Borough XVI) is devoid of any such facilities.

2. Therefore, as a part of overall environmental up gradation with special emphasis to improvement of S&D network, Kolkata Environmental Improvement Project (KEIP) was taken-up with financial assistance from the Asian Development Bank (ADB) under ADB Loan No.1813 IND (approved on 19th December 2000) and 2293 IND (approved on June 2013). The main project components were development of S&D network for a part of the 'Added Areas' and part of Boroughs I & VII including pumping stations and sewage treatment plants (STPs); canal improvement works; slum improvement works for selected slums; resettlement & rehabilitation of canal bank dwellers; construction of bridge, procurement of solid waste management equipment; beautification of selected parks and water bodies etc. The Project was completed on 30th June 2013.

3. In continuation of KEIP, Kolkata Environment Improvement Investment Program (KEIIP), has been taken up in 2014 with financial assistance from the ADB through a multi tranche financing facility (MFF) with Loan Nos. 3053 IND (Tranche 1, approved on 22 October 2013), 3413 IND (Tranche 2, approved on 21st November 2016) and 3689 IND (Tranche 3 approved on 13th August 2018). Under this project, development of S&D network improvement work, water supply system and rehabilitation of inefficient and outdated water supply asset have been taken up in the selected part of KMC areas. The works under Tranche 1 (Loan nos. 3053-IND) has been completed on 31st December 2020 and the work included under the remaining two Tranches are under progress.

4. The proposed Kolkata Municipal Corporation Sustainability, Hygiene, and Resilience (Sector) Project (KSHARP or the "project") is a continuation endeavor of ADB's support to improve the livability and quality of life of the urban people in the jurisdiction of the Kolkata Municipal Corporation area. The project will provide comprehensive and services in uncovered areas of Kolkata. The project is aligned with the country partnership strategy for India, 2018–2022, which recognizes the need to address infrastructure bottlenecks and provide better municipal services for the urban poor. The project is also in line with the state of West Bengal's 20-year vision, Kolkata's sewerage, and drainage master plan (2007), Kolkata's Urban Sector Investment Plan, 2012–2022, and KMC's solid waste management master plan (2018).

5. Further, to improve the urban environment and living conditions in the un-sewered areas in Kolkata, a new project, KSHARP, is now proposed to be implemented by KMC. A series of subprojects will be implemented under sector loan for development of S&D network in the selected part of un-sewered areas of KMC. Subprojects will be selected from the 11 eligible

subprojects (Table 1 & Figure 1) identified under the Master Plan of S&D System for Project Area under KSHARP, KMC, which are:

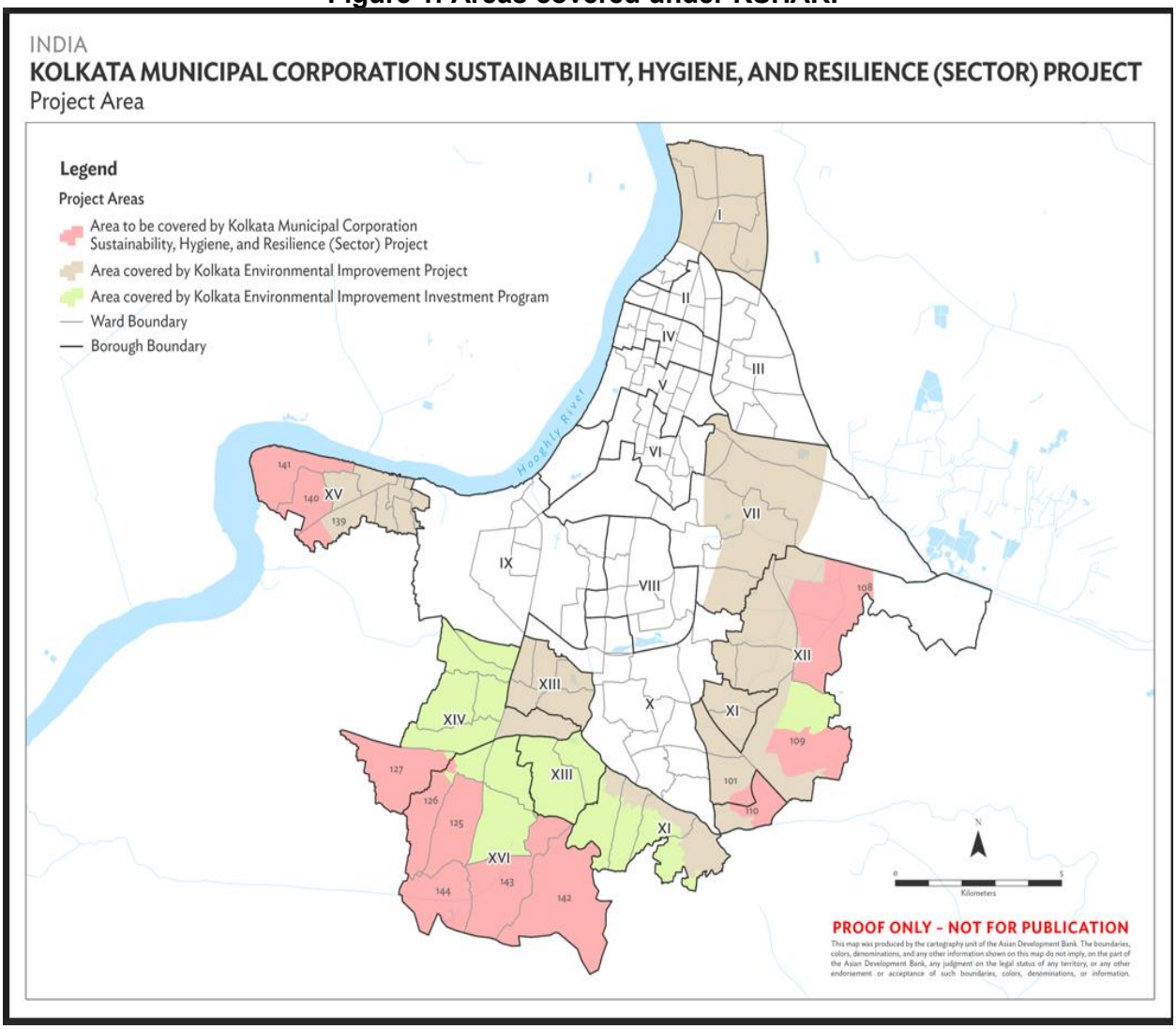
Table 1: Eligible subprojects under KSHARP, KMC (Sector Loan)

Sl. No	Eligible subprojects
1.	Development of trunk S&D network and lateral sewers including house connections and construction of pumping stations in Suti Sub-Basin (part of wards 126 and 127)
2.	Development of trunk S&D network and lateral sewers including house connections and construction of pumping stations in Kalagachia Sub-Basin (part of wards 125 and 126)
3.	Development of trunk S&D network and lateral sewers including house connections in Bakrahat Road Catchment and Hanspukur Catchment (part of wards 125 and 144)
4.	Development of trunk S&D network and lateral sewers including house connections in Kabar Danga PS Catchment and construction of PS (part of wards 142 and 143)
5.	Development of trunk S&D network and lateral sewers including house connections in 22 Bigha PS Catchment and construction of PS in Borough XVI (part of wards 142 and 143)
6.	Development of trunk S&D network and lateral sewers including house connections in Julpia Road PS Catchment and construction of PS in Borough XVI (part of ward 142)
7.	Development of trunk S&D network and lateral sewers including house connections in Chowbhaga (East), Chowbhaga (west), and Nonadanga and including construction of 2 PSs in Borough XII (part of ward 108)
8.	Development of trunk S&D network and lateral sewers including house connections in Hossainpur & Anandapur PS in Borough XII (part of ward 108)
9.	Development of trunk S&D network and lateral sewers including house connections in Nayabad, Ajaynagar, Panchsayar, and Baishnabghata and augmentation of one existing PS in Borough XII (part of wards 109 and 110)
10.	Construction of Hossainpur & Hatisur STP
11.	Development of Trunk S&D network and lateral sewers including house connections in part of ward 139 and wards 140 and 141

PS = pump station, S&D = sewerage and drainage, STP = sewage treatment plant.

6. The areas covered under S&D works under KSHARP with reference to Table 1 are shown in Figure 1.

Figure 1: Areas covered under KSHARP



B. Project outputs

7. The expected outcome of the project is increased access to resilient, inclusive and sustainable urban services. The outcome will be achieved through two outputs:

8. **Output 1:** Climate and disaster-resilient urban infrastructure and systems developed. The project will support the development of climate- and disaster-resilient sewerage and drainage infrastructure and systems, which will cover unserved areas of KMC. It includes the construction of 84.0 kilometers (km) of trunk and secondary sewerage and drainage networks and 176.0 km of lateral network up to customer connections, 50,000 household sewer connections, one sewage treatment plant with a capacity of 41 million liters per day, and five pumping stations. The infrastructure solution will be supplemented by ongoing waterbody rejuvenation efforts by KMC and flood early warning and forecasting systems to be enhanced under output 2 of this project. Strengthened urban infrastructure and systems will provide better services to all people, while women, children, the poor, and the disadvantaged will especially benefit from improved urban sanitation, health, and hygiene.

9. **Output 2:** Enabling environment for inclusive and resilient urban services improved. This output will build upon efforts delivered under KEIIP to enhance KMC's operational capacity and resilience of urban services. Specific initiatives include support in (i) development of a comprehensive asset management system to be institutionalized in KMC. This includes formulation of an asset management policy, development of an information technology system, and establishment of an inventory of all classes of KMC assets, following physical survey, verification, and valuation. Additionally, capacity building support and training will be provided to establish processes, practices, and clear accountabilities for institutionalizing the asset management system in KMC; (ii) expansion of the flood forecasting and early warning system established under KEIIP to KSHARP areas;[1] (iii) upgrade of comprehensive web-enabled GIS for infrastructure information in KMC.[2] The proposed upgrade includes incorporating data on all utility networks that are laid under KEIIP and proposed under KSHARP. This will complement the proposed asset management system that would be established under KSHARP; (iv) training and mainstreaming women self-help groups (SHGs) in O&M of public toilets in project boroughs; (v) community outreach for improved knowledge on hygiene and sanitation, and (vi) awareness generation amongst school students on flood hazards, preparedness, and emergency evacuation procedures.

10. **Implementation arrangement**. The Kolkata Municipal Corporation (KMC) will be the executing and implementing agencies, and the project management unit (PMU) established within KMC for the ADB-financed Kolkata Environmental Improvement Investment Program (KEIIP), will implement the project. The project will be governed by a high-level steering committee headed by the Minister-in-charge, Municipal Affair and Urban Development Department (MAUDD). The PMU, headed by a Project Director. The Project Director will be supported by Director General - Project for procurement and contract management and Deputy Chief Engineer (DCE) for safeguards implementation. The DCE, supported by a Manager – Environment, Health and Safety and Manager - Social, will be responsible for environmental and social safeguards in compliance with project agreements, government requirements and ADB SPS, 2009. Gender, Safeguard management unit (GSMU) headed by DCE and staffed with 3 Managers, 3 Deputy Managers, and 8 project assistants to implement and monitor of gender action plan, EMP, resettlement plans, and with focus on community and occupational health and safety aspects.[3] PMU will be supported by a Project Management and Design Supervision Consultant (PMDSC). The PMDSC will have an Environmental Safeguards Specialist (ESS) and an Health and Safety Expert to support in all tasks related to environmental safeguards. At contractor level, an Environment, Health and Safety (EHS) supervisor will be appointed on-site, one for each package, to assist in preparing and implementing site-specific EMP.

[1] The project will consider GESI-responsive early warning systems and take into consideration the most effective channels to communicate with women, persons with disability, elderly, and other vulnerable groups taking into account the levels of literacy.

[2] KEIIP supported in establishing a web-enabled GIS by integrating information from remote sensing data and on-ground surveys to create a comprehensive infrastructure information system for Kolkata. The system covers all 144 wards of the city and provides detailed information on properties, as well as the water supply, sewerage, and drainage networks. All properties within the city have been geo-tagged, creating a digital map with precise location data for each property.

[3] The existing Social Safeguard Cell will function as the Safeguard and Safety Cell (SSC) for the project.

C. Project Components

11. The project will improve the sewerage and drainage systems in the selected five Boroughs and thirteen wards under KMC (Table 1). The main types of infrastructure components under different procurement packages are shown in Table 2.

Table 2: List of Identified Work Program under KURIP

Subproject	Component	Proposed Infrastructure
Sewerage and Drainage system	S&D network	• Combined sewer and drainage networks will be laid covering part of ward no. 101, 107, 108, 109, 110, 125, 126, 127, 142, 143 and 144. • Storm Water Flow (SWF) pumping mains • Dry weather flow (DWF) pumping mains • Stormwater outfalls
	Pumping Stations (PS)	• Total 11 nos. of pumping stations (PS) are proposed to be constructed
	Sewage Treatment Plant (STP)	• 2 new Sewage Treatment Plant (STP) at Hossainpur (ward 108) and Hatisur (ward 107) • Treated effluent outfall sewer
	House Connection	• Individual houses will be connected to the S&D network

D. Purpose of Environmental Assessment and Review Framework

12. The EARF provides 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 Safeguard Policy Statement (SPS, 2009). This EARF is developed in accordance with requirements per ADB SPS, Government of India and Government of West Bengal's environmental Acts, rules, regulations and standards. The EARF will guide each subproject's selection, screening and categorization, environmental assessment, preparation of environmental assessment reports, and implementation of environmental management plan (EMP).

13. The EARF (i) describes the proposed subprojects; (ii) explains the general anticipated environmental impacts of the subprojects to be financed under the proposed loan; (iii) specifies the requirements that will be followed in relation to subproject 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 subprojects and/or components; (iv) assesses the adequacy of the client's capacity to implement national laws and ADB's requirements and identify needs for capacity building; (v) specifies implementation procedures, including the budget, institutional arrangements, and capacity development requirements; (vi) specifies monitoring and reporting requirements; and (vii) describes the responsibilities of the client and of ADB in relation to the preparation, implementation, and progress review of safeguard documents of subprojects.

The EARF will be reviewed regularly and, if necessary, updated during implementation especially if unanticipated impacts arise or if there is any change in scope or change in legal and regulatory frameworks

E. Environmental Categorization of Kolkata Municipal Corporation Sustainability, Hygiene, and Resilience (Sector) Project (KSHARP)

14. The project is classified as category B for environment per ADB SPS. Initial environmental examination (IEE) conducted for three sample subprojects[4] indicate that KSHARP is unlikely to have any significant adverse environmental impacts that are irreversible, diverse, or unprecedented. The potential impacts are site-specific, are temporary in nature, and can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures. Assessment was conducted using tools such as ADB Rapid Environmental Assessment (REA) Checklist, various technical discussions, and site visits. The sample IEEs concluded potential impacts are mainly due to construction and operations and unlikely to affect areas larger than the sites or facilities subject to physical works. It is likely that future subprojects will replicate the sample subprojects and are thus expected to be category B. Subprojects projected to be categorized as A (potential impacts are significant, irreversible, diverse, unprecedented, or larger than the sites or facilities subject to physical works) will not be considered for implementation under the project.

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Country Environmental Safeguard Policies

15. The Constitution of India guarantees protection and preservation of environment. The Constitution declares that “it is 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 guarantees the environment protection – “the state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country”. Implementation of KSHARP will be governed by environmental Acts, Rules, Policies, and Regulations of the Government of India (GOI). These regulations impose restrictions on the activities to minimize/mitigate likely impacts on the environment. Many of these are cross-sectorial and several of them are directly related to environmental issues. Salient features and applicability of these legislations are discussed below, and Table 2 presents specific requirements for the project. The implementation of the subprojects under the investment program will be governed by the national and state of West Bengal environmental acts, rules, regulations, and standards. Appendices 1-3 provide the environmental standards for air, surface water, groundwater, emissions, noise, and vehicular exhaust.

16. **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 Pollution1992. The Objectives of the National Environment Policy 2006 are:

(i) Conservation of critical environmental resources

[4] (i) SD 03: Development of S&D Network and Pumping station in Ward-108 (Anandapur Catchment); (ii) SD 04: Construction of Hossainpur STP and (iii) SD 05: Development of S&D Network and Pumping station in Hossainpur (Ward-108)

(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
(vii) Enhancement of Resources for Environmental Conservation

17. **Environment (Protection) Act, 1986, Amended 1991.** This Act is promulgated as umbrella legislation for the protection of the environment in the country and seeks to address the gaps in earlier legislations relating to environment. This Act also empowers the government to make rules for protection, conservation and management of the environment. The Central government may put restrictions on an area in which any activity/industry, operation or process or class of industries or operations shall not be carried out. If they are to be carried out, they may be permitted with certain safeguards. The Central government may notify emission and effluent standards; the state governments (in case of West Bengal, the West Bengal Pollution Control Board, WBPCB) can notify more stringent standards for their states but can't be relaxed.

18. **Water (Prevention and Control of Pollution) Act, 1974, Amended 1988**. This act was enacted to prevent and control of water pollution and restore the water quality, through various measurement, important of which is establishment Pollution Control Boards. The following are some important provisions of the Act.

(i) No persons shall knowingly cause or permit any poisonous, noxious or polluting matter determined in accordance with such standards as may be laid down by the SPCB to enter (directly/ indirectly) into any stream or well or sewer or on land
(ii) No person shall cause or permit to enter into any stream any other matter which may tend, either directly or in combination with similar matters, to impede the proper flow of the water of the stream in a matter leading or likely to lead to a substantial aggravation of pollution due to other causes or of its consequences
(iii) No person shall, without the prior consent of the State Pollution Control Board:

a) Establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an extension or addition which is likely to discharge sewage or effluent into stream, well, sewer or on land;
b) Setting up of industry or process that generates wastewater requires SPCB's consent to establish and consent to operate after the establishment;
c) Bring into use any new or altered outlets for the discharge of sewage;
d) Begin to make any new discharge of sewage; and
e) Penalties for violation of provisions of the Act.

19. **Air (Prevention and Control of Pollution) Act, 1981, amended 1987**. The objective of the Air Act is to prevent, control and reduce air pollution including noise pollution and to establish Population Control Boards to administer the Act. No person shall establish or operate any industrial plant, with air pollution potential, without the consent of the SPCB. The consent would contain conditions relating to specifications of pollution control equipment to be installed. The other Provisions of the Act are similar to those of the Water Act, 1974.

20. Department of Environment, GOWB, has issued a direction in 2009 under the Air Act, 1981 laying down norms for control of air pollution from construction activities (Appendix 4). This prescribes two sets of norms: preventive measures, and practices to be discarded to complied by

all agencies undertaking the construction activities in the state of West Bengal. It provided for legal action, stoppage of work and imposition of pollution cost on violation of norms. This direction was issues based on a study conducted by WBPCB with the help of ADB on contribution of construction activities to the air pollution in Kolkata and surrounding areas.

21. **Municipal Solid Waste Management Rules, 2016.** Rules notified in April 2016 superseding the erstwhile Municipal Solid Waste (Management and Handling) Rules, 2000. Rules applicable for management of all solid waste (except hazardous, industrial, e-waste, bio-medical, radioactive waste etc.,) provide duties of waste generators in dealing with waste, its segregation, storing etc., duties of various government agencies, urban local bodies, pollution control boards, manufacturers etc., provides criteria, specifications and standards for setting up waste processing, treatment and landfills; criteria for pollution prevention and monitoring.

22. **Construction and Demolition (C and D) Waste Management Rules, 2016**. These Rules notified in March 2016 apply to waste resulting from construction, remodeling, repair and demolition of any civil structure. Rules define C and D waste as waste comprising of building materials, debris resulting from construction, re-modeling, repair and demolition of any civil structure. Waste generator is responsible for collection, segregation of concrete, soil and others waste and storage of C and D waste generated as notified by the local authority. C and D waste shall not be mixed with other solid waste. If waste generation is more than 20 tons per day or 300 tons per month, the rules requires submission of waste management plan to the local authority prior to start of work. Rules also notify duties of service providers (like water supply, sewerage etc.,) often generate C and D waste, and requires preparation of a comprehensive waste management plan within six months from the date of this notification. As per the notification, each state should establish C and D waste processing facility.

23. **Forest Act, 1927 and Forest (Conservation) Act, 1980, amended 1988**. Acts empower the government to declare forest areas (reserved, protected and village forests), and regulation of activities within the forests. Use of forest land for any non-forest purpose and forest land conversion will follow the “Guidelines for Diversion of Forest Lands for Non-Forest Purpose” under Forest (Conservation) Act, 1980. In the sample subprojects, components are not located on forest lands.

24. In the sample subprojects, components at places are not located on forest lands.

25. The proposal for conversion and compensatory afforestation should be submitted by project proponent to Forest Department, Government of West Bengal, which will then forward it to the Ministry of Environment, Forest and Climate Change (MOEFCC) for approval. The following guidelines to be adhered to in the process:

(i) An equivalent area of non-forest land will be made available for afforestation.
(ii) As far as possible, the non-forest land for compensatory afforestation should be identified contiguous to or in the proximity of a reserved Forest or protected forest. If non-forest lands are not available in the same district other non-forest land may be identified elsewhere in the state.
(iii) Where non-forest lands are not available, compensatory afforestation may be carried out over degraded forest twice in extent to the area being diverted.

26. **Wildlife (Protection) Act, 1972**. Comprehensive act for protection and management wildlife, and empowers the government to declare and administer the activities in the Protected Areas (Wildlife Sanctuaries, National parks, biosphere reserves etc.,), and creation of State

Wildlife Boards and National Board of Wildlife. Conversion of forest lands that are part of National Parks/Sanctuaries and Tiger Reserve areas (notified under Indian Wildlife (Protection) Act, 1972) is not permitted. In exceptional case, the State Government requires consent of the National Board for Wildlife and Central Empowered Committee of Supreme Court for obtaining wildlife clearance from MOEFCC.

27. **The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and its Amendment, 2010.** According to this Act, area within the radii of 100m and 300m from the "protected area" are designated as "prohibited area" and "regulated area" respectively. No development activity (including construction, mining, excavating, blasting) is permitted in the "prohibited area" and development activities likely to damage the protected property are not permitted in the "regulated area" without prior permission of the National Monument Authority.

28. **Environmental Assessment Notification, 2006**. Issued under the EP Act, 1986, the 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.

(i) **Category 'A' projects** require environmental clearance from the national MOEFCC. The proponent is required to provide preliminary details of the project in the form of a Notification, afterwhich an Expert Appraisal Committee (EAC) of the MOEFCC prepares comprehensive Terms ofReference (TOR) for the EIA study, which are finalized within 60 days. On completion of the studyand review of the report by the EAC, MOEFCC considers the recommendation of the EAC and provides the Environmental Clearance if appropriate.

(ii) **Category B projects** require environmental clearance from the State Environmental 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. Oncompletion of the study and review of the report by the EAC, the SEIAA issues the EnvironmentalClearance based on the EAC recommendation. The Notification also provides that any project oractivity 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 inter-state or international boundaries. At present, water supply projects proposed under KSHARP do not fall under the ambit of the EIA Notification, 2006, and therefore Environmental Clearance is not required.

29. **Coastal Regulation Zone Notification, 2011 and its Amendment, 2018**. This supersedes the notification issued in 1991. To ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment, promote sustainable development considering natural hazards, sea level rise due to global warming, this Notification declares coastal stretches as Coastal Regulation Zone (CRZ) and restricts new construction, and industrial activities.

30. **Other National Legislations**. The other legislations relevant to the project include The Motor Vehicles Act, 1988, Workmen Compensation Act, 1923, The Public Liability Insurance Act, 1991, The Explosives Act (and Rules), 1884 (revised in 1983), Contract Labor (Regulation and Abolition) Act, 1970, Minimum Wages Act, 1948, Payment of Wages Act, 1936, Equal Remuneration Act, 1979, Child Labor (Prohibition and Regulation) Act, 1986, The Building and

Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act, 1996, Mines and Minerals (Development and Regulation) Amendment ACT, 2015, Public Liability and Insurance Act 1991, Explosive Act 1984, The Building and Other Construction Workers (regulation of employment and conditions of service) Act, 1996, Bonded Labor System (Abolition) Act, 1976 along with Rules, 1976, Contract Labor (Regulation and Abolition) Act 1970 along with rules, 1971; The Indian Electricity Rules, 1956 states that for extra-high voltage lines the clearance above ground shall not be less than 5.2 meters plus 0.3 meter for every 33,000 volts or part thereof by which the voltage of the line exceeds 33,000 volts.

31. State specific Legislations. Following Acts, Rules, Directions etc. applicable in West Bengal state are also considered:

(i) The Major Port Trusts Act, 1963 (Kolkata Port Trust, KoPT);
(ii) West Bengal State Water Policy;
(iii) Notification on Air Pollution, Department of Environment, GOWB, March 2010 (issued under the Air Act, 1981);
(iv) Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009;
(v) West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005;
(vi) West Bengal Inland Fisheries Act, 1984;
(vii) East Kolkata Wetlands (Conservation and Management) Act, 2006;
(viii) West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006;
(ix) West Bengal Trees (Protection and Conservation in Non-Forest Areas) Rules, 2007;
(x) West Bengal Action Plan on Climate Change;
(xi) The West Bengal Preservation of Historical Monuments and Objects and Excavation of Archaeological Sites Act, 1957;
(xii) The West Bengal Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and Rules, 2004.

32. Table 3 presents salient features and applicability of acts, rules and regulations currently in force that could apply to KSHARP including the specific requirements. Appendix 1-3 includes environmental standards for air, surface water and drinking water standards, emissions, noise, vehicular exhaust and disposal to land/agricultural, and use of sludge and bio-solids, and also the World Health Organization drinking water and ambient air quality guideline values.[5]

Table 3: Applicable Environmental Regulations and their specific requirements for the project

[5] ADB SPS requires applying pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When Government of India regulations differ from these levels or measures, KURIP will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of KURIP circumstances, KMC will provide full and detailed justification for any proposed alternatives that are consistent with ADB SPS requirements.

Legislation	Policy Description	Applicability
National Environment Policy (NEP), 2006.	NEP is a comprehensive guiding document in India for all environmental conservation programs and legislations by Central, State and Local Government. The dominant theme of this policy is to promote betterment of livelihoods without compromising or degrading the environmental resources. The policy also advocates collaboration method of different stakeholders to harness potential resources and strengthen environmental management.	The sub projects under KSHARP should adhere to NEP principle of "enhancing and conservation of environmental resources and abatement of pollution".
Water (Prevention and Control of Pollution) Act, 1974, amended 1988 and its Rules, 1975.	Water (Prevention and Control of Pollution) Act was established to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, by Central and State Boards and for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith.	Applicable for the construction and operation of the sewage treatment plant (STP); Consent to establish (CTE) and consent to operate (CTO) from WBPCB; Compliance to conditions and disposal standards stipulated in CTE and CTO.
Air (Prevention and Control of Pollution) Act, 1981, amended 1987 and its Rules, 1982.	An agreement for the preservation of the natural resources which included air and water preservation was finalized at the United Nations Conference on the Human Environment held in Stockholm in June 1972, in which India participated. Following this the Air (Prevention and Control of Pollution) Act was enacted to achieve prevention, control and abatement of air pollution activities by assigning regulatory powers to Central and State boards for all such functions. Establishes ambient air quality standards	Applicable for equipment and machinery's potential to emit air pollution (including diesel generators and vehicles); CTE and CTP from WBPCB; Compliance to conditions and emissions standards stipulated in the CTE and CTO.
Environmental (Protection) Act, 1986 amended 1991 and the following rules/notifications:	Following the United Nations Conference on the Human Environment held at Stockholm in June 1972, an Act to provide for the protection and improvement of environment and for matters connected therewith was framed in India. This would cover the protection and improvement of environment and the prevention of hazards to human beings, other living creatures, plants and property.	Applicable for the subprojects under KSHARP, Refer Appendix 1 for different environmental standards.
EIA Notification, 2006.	Issued under the Environmental Protection Act, 1986, the Environmental Impact Assessment (EIA) Notification of 2006 (replacing the EIA Notification of 1994), sets out the requirement for Environmental Assessment. Environmental Clearance is required for specified activities/projects. Projects are categorized as A or B. Environmental clearance process comprise of a maximum of four stages: Stage (1) Screening (2) Scoping (3) Public Consultation and (4) Appraisal	The subprojects under KSHARP are not included in the list of projects requiring Environmental Clearance, therefore EIA and Environmental Clearance is not required
Environment (Protection) Rules, 1986 including amendments.	These rules specify: -Standards for emissions or discharge of environmental pollutants -Prohibitions and restrictions on the location of industries	- STPs should be designed and operated with appropriate wastewater and sludge treatment and disposal facilities;

Legislation	Policy Description	Applicability
	-Procedure for taking samples and submission of samples for analysis, -Prohibition and restriction on the handling of hazardous substances in different areas -Submission of environmental reports	- compliance with emission and disposal standards during construction.
Municipal Solid Wastes Management Rules, 2016	Rules to manage municipal solid waste generated; provides rules for segregation, storage, collection, processing and disposal.	Solid waste generated at proposed facilities shall be managed and disposed in accordance with the Rules
Construction and Demolition Waste Management Rules, 2016	Rules to manage construction and to waste resulting from construction, remodeling, repair and demolition of any civil structure. Rules define C and D waste as waste comprising of building materials, debris resulting from construction, re-modeling, repair and demolition of any civil structure. (Appendix 5)	Construction and demolition waste generated from the project construction shall be managed and disposed as per the rules
Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2009	Rules defines and classifies hazardous waste, and procedures for handling and storage Requires Pollution Control Board's consent for handling hazardous waste provides procedures for recycling, reprocessing or reuse, import and export of HW - Rules for development of treatment, storage, disposal facility (TSDF) for hazardous wastes; TSDF shall be developed following guidelines issued by Central Pollution Control Board (CPCB)	- Applicable for disposal of any hazardous waste generated from the site during construction phase -
Noise Pollution (Regulation and Control) Rules, 2000.	The increasing noise level in public places from various sources have delirious effects on humans and thereby it is considered necessary to regulate and control noise generating sources to maintain ambient air quality standards through a set of rules. The ambient air quality standards are achieved through enforcement of noise pollution control measures and restrictions on the use sound producing instruments. In case of any violation in silence zone area, complaints to be made to authority and power to prohibit continuance of music sound or noise also falls under within these rules	-Applicable, Compliance with noise standards are required during construction phase.
Notification of Eco Sensitive Zones (ESZ):	Eco sensitive zones are of significant ecological importance, and to conserve and protect the natural resources and living beings, several zones are declared in the country as eco sensitive zones by notifications. Besides for specific reasons, buffer areas around protected areas (national park, wildlife sanctuaries etc.,) are also declared as ESZ in this notification. - Notified ESZs in West Bengal are: ESZ around Dalma wildlife sanctuary (in Jharkhand state) established in 2012 falling partly in West Bengal (Purulia); draft notifications issued for 3 ESZs in 2016-17: ESZs around Jaladapara National Park Alipurduar District, Neora Valley National Park and Singalila National Park in Darjeeling	- Restriction of activities (including construction, tree cutting, etc.) in the notified zones -Not applicable, as no subprojects are located within any notified ESZ.

Legislation	Policy Description	Applicability
Wetland (Conservation and Management) Rules, 2010	-For the protection of wetlands and restriction of certain activities within wetlands, provides a regulatory mechanism --Applies to protected wetlands notified under the rules (which include Ramsar sites; wetlands in ESZs /United Nations Educational, Scientific and Cultural Organization (UNESCO) sites, high altitudes, etc.) - Rules prohibit: reclamation of wetlands, expansion/ setting new industries, hazardous waste storage, disposal., discharge of untreated effluent, permanent construction within 50 m HFL, etc., -Activities such as the following are regulated: water withdrawal/diversion, treated effluent discharge, dredging, repair of existing infrastructure, buildings and construction	- Applicable for the sub projects located in or near EKW area.
National Institute of Occupational Safety and Health (NIOSH) Publication No. 98-126	NIOSH has laid down criteria for a recommended standard: occupational noise exposure. The standard is a combination of noise exposure levels and duration that no worker exposure shall equal or exceed.	Appendix 1 provides applicable NIOSH occupational noise standards. Contractors are required to provide hearing-protection equipment and ensure exposures of workers to noise-generating activities are within allowed NIOSH standards.
Coastal Regulation Zone (CRZ) Notification, 2011	This supersedes the CRZ Notification issued in 1991; to ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment, promote sustainable development considering natural hazards, sea level rise due to global warming Declares coastal stretches as CRZ and restricts new construction, and industrial activities. West Bengal has a coastline of 157.5 km. CRZ (landward side) include the following: (i) land area from High Tide Line (HTL) to 500 m on the landward side on the sea front: (ii) land area between HTL to 100 m or width of creek whichever is less on the landward side along the tidal influenced water bodies connected to sea and; (iii) land area between HTL and LTL. Notification defines CRZ in I. II, III, IV Categories based on environmental sensitivity and existing development.	- Not applicable, no subproject area falls under CRZ
Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989	-Defines hazardous chemicals - stipulates rules, procedures to manufacture, storage and import of hazardous chemicals --requires permission, authorization from various agencies if the total storage exceeds specified quantity; requires emergency management plan.	Applies to all activities that require storage of any hazardous chemicals for construction purpose.
Indian Wildlife (Protection) Act, 1972 amended 1993 and Rules	An Act to provide for the comprehensive protection of wild animals, birds and plants. This would cover matters concerning Appointment of forest authorities, hunting of wild animals, protection of specified plants, conservation of national parks and sanctuaries, trade commerce in	Applicable to subprojects located in in protected areas Permission from the Chief Wildlife Warden/ State Wildlife Board/

Legislation	Policy Description	Applicability
1995; Wildlife (Protection) Amendment Act, 2002	relation to plants and animals and prevention of any offences. Wildlife protected areas are notified under this act. There are 6 national parks and 15 wildlife sanctuaries in West Bengal	National Board of Wildlife; and the Supreme Court of India Not applicable for the subprojects under KSHARP
Indian Forest Act, 1927	An Act enacted to consolidate the law relating to forests, the transit of forest-produce and the duty leviable. Applies reserved forests, village forests, and protected forests. This act also concerns lands not being the property of government. Provides penalties and procedures with regard to all property, cattle trespasses and powers of Forest officers; declaration of forest areas (reserved,	- Applicable to subprojects located in the forest lands as defined under the Act Not applicable for the subprojects under KSHARP
Forest (Conservation) Act, 1980, amendment 1988	Act provides for conservation of forests Restricts the reservation of forests or use of forest lands for non-forest purpose. Non-forest purpose means breaking up or clearing of any forest land	Restricts use of forest lands for non-forest purposes Not Applicable for the subprojects under KSHARP.
Forest (Conservation) Rules, 1981 amended 1992 and 2003.	Rules for conversion / use of forest lands for non-forest purposes	Not Applicable for the subprojects under KSHARP.
The Major Port Trusts Act, 1963 (Kolkata Port Trust, KoPT)	Prior permission of KoPT Board is required for any construction, mooring, reclamation etc., in port limit and port approaches; the port limit includes River Hooghly and shore and land area within 45.7 m of High Water Mark and extends from Jangipur in the north (in Murshidabad District) to Sandheads in the south (near Bay of Bengal) -Detailed study by designated institutes is a prerequisite of KoPT for any permission -Construction of deep tube wells restricted in said area -As per a National Green Tribunal (NGT) order, EIA Study and EMP is required for any construction in Hooghly River stretch from Nazirganj to Bally Khal (western/Howrah side) and Tollygunj to Dakhineswar (eastern/kolkata side); EIA to be conducted accredited by consultant but Environmental Clearance not required.	Not Applicable for the subprojects under KSHARP.
Ancient Monuments and Archaeological Sites and Remains Acts, 1958, its Rules,1959 and notification, 1992. Ancient Monuments and Archeological Sites and Remains (Amendment and Validation) Act,	Act for better and effective preservation of the archaeological wealth of the country, on par with constitutional provisions This Act provides for the preservation of ancient and historical monuments and archaeological sites and remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects.	Not Applicable for the subprojects under KSHARP. There are no protected properties/monuments within the subproject areas. However, in case of chance finds, the contractors will be required to follow a protocol as defined in the environmental management plan (EMP).

Legislation	Policy Description	Applicability
2010	Notifies 100m around the monument as prohibited area and 100 to 300m as regulated area for construction works; No excavation/construction work is allowed within 100m of boundary of the protected monument; Requires prior permission of Archaeological Survey of India (ASI) for taking works within 100-300 m of the boundary of protected monuments	
Contract Labour (Regulation and Abolition) Act, 1970; .	The Act provides for certain welfare measures to be provided by the Contractor to contract labor and in case the Contractor fails to provide, the same are required to be provided by the Principal Employer by Law. The principal employer is required to take Certificate of Registration and the Contractor is required to take a License from the designated Officer. The Act is applicable to the establishments or Contractor of principal employer if they employ 20 or more contract labor.	Applicable to all construction works under KSHARP
The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996.	All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under this Act. All such establishments are required to pay Cess at rate not exceeding 2% of the cost of construction as may be notified by the Government. The employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation for workers near the workplace etc. The employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government - Cess should be paid at a notified rate; -The employer has to obtain a registration certificate from the Registering Officer	Applicable to any building or other construction work employing 10 or more workers; provide safety measures at the construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation for workers near the workplace etc.
The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979	The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter- state migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc	Contractor shall register with Labour Department if Inter- state migrant workmen are engaged Adequate and appropriate amenities and facilities to be provided to workers - housing, medical aid, traveling expenses
The Child Labour (Prohibition and Regulation) Act, 1986.	The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labor is prohibited in Building and Construction Industry.	- No child labour shall be employed
Minimum Wages Act, 1948.	The employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employment.	- All construction workers should be paid not less than the prescribed minimum wage.

Legislation	Policy Description	Applicability
Workmen Compensation Act, 1923.	The Act provides for compensation in case of injury by accident arising out of and during the course of employment.	- Compensation for workers in case of injury by accident.
Equal Remuneration Act, 1979.	The Act provides for payment of equal wages for work of equal nature to Male and Female workers and not for making discrimination against Female employees in the matters of transfers, training and promotions etc.	- Equal wages for work of equal nature to male and female workers.
State Level		
West Bengal State Water Policy	-Prepared in accordance with the National Water Policy, to ensure equitable, economic and optimal use of water. One of its objectives is to "make available safe drinking water to all by 2020" -Policy document observes that, "Demand of water uses for various purposes is ever increasing due to the growth process and expansion of economic activities". "Policy recognizes increase in water demand for drinking, power and industry sectors, and requirement of water in rivers for ecological and as well as for water transport systems. -Policy aims to achieve efficiency in utilization; water allocation priorities: (i) Drinking Water, (ii) Irrigation, (iii) Industry, Power, (iv) Hydro-Power, (v) Navigation and ecology.	Not applicable as the subproject components covers only S&D works
Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009	issued based on a study by WBPCB with help of ADB on air pollution from construction activities lays out norms for control of air pollution from construction activities prescribes two sets of norms: preventive measures, and practices to be discarded (**Appendix 4**) failure to comply will lead to legal action, stoppage of work and imposition of `Pollution Cost'. -All construction activities under KSHARP shall follow the norms	Compliance to the norms in project implementation by all parties (contractors, including any subcontractors, and PMU)
West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005'	-To manage, control and regulate indiscriminate extraction or use - West Bengal State Level Ground Water Resource Development Authority (WBSLGWRDA)was established under this act; State Water Investigation Directorate is its functional organ -Permission of Authority is mandatory to construct ground water extraction structures (operated by engine or motor driven pump)	Applicable for all sub-projects require ground water extraction
West Bengal Inland Fisheries Act, 1984	-Act to conserve, develop, propagate, protect, exploitation of inland fish and fisheries -No discharge of wastewater, pollutants into inland water bodies that may affect fish -Prohibits conversion of fishery area (any water area, naturally or artificially - depressed land, irrespective of ownership, measuring 0.035 ha or more, which retains water for more than 6	Project sites located in such areas will require prior permission

Legislation	Policy Description	Applicability
	months and capable of being used as fishery) for any other purpose -prohibits filling up fishery areas to convert into solid land, eg., for any construction Prohibits dividing water area into parts to make any part less than 0.035 ha -if conversion/ filling up is for development works, prior permission is required (Appendix 6)	
East Kolkata Wetlands (Conservation and Management) Act, 2006	- Act for conservation and management of EKW spreading over 12,500 ha in Kolkata, North and South 24 Parganas Districts -EKW Management Authority is constituted under this Act to conserve wetlands, to make rules, enforce land use controls and regulate all activities; prior permission of the Authority is required to conduct any project activities in the notified area.	- Project activities, if any, located in EKW area will require prior permission. Appendix 7 provides EKW map and geographical extent. Applicable to KSHARP components located in EKW area (Under the subproject SD 05, a small section, comprising 24 meters in Karimpur Mouza (Najirbad Road) and approximately 1.855 meters in Jagatipota Mouza (road to Bansuri Housing Society area, Paragati Abasan area along with Jagatipota Main Road), are proposed inside the EKW area, a designated Ramsar site. However, the intervening area is area is built up and urbanized area. The East Kolkata Wetland Management Authority (EKWMA) has recommended that housing for the local people including sanitation, proper connectivity, education and health facilities are to be extended / allowed in the settlement designated plots under the East Kolkata Wetland (Conservation and Management) Act, 2006 without compromising the basic principles of EKW under Ramsar Wise Policy to enhance livelihood.(Appendix 8) Pipelaying work for water and sanitation facility within residential area of EKW is permitted while complying with certain conditions from EKWMA Per EKWMA, since the proposed S&D pipelines will be aligned along the existing roads, and will be laid below the ground, this is allowable activity. EWKMA will evaluate the proposals, verify the existing land uses, and will issue the NOC, if it is as per the rules.

Legislation	Policy Description	Applicability
West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006 and Rules, 2007	Cutting of trees in non-forest land, irrespective of land ownership, requires permission from local administration (Forest Department for protected species, sacred groves). Prior permission required to fell trees in non-forest (private or otherwise) lands. 3 nos. trees to be planted in the same premises for each tree that is cut Permission from the Divisional Forest Officer (Utilization Division), Forest Directorate, will be required if trees are: sacred groves, endangered species, or with heritage status. (Appendix 9)	-Subproject that require tree cutting shall obtain permission and undertake replantation
West Bengal Action Plan on Climate Change	Water resources are one of the major component dealt in detail in the action plan It highlights the regional variation in terms of water availability, demand, quality etc., considering the likely changes in rain fall, temperature, blue water flow, green water flow and green water storage Suggests various region-wise strategies, action plan for water resource management; PHED is one of the agencies responsible for implementation of the action plan.	- KSHARP shall consider these strategies in subproject design
West Bengal Preservation of Historical Monuments and Objects and Excavation of Archaeological Sites Act, 1957.	-State government notifies monuments, objects, and excavation sites as state protected under this -Construction activities within the notified areas of each monument are regulated	- any project activities located in such notified area will require prior permission
The West Bengal Building and Other Construction Workers'(Regulation of Employment and Conditions of Service) Act, 1996 and Rules, 2004	regulate the employment and conditions of service of building and other construction workers and to provide for their safety, health and welfare measures. Established West Bengal Building and other Construction Workers' Welfare Board as per the Act - Provide various benefits for the registered workers	-To be complied in project implementation

33. **Clearances to be obtained prior to start of construction.** PMU will ensure all necessary regulatory clearances and approvals are obtained prior to commencement of works. Respective PMU with support of project consultants and contractors, are responsible for obtaining the clearances/permits and ensuring conditions/specifications/provisions are incorporated in the subproject design, costs, and implementation. Table 5 shows the list of clearances or permissions required for project construction. This list is indicative, and the contractor should ascertain the requirements prior to start of the construction and obtain all necessary clearances/permission prior to start of construction.

Table 4: Clearance and Permission required for construction activities

S. No	Construction Activity	Statute under which Clearance is Required	Implementation	Supervision
1	Land for Project Activity	Allotment and Approval for specific land use from KMDA, PWD, L & L.R. Department	KMC	KMC PMU
2.	S&D Pipelaying work at EKW area	NoC is from EKWMA	PMU	PMU/PMDSC
3	Construction of STP	CTE and CTO under Water Act, 1974 from WBPCB	PMDSC and Contractor	PMU
4	Hot mix plants, Crushers and Batching plants	Consent to establish and consent to operate under Air Act, 1981 from WBPCB	Construction Contractor	PMU/PMDSC
5	Storage, handling and transport of hazardous materials	Hazardous Wastes (Management and Handling) Rules. 2016; Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989 from WBPCB	Construction Contractor	PMU/PMDSC
6	Material Sourcing- Approval for sourcing stones and sand from quarries and sand mining and borrow areas	Permission from District Collector/ State Department of Mining	Construction Contractor	PMU/PMDSC
7	Temporary traffic diversion measures	Kolkata traffic police along with district traffic police	Construction Contractor	PMU/PMDSC
8	Road cutting for Sewer laying works	KMC/ PWD/ KMDA	PMU	PMU/PMDSC
9	Tree Cutting	State forest department or Revenue department	PMU	PMU/PMDSC
10	Discharge of storm water and construction of outfall structures on canals	Irrigation & Waterways Department	PMU	PMU/PMDSC
11	Construction Waste and Demolition Debris Management	Approval from KMC if disposal site is required as per Construction and Demolition Waste Management Rules 2016	Construction Contractor	PMU/PMDSC
12	Labour License	Labour Commissioner, Government of West Bengal	Construction Contractor	PMU/PMDSC
13	Use of Vehicles and Equipment- noise, emissions and Pollution Under Control (PUC) Certificate	WBPCB under Motor Vehicle Rules, 1989	Construction Contractor	PMU/PMDSC

S. No	Construction Activity	Statute under which Clearance is Required	Implementation	Supervision
	Establishment of Construction Camps	Approval for Land Use from KMC	Contractor	PMDSC

34. KMC/PMU will be overall responsible for supervision in getting all clearances and provide details to ADB through semi-annual report. PMU will ensure all necessary regulatory clearances and approvals are obtained prior to commencement of works. PMU, with support of project consultants and contractors, are responsible for obtaining the clearances/permits and ensuring conditions/specifications/provisions are incorporated in the subproject design, costs, and implementation. The PMDSC shall report to PMU the status of compliance to clearances/permits as part of the regular progress reporting.

B. International Environmental Agreements and Applicability to KSHARP

Table 5: International Conventions and Treaties and Applicability to KSHARP

International Agreement	Description	Applicability to KSHARP and Specific Requirements
Ramsar Convention, 1971	The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources. India is one of the signatories to the treaty. The Ramsar convention made it mandatory for the signatory countries to include wetland conservation in their national land use plans. According to the Ramsar List of Wetlands of International Importance, there are 25 designated wetlands in India which must be protected.	**Applicable** to projects located in or near Ramsar wetlands. The East Kolkata Wetland (EKW) was designated a "wetland of international importance" under the Ramsar Convention on August 19, 2002. Activities undertaken in the proximity of EKW shall follow the guidelines of the convention (The Ramsar Convention Handbooks for the wise use of wetlands, 4th ed. (2010), (http://www.ramsar.org/cda/en/ramsar-pubs- handbooks/main/ramsar/1-30-33_4000_0) and provisions of the Wetlands (Conservation and Management) Rules, 2010 and East Kolkata Wetlands (Conservation and Management) Act, 2006. Development of sewerage & drainage (S&D) network in the added areas of Hossainpur covering part of Ward 108 and 109 (Borough XII of KMC) under Sub-project SD 05, in Karimpur Mouza on Najirbad road and in Jagatipota Mouza is proposed within the East Kolkata Wetland (EKW) area. However, the intervening area is area is built up and urbanized area. No structure like Pumping station or STP will be constructed, only S&D pipeline will be laid underground through open trenching (cut and cover) method in the middle of the road.

International Agreement	Description	Applicability to KSHARP and Specific Requirements
		Per EKWMA, since the proposed S&D pipelines will be aligned along the existing roads, and will be laid below the ground, this is allowable activity. EWKMA will evaluate the proposals, verify the existing land uses, and will issue the NOC if it is as per the rules.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973	India is a signatory of this convention which aims to control international commercial trade in endangered species	Recommendations of critical habitat to be considered if listed species are found on- site.
ILO Core Labour Standards	Project will ensure compliance with core labour standards	ILO Core Labour Standards

C. ADB Safeguard Policy Statement's Environmental Requirements

35. ADB SPS requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all ADB investments.

36. Screening and Categorization. ADB uses a classification system to reflect the significance of a project's potential environmental impacts. A project's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence. Each proposed project is scrutinized as to its type, location, scale, and sensitivity and the magnitude of its potential environmental impacts. Projects are assigned to one of the following four categories:

(i) **Category A.** A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.
(ii) **Category B**. A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.
(iii) **Category C.** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.
(iv) **Category FI**. A proposed project is classified as category FI (Financial Intermediary) if it involves investment of ADB funds to or through a FI.

37. **Environmental Audit of Existing Facilities**. For subprojects involving facilities that already exist or are under construction or proposed, environmental compliance audit will be conducted. The environmental audit will include on-site assessment to identify past or present

environmental concerns, whether actions were in accordance with ADB's safeguard principles and requirements for executing and implementing agencies and identify and plan appropriate measures to address outstanding compliance issues. A corrective action plan in the IEEs will be agreed on by ADB and PMU. The plan will define the necessary remedial actions, the budget for such actions, and the timeframe for resolution of non-compliance. The environmental audit report (including the corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements of ADB SPS. If a subproject involves an upgrade or expansion of existing facilities that has potential impacts on the environment, the requirements for environmental assessments and planning specified in the EARF will apply in addition to compliance audit.

38. **Natural,**[6] **Modified**[7] **or Critical Habitat.**[8] ADB SPS 2009 does not allow implementing subproject activities in areas of critical habitats or in areas that would lead to significant conversion and degradation of natural / modified habitats.[9] A precautionary approach shall be applied to management and use of renewable natural resources. Global database such as the Integrated Biodiversity Assessment Tool (IBAT) will be used to conduct preliminary assessment on the site locations in reference to critical habitats, key biodiversity and key protected areas alongside the IUCN red list of species affected – critically endangered, endangered, endemic or restricted-range.

39. **Physical Cultural Resources**. ADB SPS, 2009 defines Physical Cultural Resources as movable or immovable objects, sites, structures, groups of structures and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings and may be above or below ground or under water. Their cultural interest may be at the local, provincial, national, or international level. West Bengal has a long history, rich heritage and culture. As per the Archeological Survey of India (ASI), Government of India, there are 6 monuments / places / sites in Kolkata Municipal Area that are declared as nationally important protected monuments/sites. However, none of these are located in or near the project area. ADB SPS, environmental safeguard policy principles require conservation of physical cultural resources and avoid destroying or damaging them by using field-based surveys employing qualified and experienced experts during environmental assessment. It also emphasizes the use of "chance find" procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.

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[6] Natural Habitat is land and water areas where the biological communities are formed largely by native plant and animal species, and where human activity has not essentially modified the area's primary ecological functions

[7] Modified habitat is where natural habitat has apparently been altered, often through introduction of alien species of plants and/or animals;

[8] Critical habitat is a subset of both natural and modified habitat that deserves particular attention. Critical habitat includes areas with high biodiversity value, including habitat required for the survival of critically endangered or endangered species; areas having special significance for endemic or restricted-range species; sites that are critical for the survival of migratory species; areas supporting globally significant concentrations or numbers of individuals of congregatory species; areas with unique assemblages of species or that are associated with key evolutionary processes or provide key ecosystem services; and areas having biodiversity of significant social, economic, or cultural importance to local communities. Critical habitats include those areas either legally protected or officially proposed for protection, such as areas that meet the criteria of the World Conservation Union classification, the Ramsar List of Wetlands of International Importance, and the United Nations Educational, Scientific, and Cultural Organization's world natural heritage sites.

[9] Significant conversion or degradation is (i) the elimination or severe diminution of the integrity of a habitat caused by a major, long-term change in land or water use; or (ii) the modification of a habitat that substantially reduces the habitat's ability to maintain viable populations of its native species. Significant conversion may include, for example, land clearing; replacement of natural vegetation (for example, by crops or tree plantations); permanent flooding (by a reservoir for instance); drainage, dredging, filling, or canalization of wetlands; or surface mining;

40. **Occupational Health and Safety**. PMU shall ensure that workers[10] are provided with a safe and healthy working environment, considering risks inherent to the sector and specific classes of hazards in the project work areas, including physical, chemical, biological, and radiological hazards. PMU shall ensure to take steps to prevent accidents, injury, and disease arising from, associated with, or occurring during the course of work by (i) identifying and minimizing, so far as reasonably practicable, the causes of potential hazards to workers; (ii) providing preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) providing appropriate equipment to minimize risks and requiring and enforcing its use; (iv) training workers and providing them with appropriate incentives to use and comply with health and safety procedures and protective equipment; (v) enforcing appropriate protocols necessary to prevent the spread of communicable diseases, including emerging infectious diseases such as the 2019 Corona Virus Disease (COVID-19); (vi) documenting and reporting occupational accidents, diseases, and incidents; and (vii) having emergency prevention, preparedness, and response arrangements in place.

41. PMU shall ensure to apply preventive and protective measures consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines.

42. **Community Health and Safety**. KMC PMU shall ensure to identify and assess the risks to, and potential impacts on, the safety of affected communities during the design, construction, and operation of the project infrastructures, and will establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts. PMU shall also include and enforce additional protocols to prevent the spread of communicable diseases to communities, including emerging infectious diseases such as COVID-19.

43. **Environmental Management Plan**. An EMP, which addresses the potential impacts and risks identified by the environmental assessment, shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the project's impact and risks. A copy of the EMP or approved site EMP (SEMP) will be kept on-site during the construction period at all times. Non-compliance with, or any deviation from, the conditions set out in the EMP or SEMP constitutes a failure in compliance and will require corrective actions. The EARF and the IEEs specify responsibilities in EMP implementation during design, construction and O&M phases.

44. **Public Disclosure**. ADB will post the safeguard documents on its website as well as disclose relevant information in accessible manner in local communities:

(i) Draft, final or updated IEE upon receipt; and
(ii) Environmental monitoring reports submitted by the implementing agency during project implementation upon receipt.

45. **Consultation and Participation**. Meaningful consultation[11] shall be carried out with affected people and other concerned stakeholders including civil society and facilitate their

[10] Including nonemployee workers engaged by KMC through contractors or other intermediaries to work on project sites or perform work directly related to the project's core functions.

[11] Per ADB SPS, 2009, meaningful consultation means a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an

informed participation. The consultation process and its results are to be documented and reflected in the environmental assessment report.

46. **Grievance Redress Mechanism**. KMC shall establish a mechanism to receive and facilitate resolution of affected people's concerns, complaints and grievances about the subproject's environmental performance. The grievance mechanism shall be scaled to the risks and adverse impacts of the subproject.

47. **Monitoring and Reporting**. PMU shall monitor measure and document the progress of implementation of the EMP. If necessary, PMU will identify the necessary corrective actions, and reflect them in a corrective action plan. PMU will prepare and submit to ADB semi-annual environmental monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any. Reporting will continue until ADB issues a completion report for the project.

48. **Unanticipated Environmental Impacts**. Where unanticipated environmental impacts become apparent during the implementation, KMC shall update the EMP to assess the potential impacts, evaluate the alternatives and outline mitigation measures and resources to address those impacts.

49. **Pollution Prevention and Control Technologies**. During the design, construction, and operation of the project, PMU, shall apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines.[12] These standards contain performance levels and measures that are normally acceptable and applicable to the project infrastructures. When the government's regulations differ from these levels and measures, the project shall achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, PMU, will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

50. **Bidding and Contract Documents**. The IEE reports and EMPs are to be included in bidding and contract documents. PMU shall also ensure that bidding and contract documents include specific provisions requiring contractors to (i) comply with all other conditions required by ADB,[13] and (ii) to submit to PMU, for review and approval, a SEMP, including (a) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (b) specific mitigation measures following the approved EMP; (c) monitoring program as per EMP; and (d) budget for SEMP implementation. No works can commence prior to approval of EMP or approved SEMP. A copy of the EMP and/or approved SEMP will be kept on site during the construction period at all times. Non-compliance

atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

[12] World Bank Group. 2007. Environmental, Health, and Safety General Guidelines. Washington, D.C.; https://www.ifc.org-ehs-guidelines

[13] Contractors to comply with (i) all applicable labor laws and core labor standards on (a) prohibition of child labor as defined in national legislation for construction and maintenance activities; (b) equal pay for equal work of equal value regardless of gender, ethnicity, or caste; and (c) elimination of forced labor; and with (ii) the requirement to disseminate information on sexually transmitted diseases, including HIV/AIDS, to employees and local communities surrounding the project sites.

with, or any deviation from, the conditions set out in the EMP and/or SEMP constitutes a failure in compliance and shall require corrective actions.

51. **Conditions for Award of Contract and Commencement of Work**. PMU shall not award any works contract for a proposed infrastructure under the project until (i) relevant provisions from the EMP are incorporated into the works contract; (ii) the IEE is updated to reflect infrastructure's detailed design and PMU has obtained ADB's clearance of such IEE report; and (iii) government approved IEE (i.e., IEE in compliance with government regulations) and other necessary permits from relevant government agencies have been obtained. For "design, build, and operate" type contracts, PMU shall ensure no works for a proposed infrastructure component which involves environmental impacts shall commence until (i) relevant provisions from the EMP are incorporated into the works contract, and (ii) the IEE report is updated to reflect infrastructure's detailed design and PMU has obtained ADB's clearance for such IEE report.

D. Institutional Capacity for Environmental Safeguard Implementation Arrangement

52. The Kolkata Municipal Corporation (KMC) will be the executing and implementing agencies, and the project management unit (PMU) established within KMC for the ADB-financed Kolkata Environmental Improvement Investment Program (KEIIP), will implement the project. The PMU, headed by a Project Director will be supported by Director General - Project for procurement and contract management and Deputy Chief Engineer (DCE) for safeguards implementation. The DCE, supported by an Manager – Environment, Health and Safety and Manager - Social, will be responsible for environmental and social safeguards in compliance with project agreements, government requirements and ADB SPS, 2009. Gender, Safeguard management unit (GSMU) headed by DCE and staffed with 3 Managers, 3 Deputy Managers, and 8 project assistants to implement and monitor of gender action plan, EMP, resettlement plans, and with focus on community and occupational health and safety aspects.[14] PMU will be supported by a Project Management and Design Supervision Consultant (PMDSC) . The PMDSC will have an Environmental Safeguards Specialist (ESS) and an Health and Safety Expert to support in all tasks related to environmental safeguards. At contractor level, an Environment, Health and Safety (EHS) supervisor will be appointed on-site, one for each package, to assist in preparing and implementing site-specific EMP.

53. Under the current government regulations, there is no need to conduct EIA studies or prepare EIA reports and EMPs, and therefore the capacity of KMC to deal with environmental assessment studies and the preparation of an EIA is limited. Consideration of safeguard aspects in KMC is limited to compliance with government regulations as per the government law, and obtaining necessary clearances, like consent from WBPCB for STPs and EKWMA for pipelaying activities in EKW area.

54. **West Bengal Pollution Control Board (WBPCB)** is the main state-level regulatory agency responsible for environment protection and pollution control in West Bengal. WBPCB through its 11 Regional Offices across the state regulates environmental protection related activities. The involvement of the WBPCB in monitoring of the environmental safeguards of KSHARP activities is limited mainly for issuance of consent (CTE/ CTO) for STP, compliance monitoring of STPs and air pollution from different project activities during construction. Nevertheless, WBPCB mandate covers overall pollution control and WBPCB deals with public complaints related to pollution and environmental degradation due to any activity.

[14] The existing Social Safeguard Cell will function as the Safeguard and Safety Cell (SSC) for the project

55. **The East Kolkata Wetlands Management Authority (EKWMA)** is an authority formed under the East Kolkata Wetlands (Conservation and Management) Act, 2006. They have been entrusted with the statutory responsibility for conservation and maintenance of the EKW area. The main task of the authority is to maintain the existing land use practices along with its unique waste water recycling activities. Permission will be required from EKW Management Authority for the proposed pipelaying activity (24 m at Karimpur Mouza and 1.879 km at Jagatipota Mouza) within the EKW area before start of construction work.

56. **Forest & Wildlife** There is a well-established and effective system to ensure the protection of designated areas and regulate the utilization of forest lands for non-forest activities, such as the locating of project components in these areas. The sub project areas under KSHARP is highly urbanized built-up area, therefore, no forest land is included. However, tree felling may be required at some locations. PMU will obtain requisite permission from the Divisional Forest Department (DFO) before start of work.

57. **KMC, the Executing Agency**, is responsible for overall strategic planning, guidance and management of the KSHARP, and for ensuring compliance with conditions and loan covenants responsible. Implementing Agency, KMC will be responsible for preparing environmental impact assessment (EIA) or initial environmental examination (IEE) reports, monitoring of safeguards issues, providing support and guidance to ULBs concerning performance criteria and development planning.

58. PMU will be supported by consultants in all activities during the implementation, including the safeguard activities. During the implementation phase of KSHARP, PMU will be supported by specialist consultants for management and monitoring of environmental safeguards implementation. During the operation phase, STP operation will be monitored by WBPCB. Subsequent to completion and commissioning, KMC will be responsible for operation and maintenance of the improved infrastructure, either directly or through a private contracting agency.

59. To comply with ADB SPS 2009, the implementing and executing agencies of the project need to have a sustained capacity to manage and monitor environmental safeguards. Therefore, the executing and implementing agencies require capacity building measures for (i) a better understanding of the project-related environmental issues; and (ii) to strengthen their role in implementation of mitigation measures and subsequent monitoring. Trainings and awareness workshops are included in the project with the primary focus of enabling the KMC PMU and other staffs to conduct impact assessments and carry out environmental monitoring and implement environmental management plans (EMPs). After participating in such activities, the participants will be able to make environmental assessments for subsequent subprojects, conduct monitoring of EMPs, understand government and ADB requirements for environmental assessment, management, and monitoring (short- and long-term), and incorporate environmental features into future project designs, specifications, and tender/contract documents and carry out necessary checks and balances during project implementation. A comparative assessment of ADB SPS and government of India environmental regulations are given in Appendix 10.

III. ANTICIPATED ENVIRONMENTAL IMPACTS

A. Introduction

60. An environmental impact is defined as any change to the environment, whether adverse or beneficial; resulting from activities, products or services. To ensure project sustainability, acceptability, and to enhance efficiency, it is required that environmental impacts are identified and assessed as part of the planning and design process, and that actions are taken to avoid those impacts, and if cannot be avoided, reduced and mitigated to acceptable levels.

61. KSHARP will finance sewerage and drainage projects within KMC area of West Bengal. Subprojects include S&D pipelaying, construction of pumping stations and sewerage treatment plant and house sewer connections. Draft IEEs prepared for three sample subprojects concluded that these projects are unlikely to have significant adverse impacts.

62. While there would be numerous positive benefits in terms of improving quality of life of people as well as raising standards of both individual and public health, KSHARP projects may also induce certain negative impacts as provision of the water supply will involve physical interaction with the environment. Based on the environmental assessment of sample subprojects and based on broad range of issues listed in the ADB Rapid Environmental Assessment (REA) checklists that determine project environmental category, no category A type of works (with significant adverse impacts) are anticipated. Subprojects likely to have potentially significant adverse impacts (categorized as A) will not be funded under KSHARP.

B. Anticipated Impacts

63. Construction and operation are the two activities in which the project interacts physically with the environment, so they are the two activities during which the environmental impacts occur. There are certain effects that, although they will occur during either the construction or operation stage, should be considered as impacts primarily of the location or design of the project, as they would not occur if an alternative location or design was chosen. ADB SPS require that an environmental assessment should evaluate impacts due to the location, design, construction and operation of the project.

64. **Impacts due to design – general risks**. These impacts include impacts arising from Investment subproject design, including technology used, scale of operation/throughput, waste production, discharge specifications, pollution sources and ancillary services. Design impacts may vary, and an alternative design may result in minimal or no impacts. The main design aspects of sewerage and drainage subprojects that determine the significance of impacts include: selection of STP and pumping station locations, treatment process/technology at STP, reuse and discharge of treated waste water including discharge standards, sludge handling, management disposal, outfall locations for storm water discharge , potential pollution sources, energy and resource efficiency, noise from pumping operations, noise and odour nuisance resulting from system design and selected technology and use of harmful/hazardous chemicals and materials, health and safety impacts.

65. **Impacts due to location – general**. Location impacts are associated with site selection and include loss of on-site biophysical array and encroachment either directly or indirectly on adjacent environments. It also includes impacts on people who will lose their livelihood or any other structures by the development of that site. Locating facilities like sewerage treatment plants

and pumping houses near sensitive areas or human habitations can lead to discomfort and inconvenience for local residents due to the emission of unpleasant odors and high noise levels.

66. **Impacts due to location – Alignment of Pipes**. Construction of sewers is a main component of the subprojects. The proposed subprojects focus on the development of sewerage & drainage (S&D) system which will be developed as a combined network to carry both dry weather flow (DWF) and storm water flow (SWF) generated from the respective catchment areas. As the sewers will be laid linearly along the middle of the roads, will affect large areas and population during the construction works. In urban areas, the roads are often lined by commercial establishments, and/or congested by traffic, people and activities. Therefore, these linear works have potential to disturb the people and activities being carried out on the alignment, blocking the access, damage the infrastructure, buildings etc. To mitigate the impact on trees, it is important to carefully choose the alignment or make local adjustments when positioning outfall locations alongside canals to avoid any need for tree cutting. There may be involuntary resettlement impacts if the ROW is encroached upon or used for any economic purpose, and if the access is denied to business during the construction works. The issues related to Involuntary Resettlement needs to be assessed and compensated via resettlement planning.

67. **Impacts due to location – Critical Habitat/Biodiversity Impacts**. Most design impacts can typically be alleviated, but significant concerns arise when components are situated in environmentally sensitive areas such as wildlife sanctuaries, national parks, forest areas, wetlands, or in proximity to physical cultural resources like protected monuments/sites or world heritage sites. KSHARP will not undertake activities within such sensitive areas and will exclude projects which will cause significant environment impacts[15] There are no environmentally sensitive areas in or around the sub-project areas except EKW. The majority of facilities are proposed on government-owned vacant lands, with private land acquisition following a willing buyer willing seller approach at current market rates where necessary. Pipelines will be installed along public roads to steer clear of sensitive areas, with tree removal kept to a minimum. However, placing components that obstruct or encroach upon natural drainage channels or ponds could disrupt the natural drainage pattern, potentially causing waterlogging, flooding, and associated public health concerns.

68. Nearest notified protected area is East Kolkata Wetland (EKW), Ramsar wetland, located within a maximum 9 km areal distance from the proposed subproject boundary areas. Sundarban Biosphere Reserve, the UNESCO world heritage site is located within 50 km from the KMC boundary area. There is no threatened or endangered flora and fauna in the subproject area.

69. **East Kolkata Wetlands**. The East Kolkata Wetlands (EKW), located on the eastern fringes of Kolkata city, is a part of the extensive inter-distributary wetland regimes formed by the Gangetic delta. The EKW located on the eastern fringes of Kolkata city is and is distributed across the part of three districts covering 37 mouzas/villages , seven Gram Panchayats and two municipal corporations (Appendix 7) and is spreads over an area of 12 ,500 ha. It is a mosaic of water bodies, agricultural land and settlement areas largely under private ownership. It has more than 260 water bodies of varying sizes. It supports a resident population of over 120 ,000 and pisciculture and agriculture provide major livelihood avenues to them. Only a small part of KMC area falls within the limits of EKW.

70. The EKW area includes one of the largest assemblages of sewage fed fish ponds. The importance of this wetland lies in the fact that these sustain the world's largest and oldest

[15] Project classified as Category A as per ADB SPS, 2009.

integrated resource recovery practice based on a combination of agriculture and aquaculture, and provide livelihood support to a large, economically underprivileged sizeable population depends upon various wetland products, primarily fish and vegetables for sustenance. Based on its immense ecological and socio-cultural importance, East Kolkata Wetlands is declared as Wetland of International Importance under Criteria 1 under Ramsar Convention in 2002.[16] EKW is a classic example of harnessing natural resources of the wetland system for fisheries and agriculture through ingenuity of local communities with their traditional knowledge. The wetland has been included by the Ramsar Convention as one of the 17 case studies on wise use of wetlands at the global level. The wetland provides strong arguments for integration of traditional knowledge of local communities into conservation and management practices.[17] At least 380 species under major flora including 93 plant families, 10 amphibians, 29 reptiles, 123 birds, 79 fish, 24 crustaceans, and 13 mammal species have been recorded from these wetlands. The traditional waste recovery practice provides subsistence opportunities for a large, economically underprivileged population of 0.15 million living in the 37 revenue villages (locally called mouza) within its boundaries. EKW is also one of the few natural habitats providing recreational space for the urban and peri-urban population.

71. The East Kolkata Wetlands (EKW) is the vital component of the friendly water regime. It provides three basic securities towards i) the fish ponds ii) paddy field and iii) garbage farms which are critical for the population. But , such securities for the foods , cannot be provided without the input of the sewage water. The basic line input to the EKW system is the sewage laden water, which passes through (DWF) channels, throughout the year, irrespective of the seasons and having with more or less with same flowing capacity.[18] It is pertinent to mention that the Dry weather flow is made available throughout the year, whereas, the storm water flow is not perennial in nature.

72. The ecology of the EKW area has undergone a dramatic change since the beginning of the 19th century due to cessation of tidal (brackish water) influx from Bidyadhari and Matla rivers into the then saline marshy area with brackish water fisheries. The change is not only due to natural causes like siltation but also due to developmental activities and hydrological interventions. The brackish water fisheries of earlier years were converted in to sewage fed fisheries bringing in a changed ecosystem and establishing a new biodiversity in the EKW areas. Wastewater undergoes solar purification and natural oxidation, creating an environment suitable for algae and plankton, serving as the primary feed for fish. EKW offers a cost-effective, efficient, and eco-friendly solid waste and sewer treatment system for Kolkata. It serves as a habitat for waterfowl and hosts diverse flora and fauna.

73. There is no forest patch within EKW. There are no endangered species but there are a number of rare mammals, reptiles, fish and bird species. According to the Ramsar information database, there are rare mammals such as Marsh mongoose, small Indian mongoose, Palm civet and small Indian civet (IUCN status is Least Concern)

74. **Impact on East Kolkata Wetlands**. In one sample subproject, development of sewerage & drainage (S&D) system in the added areas of Hossainpur and adjoining areas covering part of

[16] The Ramsar Site was designated in 2002 with the name "East Calcutta Wetlands" and remains so in the Ramsar database. In 2001, the Government of West Bengal decided to change the name of its capital city to Kolkata. The Rules governing the wetland is titled ' East Kolkata (Conservation and Management) Rules, 2006' and the Authority as East Kolkata Wetlands Management Authority.

[17] Integrated Management Plan of East Kolkata Wetlands (Management Action Plan 2021 – 2026)

[18] The report of school of Water Resources Engineering , Jadavpur University , Kolkata -700032 , prepared for Kolkata Environmental Improvement Project , in 2006

Ward 108 and 109 (Borough XII of KMC) about 1.879 km pipelaying (24m in Karimpur Mouza on Najirbad road and 1.855m in Jagatipota Mouza is proposed within the East Kolkata Wetland (EKW) area (Figure 2) . While the majority of the proposed pipelaying alignment avoids the EKW area, a small section comprising 24 meters in Karimpur Mouza (Najirbad Road) and approximately 1.855 meters in Jagatipota Mouza (road to Bansuri Housing Society area, Paragati Abasan area along with Jagatipota Main Road), proposed inside the wetland boundaries. In Karimpur Mouza, the pipelaying will occur at a distance of about 19 meters inside the EKW boundary at Nazirabad road. In Jagatipota Mouza, the sewer will be laid at varying distances from the EKW boundary, ranging from a maximum of 235 meters (in Pragati Abasan area) to a minimum of 20 meters (in Bansuri Housing Society area). In-between areas are residential and commercially developed areas connected with bituminous road networks with infrastructural facilities Pipe diameter within EKW area varies from 300mm to 1000mm and depth of the trench will be kept at 2m to 3.4m.

75. The intervening region is predominantly urbanized, featuring residential, educational, and commercial establishments. Notably, during the 12th meeting of the East Kolkata Wetland Management Authority (EKWMA) convened on September 14th, 2019, the committee recommended that housing provisions for local residents be restricted solely to designated settlement plots as stipulated under the East Kolkata Wetland (Conservation and Management) Act, 2006. Furthermore, the committee emphasized the importance of extending sanitation, connectivity, education, and healthcare facilities to local communities to improve livelihoods without compromising the fundamental principles of the EKW as outlined in the Ramsar Wise Policy (Annexure 23). Per EKWMA, since the proposed S&D pipelines will be aligned along the existing roads, and will be laid below the ground, this is allowable activity.

76. There will be also no direst discharge of wastewater (combined or treated sewage) into the EKW from the subproject area. SWF generated from this area will be disposed to canals by gravity outfalls (no open discharge in EKW area). The DWF collected from the catchment will be treated at the proposed STP at Hossainpur and surplus treated effluent after reuse will be discharged in the T.P canal complying with CPCB discharge standards (2015 and order of National Green Tribunal (NGT) dated 30th April 2019). Therefore, subproject activities do not interfere with the EKW system, and is not anticipated to have any adverse impact on the local flora, fauna, or fishing ponds in EKW area. Furthermore, it will mitigate the risk of groundwater pollution by implementing effective sewer collection and treatment measures. Ultimately, the initiative aims to enhance public health services for the local population residing in the area. No objection certificate (NOC) from EKWMA for laying of S&D network shall be obtained by the PMU before award of contract and appended in the updated IEE and recommendations, if any, of EKWMA shall be included in the EMP for implementation.

Figure 2: Proposed pipelaying alignments and road networks within EKW area with distance from EKW boundary

Source: DPR, 2024

77. **Impacts due to location – Physical Cultural Resources**. West Bengal has a long history, rich heritage, and culture. There are several places of archeological, historical, and cultural importance. As per the Archeological Survey of India (ASI), Government of India, there are 6 protected monuments/buildings within the Kolkata Municipal Area, but there are none in project areas.[19] Therefore, no works or components will be located within or close to any protected area or monuments. As per the current regulations in force, any components, located outside the monument boundary but within 300 m of regulated buffer area, permission will be obtained from the competent authority.

78. **Impacts due to location – Sensitive Receptors**. Proposed works are located in urban areas. Given the nature of infrastructure proposed, most of the facilities will have no impacts on sensitive receptors except during the construction phase. However, facilities such as sewerage treatment plants and pumping stations, if located close to habitations will have adverse impacts, and may significantly affect the vulnerable groups like children and old people. Generation of bad

[19] Metcalfe Hall, St. John Church, Currency Building, Old Building of the Asiatic Society, Maghen David Synagogue and Beth-el-Synagogue

odours and ambient noise level on the surrounding population needs to be considered while selecting the sites. Due to lack of technically suitable sites in urban areas, STPs and pumping stations may have to be located closer to the habitations. In such cases, adavance treatment technologies with low odour potential shall be selected, and green buffer zones with multiple tree rows shall be developed within the STP site all-around subject to land availability. Odour control systems may also be considered where required.

79. **Impacts Due to Construction**. Most impacts of subprojects under KSHARP will result from considerable construction activities. S&D pipelines will be laid in the middle the public roads, while construction activities of other components like PS, STP etc. will be confined to the selected sites, and the interference with the public and community around is minimal. There will be temporary negative impacts, arising mainly from construction dust and noise; hauling of construction material, waste and equipment on local roads (traffic, dust, safety etc.,), mining of construction material, occupation health and safety aspects. During the construction phase of pipelines, impacts arise from the invasive nature of excavation and trenching work along the public roads used by traffic, pedestrians etc., and may disturb residents and businesses adversely affecting the livelihoods However as most of the individual elements are relatively small and involve straightforward construction, the potential environmental impacts (i) will be mainly localized, temporary and not greatly significant; (ii) will not cause direct impact on biodiversity values and (iii) are common impacts of construction in public areas, and there are well-developed methods for their mitigation. Temporary containment drains, silt fences will be used to contain silt laden run off from sites. Sufficient care will be taken while pipe laying so that existing utilities and cables are not damaged and pipes are not thrown into the trenches or dragged, but carefully laid in the trenches. Trenches deeper than 1m will be protected by shoring/bracings (wooden/steel) to avoid collapse of trenches, and also to avoid any risk to surrounding buildings. Utmost care must be taken by contractor to keep the trench dry and barricade the same with hard barricading to avoid any accident. All excavated spoils to be removed and stacked near the trench to facilitate backfilling. As far as possible trench works and excavation works (pipe laying) during monsoon season will be avoided to prevent any water logging and accident due to it. If open trenches are not avoidable during monsoon all the mitigations measures will keep ready to avoid water logging such as dewatering pumps and sufficient pipes, traffic assistance, barricades etc. Trench shall be kept dry by dewatering and removal of slush. Various measures will be put in place for work in EKW area to avoid any impacts or damage / disturbance to eco system and flora and fauna.

80. **Impacts during commissioning – Occupational Health and Safety**. Risks include collapse of trench due to lose soil or under uncontrolled water pressure. Workers should be trained in confined space working. Often, improper planning, adopting ad-hoc methods of commissioning and use of non-standardized equipment are the main reasons for accidents. Cleaning of pipes, sewers, manholes, etc., if required as per the contract prior to commission, shall be carried out mechanically, and manual cleaning must be avoided.

81. **Impacts Due to Operation and Maintenance**. Anticipated impacts of S&D projects during operation and maintenance (O&M) will be related to operation of STP, handling and application of chlorine, operation of pumping stations, and repair and maintenance activities. Provisions will be made in the design: to collect, thicken and dispose sludge; chlorine safety; use energy efficiency equipment. S&D system will be operated using the standard operating procedures following an operating manual. Application and handling of chlorine gas will involve certain risks, and appropriate measures for safe application including safety measures and equipment, PPEs, awareness programs and mock drills will need to be included. Thus, considering the design and operational procedures that will be considered in implementation, it is unlikely that there will be any significant negative impacts due to operation of S&D system.

Routine repairs and maintenance works will be very small in scale, to conducted manually by small teams and works will be very short thus will not cause significant physical impacts.

82. Therefore, all subprojects under KSHARP is unlikely to cause significant adverse impacts, provided project sites are carefully selected and components designed, constructed and implemented with due consideration to potential negative impacts. Project will provide significant benefits to citizens of KMC area and will improve public health and economy.

C. Avoidance and Mitigation Measures

83. Table 6 summarizes the anticipated impacts and the corresponding avoidance and mitigation measures at different stages of the project – design, construction, operations and maintenance (O&M).

Table 6: Anticipated Environmental Impacts and Proposed Mitigation Measures

Anticipated Impacts	General Mitigation Measures
Design & Location	
Loss or damage to environmentally sensitive areas / Impacts on natural or modified or critical habitats	• Avoid locating components in or near environmentally sensitive areas. • Conduct screening of project influence area to identify protected areas/sites and conservation status of species. Utilize tools like Integrated Biodiversity Assessment Tool (IBAT), Ramsar website; IUCN Red list; etc. • If species of significance are found on-site, ensure that the findings are recorded and reported to the PMU. No disturbances or works on the site should start/continue until PMU issues clearance to proceed. Measures to restrict poaching or hunting shall be put in place.
Impairment of physical cultural resources (PCRs)	• Avoid locating components in or near physical cultural resources. • Do not locate components in the protected areas; avoid locating components within 300 m of ASI protected monuments • Develop “chance find” procedures that include a pre-approved management and conservation approach for materials that may be discovered
Social conflicts arising from displacement of communities	• Avoid land acquisition to the maximum extent possible. For potential involuntary resettlement impacts, prepare a Resettlement Plan
Disturbance of services due to shifting of utilities (electric poles, wires, water pipes, etc.)	• Ensure all planning and design interventions and decisions are made in consultation with local communities and reflecting inputs from public consultation and disclosures • Inform in advance local residents and businesses of any utility shifting and the possibility of unscheduled interruptions.
Location of sewage treatment plan	• Do not locate sewage treatment plants close to habitation areas; maintain at least 250 m distance to avoid nuisance; given urban area and if suitable lands are not available, this distance may be reviewed based on the proposed sewage treatment process and potential for odour and emissions; adaption of treatment processes like sequential batch reactor (as proposed in Hussainpur) may minimize the odour nuisance • Do not locate plants where there is risk of hazards such as floods, landslides etc., • Provide a green buffer zone all around the STP with trees in multi rows; • Develop STP at a location where there is appropriate provision to discharge treated wastewater; no wastewater discharge point shall be located on the upstream of water intake

Anticipated Impacts	General Mitigation Measures
Design of sewage treatment plan	• Ensure that the selected process is appropriate for the urban set up and meets discharge standards • Prepare sludge management plan
Construction Period	
Noise and vibration from construction activities	• Schedule noisy or otherwise invasive activities during periods of the day which will result in least disturbance • Use of high noise generating equipment shall be stopped during nighttime. • In unavoidable case of night works (due to local rules) provide prior information to public on work schedule, noisy activities and need to conduct the works at work. Use best construction methods to minimize noise to possible extent. • Vehicle horns should not be used unless it is necessary • All vehicles and equipment to be used in construction shall be fitted with exhaust silencers. • Use silent-type generators (if required) • If it is not practicable to reduce noise levels to or below noise exposure limits, post warning signs in the noise hazard areas. • Identify any buildings at risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity. Complete work in these areas quickly • Monitor noise levels to ensure they are within local and/or international maximum levels, whichever is lower.
Increased dust from construction activities	• Use dust control methods, such as covers, water suppression, or increased moisture content for open materials storage piles • Use of water suppression for control of loose materials on paved or unpaved road surfaces. Ensure unpaved surfaces used for haulage of materials within settlements are dust-free
Increase in vehicle-related pollutants	• Use modern vehicles and machinery with the requisite adaptations to limit noise and exhaust emissions and ensure that these are maintained to manufacturers' specifications at all times. • Limit idling of vehicles on the construction sites maximum to 3-5 minutes
Continuing soil erosion/silt runoff in or near construction sites	• Measures to minimize soil erosion/silt runoff to be incorporated when conducting earthworks during monsoon season
Water and land chemical contamination from fuels and lubricants	• Place storage areas for fuels and lubricants away from any drainage leading to water bodies
Water and land contamination from solid and liquid wastes	• Prioritize re-use of excess spoils and materials in construction activities. • Take all precautions to prevent entering of wastes into streams, watercourses, fisheries ponds or irrigation systems • Prevent generation of solid waste by adopting practices and methods (such as avoiding the use of disposable, single use items in the workers' camp if reusable items are practical and affordable) • Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas
Increased road traffic in the town due to construction activities	• Prepare traffic management plan and ensure sufficient financial provisions for road restoration
Road blocking/closure due to excavation works	• Ensure effective advance communications with the affected residents • Prepare traffic management plan

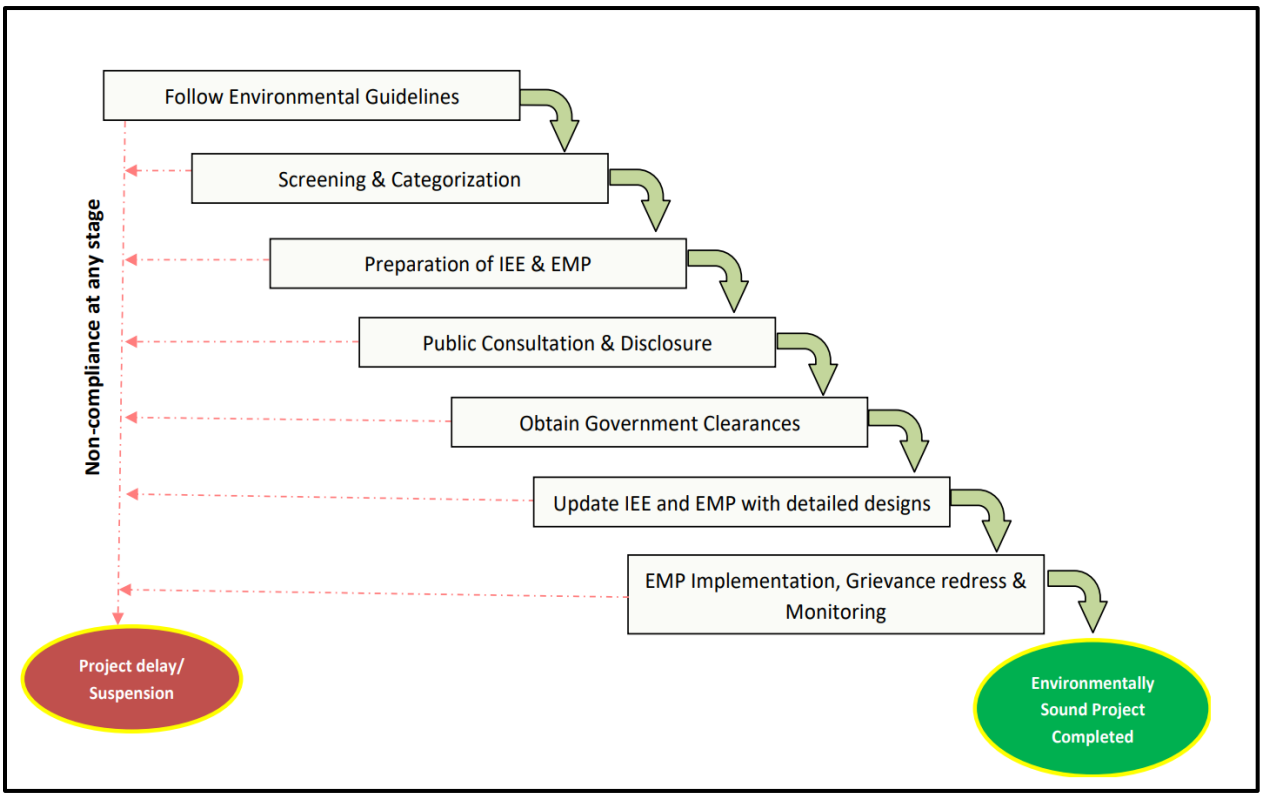
Anticipated Impacts	General Mitigation Measures
	• Address temporary involuntary resettlement / livelihood impacts, if any, arise due to road blocking / closure via preparation and implementation of Resettlement Plan
Social conflicts between construction workers from other areas and community workers	• Employ labor force from local communities to maximum extent possible • Restrict activities and movement of staff only within designated construction areas.
Safety risks due to deep excavation (workers and public)	• Prepare and implement health and safety plan • Prepare community awareness plan. Consult with local community to inform them of the nature, duration and likely effects of the construction work, and to identify any local concerns so that these can be addressed. • Provide sign boards • Provide proper barricades around deep excavation pits.
Occupational Health and Safety hazards which can arise during work	• Nominate a Health and Safety Officer with specific responsibilities to ensure the OHS of all workers, report on accidents and to follow national health protocols • Provide preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances. • provide appropriate equipment to minimize risks and requiring and enforcing its use. • Train workers and provide them with appropriate incentives to use and comply with health and safety procedures and protective equipment. • Enforce appropriate protocols necessary to prevent the spread of communicable diseases, including emerging infectious diseases such as the 2019 corona virus disease (COVID-19). • Documentation and reporting occupational accidents, diseases, and incidents; and • Have emergency prevention, preparedness, and response arrangements in place. • Restrict drinking or consumption of intoxicants at the work site. • Post warning signs at risky/hazardous areas • Maintain accident register with incidents and actions taken. • Maintain First aid box at site for minor injuries. • Install fire extinguishers • Provide a safe means of access and egress to and from every workplace
Community Health and Safety	• All excavation and pipeline works shall be conducted in a safe manner. • Provide cordon or barricades around the construction site to restrict public from the site and controlling access to the site. • Trench trenches deeper than 1.0 m shall be provided with safety shoring/braces. • Provide tarpaulin covers to vehicles transporting soil, sand and other construction materials and waste. • Provide cover to stockpiles of soil, sand and other construction materials, especially during windy days. • Spray water over bare or newly excavated areas especially on windy days and wherever possible excavated soil will be reused for leveling the site and for green belt development. • Provide prior information to the local people about the • Liaise with PIU/ULB in identifying high-risk areas on route cards/maps.

Anticipated Impacts	General Mitigation Measures
	• Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. • Provide road signs and flag persons to warn of on-going trenching activities
O&M Period	
Sewerage – Health and environment issues of sewerage treatment plant and discharge of treated water and sludge	• Ensure that treated wastewater meets the established standards all times; Conduct regular wastewater quality monitoring (at inlet and at outlet of STP) to ensure that the treated effluent quality complies with design standards • Conduct baseline water quality assessment of receiving water body prior to start of operation • Assess composition and characteristics of sludge from the first batch operation at the initial phases, and confirm the handling, management and disposal/reuse actions suggested in the management plan • Conduct periodic testing of dried sludge/compost to check presence of heavy metals and confirming the concentrations to use as compost as specified in the Standards for Composting, Schedule II A, Solid Waste Management Rules, 2016, FCO = Fertilizer Control Order, 1985, amendments in 2009 and 2013. It shall not be used for food crops. • Ensure valid consent to operate (CTO) from WBPCB for operation of STP • Ensure that all conditions/standards prescribed by WBPCB are compiled duly • Operate and maintain the facility following standard operating procedures of operational manual; • Undertake preventive and periodic maintenance activities as required; • Conduct periodic training to workers; ensure that all safety apparatus at STP including personal protection equipment are in good condition all times; and are at easily accessible and identifiable place; periodically check the equipment, and conduct mock drills to deal with emergency situations • Establish standard operation procedure for collection and transportation of septage from septic tanks to septage treatment plants by mobile tankers; ensure that SOP is strictly followed during operation • Prepare and implement an emergency response plan • Provide training to the workers in safe collection and transportation of septage in mobile tankers, Provide appropriate equipment including PPEs • Ensure that maintenance staff and supervisors understand the risks; provide proper instructions, training and supervision. • Monitor water quality of receiving water body during STP operation
Occupational health and safety (Health, social and economic impacts on the workers)	• Provide appropriate PPE and training on its proper use and maintenance. • Use full protection equipment when working at heights. • Maintain work areas to minimize slipping and tripping hazards. • Implement a training program for operators who work with chlorine regarding safe handling practices and emergency response procedures. • Prepare escape plans from areas where there might be chlorine emissions. • Install safety showers and eye wash stations near the chlorine equipment and other areas where hazardous chemicals are stored or used. • Prohibit eating, smoking, and drinking except in designated areas.

IV. ENVIRONMENTAL ASSESSMENT OF SUBSEQUENT SUBPROJECTS

A. Environmental Safeguard Compliance Process for KSHARP Subprojects

84. All the projects need to go through the process of environmental assessment and obtain approvals / consents, etc., from the government regulatory agencies, to be eligible for funding under the project. The following charts show the process flow to ensure this compliance.



B. Environment Category of Subprojects

85. Environmental assessments of the sample subprojects confirm that the KSHARP is not likely to have significant adverse environmental impacts that are irreversible, diverse or unprecedented. No Category A projects will be considered for implementation under KSHARP. Potential impacts are unlikely to affect areas larger than the sites or facilities subject to physical works. Subsequent subprojects are expected to be within the same range of scope, scale and setting as with the sample subprojects and producing generally the same impacts at same or lesser magnitude.

86. The scope of KSHARP includes provision of Sanitation and drainage system development. As part of the project preparation, environmental assessment for three sample subprojects were conducted and IEEs with EMPs were prepared in accordance with requirements of EARF. The IEEs concluded that the project will have only small scale, localized impacts on the environment which are readily mitigated. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices. Therefore, the project has been classified into environmental category B. The future subprojects will seek to replicate the sample subprojects and are thus expected to be category B due to the low-impact nature of such works.

C. Subproject Selection Guidelines

1. Exclusion Criteria

87. The following criteria will be used for excluding sites / activities which might have significant negative environmental impacts. No Category A (ADB Safeguards Policy Statement, 2009.) projects will be considered for implementation under KSHARP. Subprojects that would directly affect environmentally protected areas, and highly valued cultural property and fall under Category A shall be strictly avoided or the subproject component(s) causing potential impacts relocated or suitable alternatives derived. KSHARP will not include and/or involve any activities listed in ADB's Prohibited Investment Activities List.

Table 7: Exclusion Criteria

Sr. no	Subprojects/components to be excluded from KSHARP
I	**Projects that are located in the following eco sensitive areas excluded from KSHARP**
A	**All New projects / components located within or discharge to:** • Wildlife sanctuaries • National parks • Tiger reserves • Elephant reserves • Core Zone of Biosphere reserves • Centrally protected monuments
B	**Works located in East Kolkata Wetland (EKW)**[20] • Except laying of underground sewers to cater to existing habitations and residential areas located close it its outer boundary and with prior permission from EKWMA and duly complying with conditions and requirements, if any stipulated by EKWMA
II	**Projects with significant adverse impacts**
	• Projects likely to have significant adverse environmental impacts that are irreversible, diverse, unprecedented, and may affect an area larger than the sites or facilities subject to physical works **(**i.e. Category A projects as per ADB SPS 2009) will be excluded from KSHARP • Activities listed in ADB's Prohibited Investment Activities List (Appendix 5 of ADB SPS). See Appendix 11 for complete list

2. Environmental Guidelines for Subproject Selection

88. In addition to the exclusion criteria, further guidance to avoid or minimize potential adverse environmental impacts will be followed for all subproject selection under the sector loan as shown in Table 9:

[20] East Kolkata Wetland is the designated Ramsar site located close to the project locations. Per the East Kolkata Wetland Management Authority (EKWMA) housing for the local people including sanitation, road connectivity, education and health facilities are to be extended / allowed in the settlement designated plots under the East Kolkata Wetland (Conservation and Management) Act, 2006 without compromising the basic principles of EKW under Ramsar Wise Policy to enhance livelihood Water supply/sewerage pipelines laid below the ground is permissible activity with prior permission or no objection certificate.

Table 8: Environmental Criteria for Subproject Selection

Components	Environmental Selection Guidelines	Design Considerations (If criterion is not met)
General	Comply with all requirements of ADB SPS 2009 and follow procedures set in this environmental assessment and review framework (EARF)	
	Comply with relevant national, and local laws, rules and regulations regarding EIA, environmental protection, pollution prevention (water, air, noise, solid waste, etc.) wildlife protection, core labor standards, physical cultural resources, health and safety, and other laws in specific sectors	
	Does not include and/or involve any activities listed in ADB's Prohibited Investment Activities List	
	Reflect inputs from public consultations	Refer to ADB SPS requirements on meaning consultations[21]
Location	Avoid involuntary resettlement by prioritizing rehabilitation over new construction using vacant government land where possible, and taking all possible measures in design and selection of site or alignment to avoid resettlement impacts	If cannot be avoided, prepare Resettlement Plan
	Avoid or minimize the cutting of trees	If tree is to be cut, consider 1:3 as replacement ratio.
	Do not locate septage treatment plants close to habitation areas; maintain at least 250m distance to avoid nuisance;	This distance may be reviewed based on the proposed STP treatment process and potential for odour and emissions Provide a green buffer zone all around the STP with trees in multi rows
	Do not locate pumping stations close to habitation areas; maintain at least 50m distance to avoid nuisance;	This distance may be reviewed based on the land availability and potential for odour and emissions Provide a green buffer zone all around the pumping stations with trees in multi rows
	Locate STP and PS at sites where there is no risk of flooding or other hazards that might impair function of the STP or present a risk of damage to the STP and PS or the surrounding area.	
	Develop STP at a location where there is appropriate provision to discharge treated wastewater; no wastewater	Ensure safe discharge facilities for treated

[21] Per ADB SPS, meaningful consultation is defined as "a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues"

Components	Environmental Selection Guidelines	Design Considerations (If criterion is not met)
	discharge point shall be located on the upstream of water intake	wastewater. Obtain consent of WBPCB for STP and discharge location
Sewage treatment facility	Ensure that adequate capacity sewage treatment facility is available to cater to the project demand	
Quality	Ensure that sewage is treated at all times to National wastewater discharge standards and confirm this by regular monitoring of effluent from the STP.	
Sludge	Include measures developed and updated IEE to ensure the safe disposal of sewage sludge and if possible, to promote its safe and beneficial use as an agricultural fertilize	
Physical Cultural Resources.	Should not result in the destruction/damage of or encroachment onto physical cultural resources (PCR)[22] such as archaeological monuments; heritage sites and movable or immovable objects, sites, structures, group of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance	If location is within 300 m of notified protected monuments/ sites and there is no alternative, permissions from the ASI or State Department of Archaeology to be obtained prior to finalization of detailed engineering design.
Existing Facilities to be rehabilitated or expanded	Conduct environmental audit of existing facilities[23] per ADB SPS	For non-compliances, provide corrective action for each area of concern including cost and schedule to be included in the subproject EMP.
Associated Facilities[24]	Analyze environmental impacts and risks to be included in the IEE	
Right-of-way	Locate S&D pipelines in the middle of the road, to reduce new land acquisition.	

D. Environmental Assessment Procedures for Subprojects

1. Screening and Classification/Categorization

89. As soon as sufficient information on a subproject is available, screening is to be conducted using ADB's rapid environmental assessment (REA) checklist (Appendix 12) to determine the sub project environmental category. Requirements as per the government regulations (clearance, approval, consent etc.) shall also be identified at this stage, including the requirements for environmental clearance as per the EIA Notification, 2006 and its amendments.

[22] Physical cultural resources as defined as "movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings and may be above or below ground or under water. Their cultural interest may be at the local, provincial, national, or international level."

[23] ADB SPS Appendix 4 para 12 on Existing Facilities

[24] ADB SPS Appendix 1 para 6 defines associated facilities as "not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project"

90. Based on the screening, subprojects are to be classified into one of the following categories.

(i) **Category A.** The subproject is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented, and may affect an area larger than the sites or facilities subject to physical works. This category of subprojects will not be implemented under KSHARP.
(ii) **Category B.** The subproject is likely to have less adverse environmental impacts than those classified as Category A. Such impacts are site-specific, mostly reversible, and, in most cases, it is possible to come up with mitigation measures more readily than in Category A projects. An IEE and an EMP are required for Category B projects.
(iii) **Category C.** The subproject is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications of the subproject need to be reviewed.
(iv) **Category FI.** A proposed project is classified as category FI (Financial Intermediary) if it involves investments of ADB funds to or through a FI.

91. Under KSHARP no Category A projects will be implemented and therefore there is no requirement for conducting detailed EIA studies and preparation of EIA Reports.

2. Preparation of Environmental Assessment Report

92. **Initial Environmental Examination Study and Report**. For B category projects, an Initial Environmental Examination (IEE) report is required. IEE describes the studies conducted 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. KSHARP will improve infrastructure through the implementation of a series of subprojects in sewerage and drainage. Each subproject will require one IEE Report. Outline and content of an IEE Report is given in Appendix 13. The IEEs prepared during the feasibility period for sample subprojects can be used as model documents for future subprojects.

93. **Environmental Management Plan**. EMP shall be developed as part of the IEE. The EMP outlines specific mitigation measures, environmental monitoring requirements, and related institutional arrangements, including budget requirements for implementation. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the subproject is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in the EMP. The level of detail and complexity of the EMP and the priority of the identified measures and actions shall be commensurate with the subproject's impacts and risks. Key considerations include mitigation of potential adverse impacts to the level of "no significant harm to third parties," the "polluter pays" principle, the precautionary approach, and adaptive management.

94. If some residual impacts are likely to remain significant after mitigation, the EMP will also include appropriate compensatory measures (offset) that aim to ensure that the project does not cause significant net degradation to the environment. Such measures may relate, for instance, to conservation of habitat and biodiversity, preservation of ambient conditions, and greenhouse gas emissions. Monetary compensation in lieu of offset is acceptable in exceptional circumstances, provided that the compensation is used to provide environmental benefits of the same nature and is commensurate with the project's residual impact.

3. Environmental Audit of Existing Facilities

95. For subprojects involving facilities that already exist or are under construction, an environment audit shall be undertaken, including on-site assessment, to identify past or present concerns related to impacts on the environment. The objective of the compliance audit is to determine whether actions were in accordance with the EARF, 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.

4. Pollution Prevention and Control Technologies

96. Pollution prevention for conservation of resources, particularly technology for management of sludge, chlorine safety, occupational and community health and safety, shall be addressed in the IEEs. During the design, construction, and operation of the project, the executing agency shall apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety guidelines (EHS). These standards contain performance levels and measures that are normally acceptable and applicable to projects. When Government of India regulations differ from these levels and measures, the PMU will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the PMU will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

97. The IEEs and EMPs will be included in bidding and contract documents with specific provisions requiring contractors to (i) comply with all other conditions required by ADB,27F29 and (ii) to submit a site-specific environmental management plan (SEMP), including (a) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (b) specific mitigation measures following the approved EMP; (c) monitoring program as per SEMP; and (d) budget for SEMP implementation.

98. IEE shall be updated once (i) detailed design is completed, (ii) when change in scope, location, alignment, design is needed or (iii) due to unanticipated environmental impacts occurs.

5. Public Consultation, Information Disclosure and Grievance Redress

108. Public consultation and information disclosure is mandatory as part of the environmental assessment process for KSHARP projects. The adequacy of the public consultation and disclosure during the environmental assessment process will be one of the criteria used to determine the project compliance with ADB safeguard policies. Local disclosure of the IEE should be done at least two weeks before public consultations to allow the public time to read, look for information or consult experts, and form opinions. Similarly, a grievance redress mechanism (GRM) to receive, evaluate, and facilitate the resolution of affected person's concerns, complaints, and grievances about the social and environmental performance at project level is to be established and detailed out in the IEE Report. GRM should be made operation during the EMP implementation phase. The process of public consultation and information disclosure, which is to be carried through the project preparation and implementation, is presented in detailed the following section V.

E. Review of Environmental Assessment Reports

99. IEE including EMPs, prepared/updated by consultants, will be reviewed and approved by the PMU. Borrower or the executing agency is primarily responsible for identifying, prioritizing, formulating, appraising, approving, and implementing subprojects in accordance with technical, financial, and economic appraisal criteria, including social and environmental criteria, mutually agreed upon between ADB and the borrower/executing agency. PMU will submit all IEEs to ADB for review and disclosure. ADB will review and disclose on its website the final reports (IEEs) of all subprojects. Approval of safeguard documents of respective subproject is pre-requisite to initiate the bidding process.

100. All IEEs including EMPs shall be prepared prior to invitation of the bids. The bid documents shall include the requirement to incorporate necessary resources to implement the EMP. The EMP will form part of the contract document, and, if required, will need to be further updated during the construction phase of a subproject. IEE shall be updated once (i) detailed design is completed, (ii) when change in scope, location, alignment, design is needed or (iii) due to unanticipated environmental impacts occurs. PMU will submit all IEEs to ADB for review and disclosure. ADB will review and disclose on its website the final reports (IEEs) of all subprojects.

101. Environmental assessment for subprojects must follow both the ADB SPS and the Government processes. It is the responsibility of the PMU to ensure subprojects are consistent with the legal framework, whether national, state, or local. Compliance is required in all stages of the project, including design, construction, and O&M. Table 10 discusses the steps in complying with these processes per subproject stage.

Table 9: Environmental Procedures for Subproject Processing

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
Subproject identification	Subproject selection criteria (Table 9) Rapid Environmental Assessment (REA) checklist	Categorization according to schedule and general/specific conditions in the government's Environmental Impact Notification, 2006 (as amended till date)
Feasibility/ preliminary design	Categorization (B or C): Project Management Unit (PMU) to review the REA checklists and reconfirm the categorization. Preparation of draft IEEs with EMP for Category B and environmental due diligence report for Category C.	None of the subprojects to be proposed under the KSHARP are currently listed in the Schedule of EIA Notification 2006, and therefore EIA study and environmental clearance is not required Identify other environmental related regulatory requirements based on the nature and location of the subproject (consent from WBPCB, clearance/approvals from Irrigation, Forest Department etc.,)
	For projects involving facilities and/or business activities that already exist or are under construction, undertake an environment and/or social compliance audit, including on-site assessment, to identify past or present concerns	Check the regulatory compliance of such facilities, in case of non-compliance, obtain clearances/approvals as required

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
	related to impacts on the environment, and involuntary resettlement. Where non-compliance is identified, a corrective action plan shall be prepared, and agreed on by ADB and KMC, and implemented accordingly Check the regulatory compliance of such facilities, in case of non-compliance, obtain clearances/approvals as required.	
	Public consultation will be carried out in a manner commensurate with the impacts of affected communities. The consultation process and its results are to be documented and reflected in the IEE.	Not applicable for this project (EIA Notification, 2006 do not apply)
	Disclosure: For category B: Disclosure of the draft IEE; updated IEEs and corrective action plans; and environmental monitoring reports. In addition, environmental information will be in an accessible place and in a form or language understandable to affected person and other stakeholders. For illiterate people, other suitable communication methods will be used. Local disclosure of the IEE should be done at least two weeks before public consultations to allow the public time to read, look for information or consult experts, and form opinions.	Not applicable for this project (EIA Notification, 2006 do not apply)
	Identify and incorporate environmental mitigation and monitoring measures (including the EMP) into bid/contract documents	Not applicable for this project (EIA Notification, 2006 do not apply)
Appraisal and Approval	EMP and other environmental covenants (budget, personnel, etc.) are incorporated into the legal agreement, loan or project agreement, and project administration memorandum (PAM).	Not applicable for this project (EIA Notification, 2006 do not apply)
	ADB will review draft final reports of all IEEs	Not applicable for this project (EIA Notification, 2006 do not apply)
Contract award	Confirm that all necessary environmental clearances, consents, and no-objection certificates (NOCs) as per the legal framework are in place prior to contract award. Implementation of EMP, including monitoring plans based on IEE findings to be incorporated into civil works contracts.	-
Detailed design	Finalization of draft IEE based on detailed design	Submit applications for other environmental related approvals to respective agencies (WBPCB consent, EKWMA).

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
	For projects involving facilities and/or business activities that already exist or are under construction, undertake an environment and/or social compliance audit, including on-site assessment, to identify past or present concerns related to impacts on the environment, and involuntary resettlement. Where non-compliance is identified, a corrective action plan shall be prepared, and agreed on by ADB and KMC, and implemented accordingly.	Check the regulatory compliance of such facilities, in case of non-compliance, obtain clearances/approvals as required
	Public consultation will be carried out in a manner commensurate with the impacts of affected communities. The consultation process and its results are to be documented and reflected in the IEE.	Not applicable for this project (EIA Notification, 2006 do not apply)
	Disclosure: For category B: Disclosure on ADB's website of the final IEE; updated IEEs and corrective action plans; and environmental monitoring reports. In addition, environmental information will be in an accessible place and in a form or language understandable to affected person and other stakeholders. For illiterate people, other suitable communication methods will be used.	Not applicable for this project (EIA Notification, 2006 do not apply) .
	Mitigation measures specified in IEE study incorporated in project design	Mitigation measures specified in EIA/IEE study incorporated in project design
	Identify and incorporate environmental mitigation and monitoring measures (including the site-specific EMP and appointment of an EHS supervisor) into bid/contract documents	An EMP is required, identifying mitigation measures and specifying administrative arrangements to ensure that mitigation measures are implemented, and their effectiveness is monitored after approval of the EIA. A budget for the EMP should also be provided.
Implementation	EA will submit to ADB the following documents for disclosure on ADB's website: (i) Updated IEE (if applicable due to change in scope or detailed design) and (ii) corrective action plan prepared during project implementation, if any. (i) semi-annual environmental monitoring reports EA to ensure the effective implementation of the following: (i) Safeguards induction of Contractors (ii) Information disclosure	Not applicable for this project (EIA Notification, 2006 do not apply) Ensure that necessary clearances and permissions to start the work are in place.

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
	(iii) GRM establishment (iv) EMP monitoring and supervision (v) Reporting corrective actions.	

V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

A. Public Consultation and Information Disclosure

102. ADB SPS requires meaningful consultation with affected people that:

(i) Begins early in the project preparation stage and is carried out at an ongoing basis throughout the project cycle.
(ii) Provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people.
(iii) Is undertaken in an atmosphere free of intimidation or coercion.
(iv) Is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups.
(v) Enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities and implementation issues.

103. Meaningful stakeholder consultation and participation is part of the project preparation and implementation strategy. A consultation and participation program will be implemented with the assistance of consultants. By addressing stakeholder needs, there is greater awareness of the benefits and “ownership” of the project among stakeholders, which in turn contribute to sustainability.

104. Consultation, participation, and disclosure will ensure that information is provided and feedback on proposed subproject design is sought early, right from the subproject preparation phase, so that the views/preferences of stakeholders including potential beneficiaries and affected person can be adequately considered, and continue at each stage of the subproject preparation, processing, and implementation. APs will be consulted at various stages in the project cycle to ensure: (i) incorporation of their views/concerns on compensation/resettlement assistance and environmental impacts and mitigation measures; (ii) inclusion of vulnerable groups in project benefits; (iii) identification of help required by APs during rehabilitation, if any; and (iv) avoidance of potential conflicts for smooth project implementation. It will also provide adequate opportunities for consultation and participation to all stakeholders and inclusion of the poor, vulnerable, marginalized, and APs in the project process.

105. Relevant information about any major changes to project scope will be shared with beneficiaries, affected persons, vulnerable groups, and other stakeholders. A variety of approaches can be adopted. At minimum, stakeholders will be consulted regarding the scope of the environmental and social impact studies before work commences, and they will be informed of the likely impacts of the project and proposed mitigation once the draft EIA/IEE and resettlement plan reports are prepared. The reports will record the views of stakeholders and indicate how these have been taken into account in project development. Consultations will be

held with a special focus on vulnerable groups.

106. The consultation process during the project preparation has solicited inputs from a wide range of stakeholders, including government officials, Community based organisations (CBO's) Non-government organizations (NGO's), residents of the project areas, marginalized/vulnerable beneficiary groups, and project-affected persons (APs). The consultations with stakeholders will continue during in future during preparation and implementation.

107. A variety of approaches can be adopted, and stakeholders should be consulted throughout the project implementation. At minimum, stakeholders will be consulted regarding the scope of the environmental and social impact studies before work commences, and they will be informed of the likely impacts of the project and proposed mitigation once the draft EIA/IEE and resettlement plan reports are prepared. The reports will record the views of stakeholders and indicate how these have been taken into account in project development. Consultations will be held with a special focus on vulnerable groups. Project agencies can also adopt more effective methods and approaches, which are locally appropriate. Consultations shall be conducted in an atmosphere which is conducive to the development of the subprojects and beneficial to the affected persons and other stakeholders. The implementing agency will ensure that the consultations are free of cohesion and intimidation, gender-inclusive, and tailored to the needs of disadvantaged and vulnerable groups.

108. KMC/PMU will be responsible to conduct meaningful consultations and the proceedings and outcomes of these consultations shall be recorded. In the IEEs, summarize the manner in which consultations were conducted, key topics discussed, and the decisions arrived at. These decisions shall be incorporated into the IEEs and EMPs. Photographic records and signatures of participants shall be recorded in the IEE report.

109. Outline for preparation of minutes of stakeholder consultation meetings is given at Appendix 14.

B. Information Disclosure

110. Project related information shall be disclosed through public consultation and making relevant documents available in public locations. PMU shall provide relevant safeguards information in a timely manner, in an accessible place and in a form and languages understandable to affected person and other stakeholders. For illiterate people, other suitable communication methods will be used. Local disclosure of the IEE should be done at least two weeks before public consultations to allow the public time to read, look for information or consult experts, and form opinions

111. At minimum, the following documents shall be made available at the offices of project agencies - PMU and Borough level offices for public reference, and shall also be uploaded on respective websites.

(i) Executive summary of the project (in Bengali and English)
(ii) Draft IEE Report (in English);
(iii) Final IEE Report (in English);
(iv) Updated/amended IEE (in English);
(v) Corrective action plan prepared during project implementation (English); and
(vi) Semi-annual Environmental Monitoring Reports (English).
(vii) Annual Environmental Monitoring Reports during O&M (English)

112. A concise summary of project and draft IEE report (in local language), providing all necessary details of proposals, implementation arrangements, subproject locations, likely issues and mitigation and monitoring measures and grievance redress mechanism, shall be made available to the stakeholders at consultation meetings. This should also provide contact information of project agency. This summary shall also be displayed at the notice boards of PMU and other public places. During project implementation, relevant information about any major changes to project scope will be shared with beneficiaries, affected persons, vulnerable groups, and other stakeholders.

113. The following documents will be submitted to ADB for disclosure on ADB website. PMU will send written endorsement to ADB for disclosing these documents:

(i) draft / final IEE.
(ii) a new or updated IEE and corrective action plan prepared during project implementation, if any; and
(iii) environmental monitoring reports

114. KMC PMU will send written endorsement to ADB for disclosing these documents on ADB's website. KMC, PMU will also provide relevant safeguards information in a timely manner, in an accessible place and in a form and languages understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.

C. Grievance Redress Mechanism

1. Common Grievance Redress Mechanism

115. A project-specific grievance redress mechanism (GRM) was established under an ongoing project (Loan number 3413 and 3689, Kolkata Environmental Improvement Investment Program (KEIIP). The GRM for KEIIP, will be applicable and will be further strengthened for the proposed KSHARP. The grievance redress mechanism (GRM) will receive, evaluate, and facilitate the resolution of social, environmental or any other project-related grievances for KSHARP (along with the existing project). The GRM aims to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns of the project stakeholders.[25] The multichannel, project-specific GRM functional for KEIIP and the positive features and learning from it will be adopted for the KSHARP.

116. A common grievance redress mechanism (GRM) will be in place to redress social, environmental or any other grievances related to project and/or respective subprojects. Implementation of the resettlement plan/resettlement and indigenous peoples plan (RIPP)/due diligence reports (DDRs)/ initial environment examination (IEEs) will follow the GRM described

[25] The project components under the KEIIP are water supply, sewerage and drainage, construction of STP and Pumping Stations. Similar project components have also been proposed in KURIP, except for water supply components, so it is expected that the nature of grievances which may arise during the implementation phase under KURIP will be similar in the nature of grievances that were received in KEIIP. During implementation of KEIIP, the grievances were mostly related to disruption in water supply services due to damages caused to existing pipelines during excavation work, minor damages caused to the property line during construction phase, damages to boundary walls, concrete ramps, water logging, delays in road restoration work, etc. The GRC in KEIIP has long standing experience for dealing and resolving the same kind of grievances within stipulated time. The GRM established in KEIIP is functioning effectively, hence adopting the same GRM structure of KEIIP is proposed in case of KURIP. Under KEIIP, the grievances are resolved on average between seven and fifteen days. The same grievance redress committee (GRC) will continue to function for KURIP.

below. A 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 project entitlement matrix, and PMU will ensure that their grievances are addressed.

117. Affected persons will have the flexibility of conveying grievances/suggestions by dropping grievance redress/suggestion forms in complaints/suggestion boxes that have already been installed by PMU or through toll-free telephone number "Didi Ke Bolo"[26], or talk to Mayor[27] or by e-mail, by post, or by writing in complaints register kept in PMU office or Kolkata Municipal Corporation (KMC) Borough offices or Contractor's site offices. Appendix 15 has the sample grievance registration format. Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved will be undertaken. PMU Safeguard Officers will have the overall responsibility for timely grievance redressal on environmental and social safeguards issues and for registration of grievances, related disclosure, and communication with the aggrieved party. The complainants/aggrieved persons will also be encouraged to seek a complaint registration number from the PMU.

118. The GRM provides an accessible, inclusive, gender-sensitive and culturally appropriate platform for receiving and facilitating resolution of affected persons' grievances related to the project. A three-tier GRM is conceived for the proposed project, the first tier is being at field/ward/Borough level, the second tire at PMU level and the grievance redress committee is being the apex level. For the project level GRM, a Grievance Redress Committee (GRC) will be established at PMU; the safeguards officers of the PMU, supported by the social safeguards specialist of PMDSC will be responsible for conducting periodic community meetings with affected communities to understand their concerns and help them through the process of grievance redressal including translating the complaints into Bengali or English, recording and registering grievances of non-literate affected persons and explaining the process of GRM. All expedient and minor grievances will be resolved at field/ward/Borough level; should any grievance fail to be resolved within the stipulated time period at the field level, the PMU will be consulted within specified time. PMU will also be responsible for follow-through for each grievance, periodic information dissemination tocomplainants on the status of their grievance and recording their feedback (satisfaction/dissatisfaction and suggestions). In the event that certain grievances cannot be resolved at project level, they will be referred to the grievance redress committee (GRC).[28]

119. The GRM aims to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. All grievances will be registered. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor, and supervision personnel from the PMU supported by PMDSC will try to successfully resolve them in consultation with the Executive Engineer of KMC Borough offices. Grievances not redressed through this process within/at the project level within stipulated time period will be referred to the GRC. The GRC for the project has been constituted, as per office order PMU/ 404

[26] This is an initiative started by GoWB from 2019, that provides a platform for the people of West Bengal to directly lodge concerns or complaints to the state authority (Hon'ble Chief Minister GoWB). Official website: https://www.didikebolo.com/

[27] KMC initiated this unique public communication system through which citizens of the city can call on a designated number to register complaints in 2019.Talk to Mayor dial in at 18003451213.

[28] The GRC comprises the Administrative Officer, KURIP, Deputy Chief Engineer (I), KURIP/KMC, Social Safeguard Officer, KURIP, Environmental Officer KURIP, Social Safeguards Specialist, PMDSC, KURIP, Environmental Safeguards Specialist, PMDSC, KURIP. The Administrative officer, KURIP is the Convenor of the GRC.

A/2023-24, dated 29 December 2023, issued by Project Director, KEIIP/KMC The GRC will meet every month (if there are pending, registered grievances), determine the merit of each grievance, and resolve grievances within specified time upon receiving the complaint-failing which may be referred by affected persons to appropriate courts of law. The multi-tier GRM for the project is outlined below (**Figure 1**), each tier having time-bound schedules and with responsible persons identified to address grievances and seek appropriate persons' advice at each stage, as required. The GRC will continue to function throughout the project duration. The PMU shall issue notifications to concerned Borough offices to establish field level GRCs, with details of composition, process of grievance redress to be followed, and time limit for grievance redress at each level.

2. Grievance redress process.

120. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor and PMDSC on-site personnel will provide the most easily accessible for quick resolution of grievances. Contact phone numbers and names of the concerned PMU safeguard officers and contractors will be posted at all construction sites at visible locations. The PMU safeguard officers will be responsible to see through the process of redressal of each grievance.

(i) **1st Level Grievance.** The first point of contact for people filing complaints will be the staff from the contractor designated for receiving grievances and kept in safe custody under supervision of Gender and Safeguards Unit (GSU) field workers assigned to the ward (who will be available at an appointed time at the sites(s) and borough office) and the contractor's personnel. The phone number of the KMC Borough office should be made available at the construction site signboards. Registers for writing complaints will be available at borough offices. The contractors and GSU safeguard monitors can immediately resolve grievances on-site in consultation with each other and the area engineer and borough engineer, as required, and will be required to do so within 5 days of receipt of a complaint/grievance. Record of grievances received at field level will be conveyed once a week to the Environmental and Social Managers and Administrative Officer at PMU, to enable tracking.[29]

(ii) **2nd Level Grievance.** All grievances that cannot be redressed within 7 days at field/ward level will be reviewed by the Grievance Redress Committee at PMU, headed by the Administrative Officer, assisted by the Safeguard Officers and concerned Deputy Chief Engineer, who will seek the advice of the Project Director, and Director General of PMU as necessary, and attempt to resolve the grievances within 10 days from the date of registration of complaint. The GRU of the PMU is already in place. If the PMU feels that the matter is beyond its jurisdiction, it will escalate the same to the Grievance Redress Committee (GRC).

(iii) **3rd Level Grievance.** All grievances that cannot be resolved at PMU level will be referred to the GRC with support from PMU and PMDSC. GRC will attempt to resolve grievances within 5 days, 10 days and 15 days from the date of receipt of complaint from 1st level, 2nd level and 3rd level respectively.

121. Besides the project's GRM, the Kolkata Municipal Corporation (KMC) also has a centralized public grievance redress monitoring system where the public can file grievances

[29] In case of any impacts on indigenous people/scheduled tribe, in subproject areas, the grievance redress team must have representation of the affected indigenous people, the chief of the indigenous peoples group as traditional arbitrator (to ensure that traditional grievance redress systems are integrated) and/or an NGO working with indigenous peoples.

through a dedicated web portal.[30] The complainant or aggrieved persons can also lodge their complaints through this online portal.

122. **Court of Law.** Under the project specific GRM, 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. In case of grievance related to land acquisition, resettlement and rehabilitation, the affected persons will have to approach a legal body/court specially proposed under the RFCTLARRA, 2013.[31]

123. **ADB Accountability Mechanism**. The People who may /are in future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach ADB accountability mechanism.[32]

3. Areas of Jurisdiction

124. The areas of jurisdiction of the GRC, headed by the Administrative Officer, KSHARP will be (i) all locations or sites within the KMC jurisdiction where subproject facilities are proposed, or (ii) their areas of influence within the KMC areas. The GRC will have jurisdictional authority across the KMC area (i.e.,areas of influence of subproject facilities, if any).

4. Record keeping

125. Records of all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions, the date these were affected, and the final outcome will be kept by PMU (with the support of PMDSC). The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PMU office, the ward/borough office and on the web, as well as reported in the semi-annual environmental monitoring reports to be submitted to ADB.

5. Information Dissemination Methods of the GRM

126. The PMU, assisted by PMDSC will be responsible for information dissemination to affected persons on grievance redressal procedure. Subproject area/affected area-wide public awareness campaigns will ensure that awareness on grievance redress procedures is generated through the consultation and participation plan. A public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures is generated. The environment and social safeguard officer will be assisted by PMDSC safeguards specialists with information/collateral/awareness material etc. and in conducting project awareness campaigns. The campaign will ensure that the poor, vulnerable and others are made aware of grievance redress procedures and entitlements per agreed entitlement matrix including.Who to contact and when, where/ how to register grievance, various stages of grievance redress process, time likely

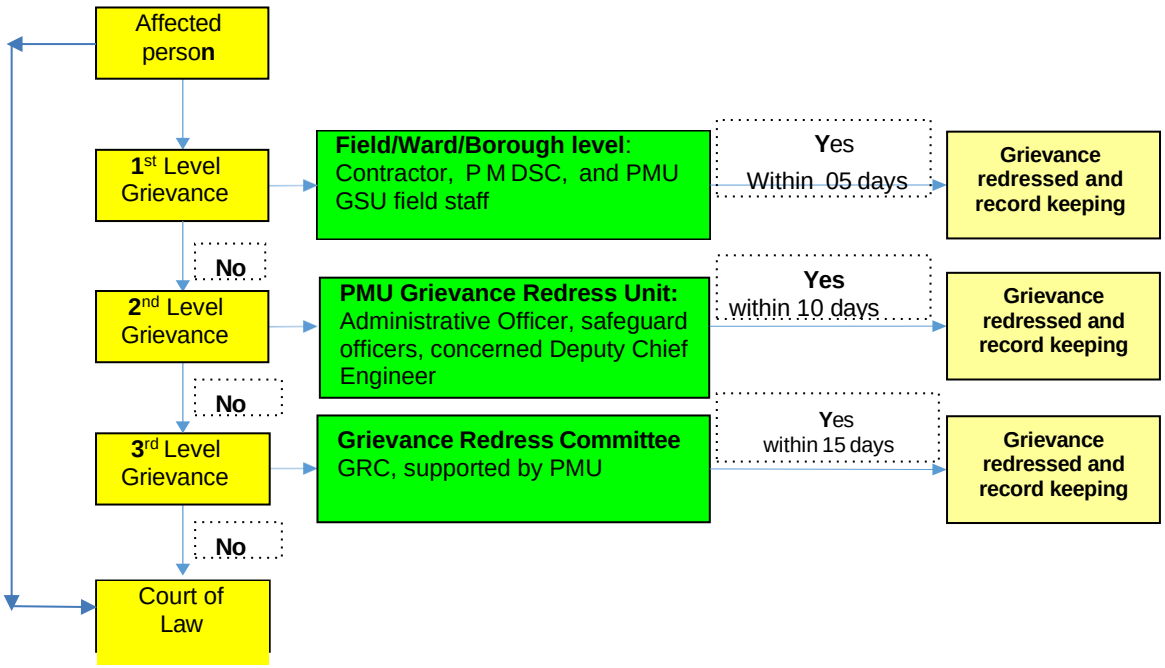
[30] https://www.kmcgov.in/KMCPortal/jsp/ComplaintNew.jsp
[31] The Authority admits grievances only with reference to the Land Acquisition and R&R issues under the RFCTLARRA, 2013.
[32] Accountability Mechanism. http://www.adb.org/Accountability-Mechanism/default.asp

to be taken for redressal 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 PMU offices, Borough level notice boards and on the web, as wellas reported in the semi-annual environmental and social monitoring reports to be submitted to ADB. A Sample Grievance Registration Form has been attached in Appendix 15.

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

128. **Costs**. All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the PMU. Cost estimates for grievance redress are included in resettlement cost estimates. The grievance redress process is shown in **Figure 3**.

Figure 3: Grievance Redress Mechanism (KSHARP)



PMDSC: Project Management and Design Supervision Consultant; PMU: Project Management Unit; GRC: Grievance Redress Committee.

VI. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

A. Implementation Arrangements

129. The Kolkata Municipal Corporation (KMC) will be the executing and implementing agencies, and the project management unit (PMU) established within KMC for the ADB-financed Kolkata Environmental Improvement Investment Program (KEIIP), will implement the project. The PMU, headed by a Project Director, will be strengthened and expanded to implement the project.

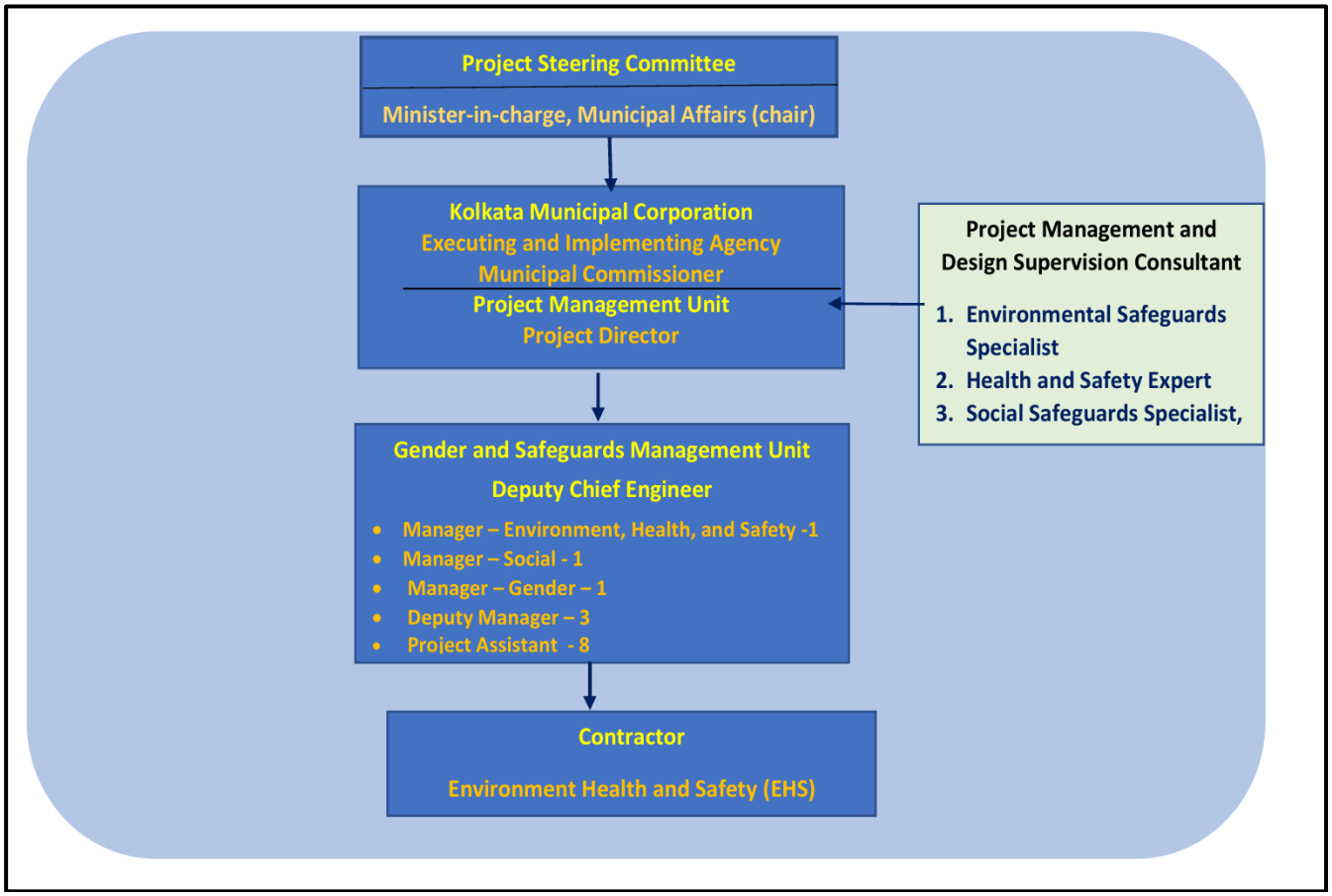
1. Safeguard Implementation Arrangement

130. The Project Director will be supported by Director General - Project for procurement and contract management and Deputy Chief Engineer (DCE) for safeguards implementation. The DCE, supported by an Manager – Environment, Health and Safety and Manager - Social, will be responsible for environmental and social safeguards in compliance with project agreements, government requirements and ADB SPS, 2009. Gender, Safeguard management unit (GSMU) headed by DCE and staffed with 3 Managers, 3 Deputy Managers, and 8 project assistants to implement and monitor of gender action plan, EMP, resettlement plans, and with focus on community and occupational health and safety aspects.[33]

131. PMU will be supported by a Project Management and Design Supervision Consultant (PMDSC) . The PMDSC will have an Environmental Safeguards Specialist (ESS) and an Health and Safety Expert to support in all tasks related to environmental safeguards. At contractor level, an Environment, Health and Safety (EHS) supervisor will be appointed on-site, one for each package, to assist in preparing and implementing site-specific EMP.

[33] The existing Social Safeguard Cell will function as the Safeguard and Safety Cell (SSC) for the project

Figure 4: Institutional Arrangement for Safeguard Implementation, KSHARP



2. Environmental Safeguards Roles and Responsibilities

132. **Project Management Unit.** The PMU will be responsible for planning, management, coordination, supervision and progress monitoring. PMU has the responsibility of fulfilling environmental requirement of the government and ensuring effective implementation of the environmental management provisions in the EARF, IEEs, EMPs and civil works contracts. Supported by PMDSC, the following are the key environmental safeguard tasks and responsibilities of the Manager (Environment) at the PMU level :

(i) ensure compliance with government and ADB's environmental safeguards and EARF
(ii) review and approve the IEEs (for new packages) and updated/final IEEs
(iii) coordinate with design engineers, PMU and PMDSC to integrate environmental mitigation and enhancement measures and legal requirements in designs
(iv) ensure IEEs reflect final designs, and ensure prompt update to reflect any changes
(v) ensure that EMP and associated costs are included in bids and contracts;
(vi) review and approve the SEMPs from the Contractor;
(vii) establish a system to monitor and report on environmental safeguards;
(viii) ensure legal requirements are met timely (consent, licenses, permissions etc.),
(ix) oversee and ensure SEMPs and EMPs are implemented by contractors;
(x) Check effectiveness on SEMPs, and Health and Safety Plans implementation,

and take actions to improve or correct the same;
(xi) Submit semi-annual environmental monitoring reports (SEMR) to ADB;
(xii) assist in establishing and operating GRM and timely and effective redress of environmental safeguards-related complaints;
(xiii) confirm compliance with all measures and requirements in the IEEs, the EMPs and any corrective or preventive actions set forth in safeguard monitoring reports,
(xiv) ensure timely disclosure of final EARF, IEEs, SEMRs, corrective plans etc.,
(xv) Oversee and ensure safeguards related loan covenants are complied with
(xvi) organize capacity building and training programs on environmental safeguards.

133. **Safeguard and Safety Cell (SSC), PMU.** The existing Social Safeguard Cell will function as the Safeguard and Safety Cell (SSC) for the project, covering environment, social and safety aspects. The SSC, in addition to social development, public awareness and social safeguard responsibilities, will also monitor EMP implementation including community health and safety aspects. The SSC staff, currently implementing the ongoing KEIIP, are conversant with EMP, health and safety and ADB safeguard policies. Capacity building of the SSC staff will be facilitated by PMDSC. SSC field staff will report to the Manager (Environment) and Manager (Social). The environmental safeguards responsibilities of SSC field staff include:

(i) Monitoring of EMP/SEMP implementation and submit monitoring reports to PMU
(ii) Review of contractor's site-specific health and safety plans
(iii) Monitoring occupational and community health and safety measures
(iv) Carryout site inspections to review health and safety on-site, submit reports
(v) Ensure records of work-related accidents (on and off-site), ensure prompt reporting to PMU and undertaking corrective actions
(vi) Engage with local communities to raise awareness about the project's health and safety impacts.
(vii) Implement GRM; coordinate with contractor, PMDSC and PMU to promptly address community grievances and avoid undue escalations;
(viii) Coordinate with elected representatives, district administration, line departments, PMUs, Contractor, PMDSC, and community for project activities;
(ix) Facilities field data, reports and information for IEE updates and SEMRs
(x) rapport-building and information dissemination to the public;
(xi) database management on safeguard monitoring, grievances.

134. **Project Design Management and Supervision Consultant (PMDSC).** The PMDSC will have an Environmental Safeguards Specialist (ESS) and an Health and Safety Expert to support in all tasks related to environmental safeguards to PMU.

135. The PMU will be supported by PDMSC's Environmental Safeguards Specialist who will assist in preparing, updating, reviewing, implementing, monitoring, and reporting of all tasks related to environmental safeguards. Following are the key tasks of Environment Specialist of PMDSC:

(i) Assist the PMU in screening project components and update ADB Rapid Environmental Assessment (REA) checklists and category per EARF, when necessary to reflect project changes based on the final detailed survey;
(ii) Work closely with PMU and Contractor design teams to include environmental considerations in project location, design, and technical specifications;
(iii) Identify statutory clearance / permissions / approvals required and assist the PMU in obtaining them;

(iv) Assist in including standards/conditions of regulatory clearances and consents, if any, in the project design;
(v) Assist the PMU in the review of Contractor' SEMPs;
(vi) Carry out baseline environmental surveys and prepare updated/final IEEs and EMPs based on the Contractor's detailed design, SEMPs, and in accordance with country's environmental legal frameworks and ADB SPS 2009;
(vii) Lead / assist PMU in public consultations and include inputs from the public consultation in the project design and EMP, and proper documentation in the IEEs;
(viii) Advise / assist PMU in disclosing relevant information on safeguards to affected people and relevant stakeholders;
(ix) Assist PMU in reviewing and approving contractor SEMPs, health and safety plan and any other associated plans as required
(x) Assist the PMU in monitoring the implementation of EMPs/SEMPs and ensure compliance by the Contractors including subcontractors;
(xi) Carry out site verification of EMP/SEMP implementation on a regular basis;
(xii) Provide guidance on resolving issues pertaining to effective and efficient implementation of proposed environmental mitigation measures per EMPs/SEMPs during construction phase. Identify, non-compliance or unanticipated impacts, if any, and initiate corrective actions and report to PMU;
(xiii) Assist the PMU in the review and approval of monthly monitoring reports submitted by Contractor;
(xiv) Assist the PMU in consolidating and preparing quarterly Environmental Monitoring Reports (EMR) and submit to PMU;
(xv) Assist the PMU in preparing semi-annual environmental monitoring report per the requirement of ADB;
(xvi) Identify training needs and implement capacity building activities on environmental safeguards for the PMU, contractors, and other stakeholders;
(xvii) Assist PMU in establishing GRM for the Project;
(xviii) Assist PMU in grievance redress, advise the contractor on appropriate actions on grievances, ensure timely resolution and proper documentation;
(xix) Support all other environmental safeguards-related activities and tasks of the PMU as may be needed.
(xx) Support in implementation of gender equality and social inclusion related activities

136. Key roles and responsibilities for a **Health and Safety Expert of PMDSC**:

(i) Establishing and maintaining overall project's health and safety systems, protocols, work permit methods and communication structures; expert will be responsible for ensuring safety culture at project sites
(ii) Promoting safe practices on site and ensuring the safety induction training of workers
(iii) Assessment and approval of contractor's site-specific health and safety plan
(iv) Regular inspection of project sites to ensure a hazard-free environment and rectify potential safety issues.
(v) Ensuring tools and equipment safety, third party audits/inspections etc.,
(vi) Creating and enforcing safety guidelines and programs
(vii) Plan and ensuring that contractor carrying out drills and exercises on managing emergency situations
(viii) Conducting investigations on accidents and incidents and prepare reports on findings
(ix) Responding to workers' safety concerns

(x) Arrange evaluations of the sites and identify areas for improvement
(xi) Coordinates all issues regarding hazardous materials
(xii) Attending periodically project planning meetings and collaborating with construction managers to identify and address safety concerns
(xiii) Continuous monitoring of all safety related documents, reports and issues to keep them updated.
(xiv) Engage with local communities to raise awareness about the project's health and safety impacts. Address community concerns related to project activities.

137. **The Contractor.** Contractors will be required to appoint a full-time Environment, Health and Safety (EHS) supervisor on-site to implement the EMP. Prior to start of construction, Contractor will be required to prepare and submit to PMU, for review and approval, Site-specific EMP (SEMP) which includes (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the EMP in approved draft and final EMP; (iii) monitoring program per EMP; and (iv) budget for SEMP and EMP implementation. No works can commence until SEMP is approved by PMU. Contractors will carry out all environmental mitigation and monitoring measures outlined in EMP, approved SEMP and their contracts. The contractor will be required to undertake day to day monitoring of the SEMP implementation and submit reports to the PMU on a monthly basis. A copy of the EMP/approved SEMP will be always kept on-site during the construction period. Non-compliance with, or any deviation from, the conditions set out in the EMP/SEMP constitutes a failure in compliance and will require corrective actions. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites. Key responsibilities of the EHS Officer, in coordination with other contractors' personnel include:

(i) Prepare SEMP including site-specific occupational health and safety plan and submit to PMU for approval prior to start of construction;
(ii) Supervise work site safety, and provision of PPEs etc.,
(iii) Ensure implementation of SEMP and report to PMU/PMDSC on any new or unanticipated impacts; seek guidance from the PMU/PMDSC to address the new or unanticipated impact in accordance with EARF and ADB SPS 2009;
(iv) Ensure that necessary pre-construction and construction permits are obtained;
(v) Conduct trainings,[34] orientation and daily briefing sessions to workers on environment, health and safety;
(vi) Ensure that appropriate worker facilities are provided at the workplace and labor camps as per the contractual provisions;
(vii) Carry out site inspections on a regular basis and prepare site-inspection checklists/reports;
(viii) Record EHS incidents and undertake remedial actions;
(ix) Conduct environmental monitoring (air, noise, etc.,) as per the monitoring plan
(x) Prepare monthly EMP monitoring reports and submit to PMU/PMDSC;

[34] Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective equipment; (iii) ergonomics, repetitive motion, and manual handling; (iv) workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence, but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence and monitor to ensure that the training provided is relevant and effective.

(xi) Work closely with PMU Manager (Environment) and PMDSC ESS to ensure communities are aware of project-related impacts, mitigation measures, and GRM; and

(xii) Coordinate with the PMU and PMDSC on any grievances received and ensure that these are addressed in an effective and timely manner.

B. Safeguards Capacity Building – Environmental Safeguards

138. The PDMSC will facilitate the implementation of capacity building program for the PMU and contractors, with specific topics on environmental safeguards such as but not limited to the list below. The capacity building program will be participatory to the extent possible and will employ a variety of approaches to be more effective (such as learning by doing, role playing, group exercises, on-the-job training, etc.). A pre and post training assessment will be undertaken to measure the effectiveness of the program. The contractors will be responsible for conducting site-specific/work-specific orientation on environmental safeguards for their workers.

Table 10: Indicative Training Needs for Environmental Safeguards

Description	Target Participants and Venue	Source of Funds
Introduction and Sensitization to Environmental Issues (1 day) - ADB Safeguards Policy Statement - Government of India and West Bengal applicable safeguard laws, regulations and policies including but not limited to core labor standards, OH&S, etc. - Incorporation of EMP into the project design and contracts - Monitoring, reporting and corrective action planning	All staff and consultants involved in the project At PMU level	PMU
Preparing and implementing SEMR (1/2 day - once at the beginning and at a frequency of once in six months during implementation) - site-specific mitigation & monitoring measures - Roles and responsibilities - Public relations, - Consultations - Grievance redress - Monitoring and corrective action planning - Reporting and disclosure -Construction site standard operating procedures (SOP) -Chance find (archaeological) protocol - AC pipe protocol - Traffic management plan - Waste management plan - Site clean-up & restoration	All staff and consultants involved in the project All contractors immediately after mobilization of the contractor At PMU level	PMU
Contractors Orientation to Workers (1/2 day) - Environment, health and safety in project construction (O H and S, core labor laws, spoils management, etc.)	Once before start of work, and thereafter regular briefing every month once. Daily briefing on safety prior to start of work All workers (including unskilled laborers)	Contractor's cost

C. Staffing and Budget

139. Costs required for implementing the EARF will cover the following activities:

(i) conducting environmental assessments of new subprojects, preparing and submitting reports, and public consultation and disclosure;
(ii) application for government regulatory consents, approvals; and
(iii) implementation of EMP.

140. For budgeting purposes, it is assumed that all new subprojects will be classified by ADB as category B (requiring IEE).

141. Preparation of IEE requires an experienced environmental specialist for conducting the following activities: (i) site visit to assess environmental conditions and potential impacts of the scheme; (ii) liaison with KMC/ULBs and others to obtain any environmental/social data that might be available locally (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; and (v) desk study and report preparation. Environmental specialist position is created in PMDSC, preparation of environmental assessment reports is also part of the scope of work of PMDSC.

142. The infrastructures will take about 2.5 to 4 years to build in different packages. Environmental monitoring during construction will also be straightforward, and will involve periodic site observations and interviews with workers and others, plus checks of reports and other documents. This will be conducted by PDMSC environment safeguard specialist, assisted by the PMU Manager (environment). The PDMSC environment safeguard specialist will also prepare, IEEs, and environmental reviews for new subprojects. The budget therefore includes the full cost of the environment specialist

143. The cost of mitigation measures and surveys during construction will be incorporated into the contractor's costs, which will be binding on him for implementation. The surveys will be conducted by the contractors.

144. The operation phase mitigation measures are again of good operating practices, which will be the responsibility of the Contractor for during operation phase of contract. EHS Supervisor of the contractor will be responsible for operation phase mitigation measures. All monitoring during the O&M phase will be conducted by government regulatory agencies like WBPCB as per their mandate therefore, there are no additional costs. The indicative costs of EARF implementation are shown in **Error! Reference source not found.**

Table 11: Indicative Cost of Environmental Assessment and Review Framework Implementation

Component	Description	Number	Cost Per Unit (INR)	Cost (INR)	Source of Funds
A. Consultants and Contractor's personnel					
PDMSC: Environmental Expert – 1 nos	Responsible for environmental safeguards of the project	42 person months (spread over entire project implementation on period)	--	--	Remuneration and budget for travel covered in the PDMSC contract

Component	Description	Number	Cost Per Unit (INR)	Cost (INR)	Source of Funds
PDMSC: Health and Safety Expert – 1 nos	Responsible for health and safety aspects of the project	42 person months (spread over entire project implementation on period)	--	--	Remuneration and budget for travel covered in the PDMSC contract
Contractor: with each contractor EHS supervisor – (Ten packages are proposed under KSHARP)	Responsible for implementation of EMP during civil works and operation and maintenance	Full time	--	--	Remuneration and budget for travel covered Contractor's cost (included in project cost)
B. Administrative Costs					
Legislation, permits, and agreements, implementation n of measures etc.,	Consent fee for STPs, etc.	All subprojects	Lump sum	10,00,000	Included in the overall project cost
C. Environmental Management and Monitoring Costs					
Ambient environmental monitoring	During preconstruction and construction	All subprojects	Lump sum	--	Contractor's cost (included in project cost)
Implementation of EMP measures	During preconstruction and construction	All subprojects	Lump sum	--	Contractor's cost (included in project cost)
C. Other Costs					
Public consultations and information disclosure	Information disclosure and consultations during pre-construction and construction phase, including public awareness campaign through media	All subprojects	Lump sum	10,00,000	PIU costs – part of increment al administration
Capacity development in environmental safeguards	Awareness and training programs - venue and other arrangements	Training workshops to all program agencies	Lump sum	100,000	PMU costs - part of incremental administration
GRM Implementation	Costs involved in resolving complaints (meetings, consultations, communication, and reporting/information dissemination)	Part of administratio n cost of PMUs	Lump sum	10,00,000	PMU costs - part of incremental administration

VII. MONITORING AND REPORTING

145. Monitoring and reporting on overall EARF compliance, subproject selection guidelines and exclusion criteria and on implementation of subproject-wise EMPs are the key tasks in safeguard implementation in KSHARP. PMU will monitor and measure the progress of EMP implementation. The monitoring activities will correspond with the project's risks and impacts. In addition to recording information on the work and deviation of work components from original scope, PMU, and PDMSC will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome.

146. Prior to commencement of the work, the contractor will submit a compliance report to PMU ensuring that all identified pre-construction environmental impact mitigation measures as detailed in the EMP will be undertaken. PMU with the assistance of the Manager (Environment) of PMU and Environmental Safeguard Specialist (ESS) of PDMSC will review the report and thereafter PMU will allow commencement of works.

147. During construction, results from internal monitoring by the contractor will be reflected in their monthly EMP implementation reports submitted to the PMU and environmental safeguard specialist of PDMSC. They will review and advise contractors for corrective actions if necessary. Monthly report summarizing compliance and corrective measures taken will be prepared by Manager (Environment) of PMU with the assistance of environmental specialist of PDMSC and submitted to PMU. Sample site monitoring checklists are given in Appendix 16 and 17.

148. Quarterly report shall be prepared by PDMSC and submitted to PMU for review and further actions. The quarterly report shall include the Quarterly Progress Report checklist (Appendix 18) to ensure completeness of safeguards requirements.

149. Based on monthly and quarterly reports and site verification reports, PDMSC will draft six monthly report (semiannual environmental monitoring report, SEMR) and submit to PMU for their review and further submission to ADB (Appendix 19). Once concurrence from the ADB is received the report will be disclosed in the project website. During the operation PMU will submit environmental monitoring reports annually.

150. ADB will review project performance against KMC commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the project's risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system. ADB will monitor projects on an ongoing basis until a project completion report is issued. ADB will carry out the following monitoring actions to supervise project implementation:

(i) conduct periodic site visits for projects with adverse environmental or social impacts;
(ii) conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants for projects with significant adverse social or environmental impacts;
(iii) review the periodic monitoring reports submitted by KMC/PMU to ensure that adverse impacts and risks are mitigated, as planned and agreed with ADB;
(iv) work with KMC/PMU to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the legal agreements, and exercise remedies to reestablish compliance as appropriate; and
(v) prepare a project completion report that assesses whether the objective and

desired outcomes of the safeguard plans have been achieved, considering the baseline conditions and the results of monitoring.

151. ADB's monitoring and supervision activities are carried out on an on-going basis until Project Completion Report (PCR) is issued. ADB issues a PCR within 1-2 years after the project is physically completed and in operation.

Appendix 1: Indian Environmental Standards

Table 1: Drinking Water Quality Standards

Group	National Standards for Drinking Water[a]			WHO Guidelines for Drinking-Water Quality, 4th Edition, 2011[b]
	Parameter	Unit	Max. Concentration Limits[d]	
Physical	Turbidity	NTU	1 (5)	-
	pH		6.5 – 8.5	none
	Color	Hazen units	5 (15)	none
	Taste and Odor		Agreeable	-
	TDS	mg/l	500 (2,000)	-
	Iron	mg/l	0.3	-
	Manganese	mg/l	0.1 (0.3)	-
	Arsenic	mg/l	0.01 (0.05)	0.01
	Cadmium	mg/l	0.003	0.003
	Chromium	mg/l	0.05	0.05
	Cyanide	mg/l	0.05	none
	Fluoride	mg/l	1 (1.5)	1.5
	Lead	mg/l	0.01	0.01
	Ammonia	mg/l	0.5	none established
Chemical	Chloride	mg/l	250 (1,000)	none established
	Sulphate	mg/l	200 (400)	none
	Nitrate	mg/l	45	50
	Copper	mg/l	0.05 (1.5)	2
	Total Hardness	mg/l	200 (600)	-
	Calcium	mg/l	75 (200)	-
	Zinc	mg/l	5 (15)	none established
	Mercury	mg/l	0.001	0.006
	Aluminum	mg/l	0.1 (0.3)	none established
	Residual Chlorine	mg/l	0.2	5
Micro Germs	E-coli	MPN/100ml	Must not be detectable In any 100 ml sample	Must not be detectable In any 100 ml sample
	Total Coliform	MPN/100ml		

[a] Bureau of India Standard 10200: 2012.

[b] Health-based guideline values.

[c] Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

[d] Figures in parenthesis are maximum limits allowed in the absence of alternate source.

Table 2: Surface Water Quality Classification Criteria

Designated-Best-Use	Class of Water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6 mg/L or more Biochemical Oxygen Demand 5 days 20°C 2mg/L or les
Outdoor bathing (Organized)	B	Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/L or more Biochemical Oxygen Demand 5 days 20°C 3mg/L or less
Drinking water source after conventional treatment and disinfection	C	Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4 mg/L or more Biochemical Oxygen Demand 5 days 20°C 3 mg/L or less
Propagation of Wild life and Fisheries	D	pH between 6.5 to 8.5 Dissolved Oxygen 4 mg/L or more Free Ammonia (as N) 1.2 mg/L or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25°C micro mhos/cm Max. 2250 Sodium absorption Ratio Max. 26 Boron Max. 2 mg/L

Source: Central Pollution Control Board
mg/L = milligram per liter, ml = milliliter, MPN = Most Probable Number

Table 3: Ambient Air Quality Standards

Parameter	Location [a]	India Ambient Air Quality Standard ($\mu g/m^3$)[b]	WHO Air Quality Guidelines ($\mu g/m^3$)	
			Global Update [c] 2005	2021 Guidelines
PM_{10}	Industrial Residential, Rural and Other Areas	60 (Annual) 100 (24-hr)	20 (Annual) 50 (24-hr)	5(Annual) 15 (24-hr)
	Sensitive Area	60 (Annual) 100 (24-hr)	20 (Annual) 50 (24-hr)	5(Annual) 15 (24-hr)
PM_{25}	Industrial Residential, Rural and Other Areas	40 (Annual) 60 (24-hr)	10 (Annual) 25 (24-hr)	15(Annual) 45 (24-hr)
	Sensitive Area	40 (Annual) 60 (24-hr)	10 (Annual) 25 (24-hr)	15(Annual) 45 (24-hr)
SO_2	Industrial Residential, Rural and Other Areas	50 (Annual) 80 (24-hr)	20 (24-hr) 500 (10- min)	40(Annual) 4 (24-hr)
	Sensitive Area	20 (Annual) 80 (24-hr)	20 (24-hr) 500 (10- min)	40(Annual) 4 (24-hr)
NO_2	Industrial Residential, Rural and Other Areas	40 (Annual) 80 (24-hr)	40 (Annual) 200 (1-hr)	10(Annual) 25 (24-hr)

Parameter	Location [a]	India Ambient Air Quality Standard ($\mu g/m^3$)[b]	WHO Air Quality Guidelines ($\mu g/m^3$)	
			Global Update [c] 2005	2021 Guidelines
	Sensitive Area	30 (Annual) 80 (24-hr)	40 (Annual) 200 (1-hr)	10(Annual) 25 (24-hr)
CO	Industrial Residential, Rural and Other Areas	2,000 (8-hr) 4,000 (1-hr)	-	4 (24-hr)
	Sensitive Area	2,000 (8-hr) 4,000 (1-hr)	-	4 (24-hr)
Ozone (O_3)	Industrial Residential, Rural and Other Areas	100 (8-hr) 180 (1-hr)	100 (8-hr)	100 (8-hr)
	Sensitive Area	100 (8-hr) 180 (1-hr)	100 (8-hr)	100 (8-hr)
Lead (Pb)	Industrial, Residential, Rural and Other Areas	0.5 (Annual) 1.0 (24-hr)		
	Sensitive Area	0.5 (Annual) 1.0 (24-hr)		
Ammonia (NH_3)	Industrial Residential, Rural and Other Areas	100 (Annual) 400 (24-hr)		
	Sensitive Area	100 (Annual) 400 (24-hr)		
Benzene (C_6H_6)	Industrial Residential, Rural and Other Areas	5 (Annual)		
	Sensitive Area	5 (Annual)		
Benzo(o)pyrene (BaP) particulate phase only	Industrial Residential, Rural and Other Areas	0.001 (Annual)		
	Sensitive Area	0.001 (Annual)		
Arsenic (As)	Industrial Residential, Rural and Other Areas	0.006 (Annual)		
	Sensitive Area	0.006 (Annual)		
Nickel (Ni)	Industrial Residential, Rural and Other Areas	0.02 (Annual)		
	Sensitive Area	0.02 (Annual)		

a Sensitive area refers to such areas notified by the India Central Government.

b Notification by Ministry of Environment and Forests, Government of India Environment (Protection) Seventh Amendment Rules, 2009

[c] WHO Global Air quality guidelines (2021).
Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS
ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS

Table 4: Vehicle Exhaust Emission Norms

1. Passenger Cars

Norms	CO (g/km)	HC+ NOx(g/km)
1991Norms	14.3-27.1	2.0(Only HC)
1996 Norms	8.68-12.40	3.00-4.36
1998Norms	4.34-6.20	1.50-2.18
India stage 2000 norms	2.72	0.97
Bharat stage-II	2.2	0.5
Bharat Stage-III	2.3	0.35 (combined)
Bharat Stage-IV	1.0	0.18 (combined)

2. Heavy Diesel Vehicles

Norms	CO (g/kmhr)	HC (g/kmhr)	NOx (g/kmhr)	PM(g/kmhr)
1991Norms	14	3.5	18	-
1996 Norms	11.2	2.4	14.4	-
India stage 2000 norms	4.5	1.1	8.0	0.36
Bharat stage-II	4.0	1.1	7.0	0.15
Bharat Stage-III	2.1	1.6	5.0	0.10
Bharat Stage-IV	1.5	0.96	3.5	0.02

Source: Central Pollution Control Board
CO = Carbon Monixide; g/kmhr = grams per kilometer-hour; HC = Hydrocarbons; NOx = oxides of nitrogen; PM = Particulates Matter

Table 5: Emission limits for New DG sets up to 800 KW

(As per Environment (Protection) (Third Amendment) Rules, 2013)

TABLE

Power Category	Emission Limits (g/kW-hr)			Smoke Limit (light absorption coefficient, m^{-1})
	NOx +HC	CO	PM	
Upto 19 KW	≤ 7.5	≤ 3.5	≤ 0.3	≤ 0.7
More than 19 KW upto 75 KW	≤ 4.7	≤ 3.5	≤ 0.3	≤ 0.7
More than 75 KW upto 800 KW	≤ 4.0	≤ 3.5	≤ 0.2	≤ 0.7

Note:

1. The abbreviations used in the Table shall mean as under: NO_x – Oxides of Nitrogen; HC – Hydrocarbon; CO – Carbon Monoxide; and PM – Particulate Matter.
2. Smoke shall not exceed above value throughout the operating load points of the test cycle.
3. The testing shall be done as per D2 – 5 mode cycle of ISO: 8178- Part 4.
4. The above mentioned emission limits shall be applicable for Type Approval and Conformity of Production (COP) carried out by authorised agencies.
5. Every manufacturer, importer or, assembler (hereinafter referred to as manufacturer) of the diesel engine (hereinafter referred to as 'engine') for genset application manufactured or imported into India or, diesel genset (hereinafter referred to as 'product'), assembled or imported into India shall obtain Type Approval and comply with COP of their product(s) for the emission limits which shall be valid for the next COP year or, the date of implementation of the revised norms specified above, whichever earlier.

   Explanation.- The term 'COP year' means the period from 1st April to 31st March.
6. Stack height (in metres), for genset shall be governed as per Central Pollution Control Board (CPCB) guidelines.

DIESEL GENERATOR SETS : STACK HEIGHT

The minimum height of stack to be provided with each generator set can be worked out using the following formula :

H = h+0.2x ÖKVA
H = Total height of stack in metre
h = Height of the building in metres where the generator set is installed
KVA = Total generator capacity of the set in KVA
Based on the above formula the minimum stack height to be provided with different range of generator sets may be categorised as follows:

For Generator Sets	Total Height of stack in metre
50 KVA	Ht. of the building + 1.5 metre
50-100 KVA	Ht. of the building + 2.0 metre
100-150 KVA	Ht. of the building + 2.5 metre
150-200 KVA	Ht. of the building + 3.0 metre
200-250 KVA	Ht. of the building + 3.5 metre
250-300 KVA	Ht. of the building + 3.5 metre

Similarly for higher KVA ratings a stack height can be worked out using the above formula.

Source : Evolved By CPCB
[Emission Regulations Part IV:COINDS/26/1986-87]

Table 6: Ambient Noise Level Standards

Receptor/ Source	India National Noise Level Standards[a] (dBA)		WHO Guidelines Value For Noise Levels Measured Out of Doors[b] (One Hour LA_q in dBA)		Applicable Per ADB SPS[c] (dBA)	
	Day	Night	07:00 – 22:00	22:00 – 07:00	Day time	Nighttime
Industrial area	75	70	70	70	70	70
Commercial Area	65	55	70	70	65	55
Residential Area	55	45	55	45	55	45
Silent Zone	50	40	55	45	50	40

a- Noise Pollution (Regulation and Control) Rules, 2002 as amended up to 2010.

b- Guidelines for Community Noise. WHO. 1999

c- Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

Appendix 2: Effluent Discharge Standards for STPs as per National Green Tribunal (NGT) order dated 30.04.2019

Sl. No.	Parameters	Parameters Limit
1	pH	5.5-9.0
2	BOD (mg/l)	Not more than 10 mg/l
3	COD (mg/l)	Not more than 50 mg/l
4	TSS (mg/l)	Not more than 20 mg/l
5	P-Total (mg/l)- for discharge into ponds/lakes	Not more than 1.0 mg/l
6	N-Total (mg/l)	Not more than 10 mg/l
7	Fecal Coliform (MPN/100ml)	Desirable- Less than 100 MPN/100ml Permissible- 230 MPN/100ml

Note: The standards recommended are applicable to entire country irrespective of Mega and Metropolitan Cities The standards will apply not only for new STPs but also for existing/under construction STPs without any delay

Appendix 3: Standards for Composting

As there are no specific standards notified for sludge reuse, the compost quality standards notified under the Municipal Solid Waste Management and Handling Rules, 2006 have been adopted here. The Municipal Solid Waste (Management and Handling) Rules stipulate that “In order to ensure safe application of compost, the following specifications for compost quality shall be met”:

Parameters	Concentration Not to Exceed (mg/kg dry basis, except pH value and C/N ratio) *
Arsenic	10.00
Cadmium	5.00
Chromium	50.00
Copper	300.00
Lead	100.00
Mercury	0.15
Nickel	50.00
Zinc	1000.00
C/N ratio	20-40
PH	5.5-8.5
Arsenic	10.00

*Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

Source: Municipal Solid Waste (Management and Handling) Rules, 2000, Government of India

Appendix 4: Department of Environment's Direction Under Air Act, 1981 for control of air pollution from construction activities In West Bengal

Department of Environment
Government of West Bengal
Writers' Buildings, "G" Block, (2nd. Floor),
Kolkata-700 001.

No. EN/3170/T-IV-7/001/2009 Dated: December 10th, 2009.

DIRECTION

WHEREAS, Department of Environment, Govt. of West Bengal is entrusted to look after the execution of the different environmental laws within the territorial jurisdiction of West Bengal and also responsible for maintaining pollution free environment and also responsible for restraining different environment hazardous activities which are causing serious impact on human beings, other living creatures, plant, micro-organism, property or the environment ;

AND WHEREAS, Department of Environment has already taken different steps for controlling air pollution in the atmosphere generated from the different sources i.e. industrial source, vehicular source and burning of bio-mass;

AND WHEREAS, Department of Environment in exercising the power conferred under section 19 of the Air (Prevention & Control of Pollution) Act, 1981, has already declared entire West Bengal as `Air Pollution Control Area';

AND WHEREAS, West Bengal Pollution Control Board conducted a study with the help of the Asian Development Bank and it is revealed that the contribution of the construction activities is one of the source of air pollution in Kolkata and its surroundings ;

AND WHEREAS, it is further revealed that burning of old tyres in hot mix plant as a fuel during construction and repairs of road for melting coal tar contributes significant obnoxious element into the air which cause a serious problem of the human beings ;

HENCE, in view of the above and in consultation with the West Bengal Pollution Control Board and in exercise of the power conferred under Air (Prevention & Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986, all the municipalities, local authorities and all other concerned Govt. Departments within the State of West Bengal, are now directed to take immediate steps to implement the following norms which need to be strictly followed by the developers, contractors or any other infrastructure developers ;

- Preventive measures need to be taken: -

a) Wrap construction area/buildings with geotextile fabric, installing dust barriers, or other actions, as appropriate for the location,
b) Apply water and maintain soils in a visible damp or crusted condition for temporary stabilization,
c) Apply water prior to levelling or any other earth moving activity to keep the soil moist throughout the process;
d) Limit vehicle speeds to 15 mph on the work site.
e) Clean wheels and undercarriage of haul trucks prior to leaving construction site.
f) Apply and maintain dust suppressant on haul routes.
g) Apply a cover or screen to stockpiles and stabilize stockpiles at completion of activity by water and maintain a dust palliative to all outer surfaces of the stockpiles;
h) Stabilize surface soils where loaders, support equipment and vehicles will operate by using water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate;
i) Stabilize adjacent disturbed soils following paving activities with immediate landscaping activity or installation of vegetative or rock cover.
j) Maintain dust control during working hours and clean track out from paved surfaces at the end of the work shift/day. Track out must now extend 50 feet or more and must be cleaned daily, at the minimum.
k) Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slope,
l) Disposal of debris in consultation with the local authorities following proper environmental management practice.
m) During construction work, including cutting of marbles, ambient noise level should not exceed more than 65 dB(A).

Local Police Station is also directed to render all necessary help to the Local Authorities to implement the aforementioned direction in a befitting manner.

This order will take effect from 01-01-2010 through out the State of West Bengal.

By Order,
Sd/-
(M. L. Meena)
Principal Secretary to the Govt. of West Bengal.
Department of Environment.

Appendix 5: Extract from Construction and Demolition Management Rules, 2016

[Published In the Gazette of India, Part-II, Section-3, Sub-section (ii)]
Ministry of Environment, Forest and Climate Change

NOTIFICATION

New Delhi, the 29th March, 2016

G.S.R. 317(E).-Whereas the Municipal Solid Wastes (Management and Handling) Rules, 2000 published vide notification number S.O. 908(E), dated the 25th September, 2000 by the Government of India in the erstwhile Ministry of Environment and Forests, provided a regulatory frame work for management of Municipal Solid Waste generated in the urban area of the country;

And whereas, to make these rules more effective and to improve the collection, segregation, recycling, treatment and disposal of solid waste in an environmentally sound manner, the Central Government reviewed the existing rules and it was considered necessary to revise the existing rules with a emphasis on the roles and accountability of waste generators and various stakeholders, give thrust to segregation, recovery, reuse, recycle at source, address in detail the management of construction and demolition waste.

And whereas, the draft rules, namely, the Solid Waste Management Rules, 2015 with a separate chapter on construction and demolition waste were published by the Central Government in the Ministry of Environment, Forest and Climate Change vide G.S.R. 451 (E), datedthe 3rd June, 2015 inviting objections or suggestions from the public within sixty days from the date of publication of the said notification;

And Whereas, the objections or suggestions received within the stipulated period were duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sections 6, 25 of the Environment (Protection) Act, 1986 (29 of 1986), and in supersession of the Municipal Solid Wastes (Management and Handling) Rules, 2000, except as respect things done or omitted to be done before such supersession, the Central Government hereby notifies the following rules for Management of Construction and Demolition Waste –

1. Short title and commencement.-(1) These rules shall be called the Construction and Demolition Waste Management Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Application.-The rules shall apply to every waste resulting from construction, re-modeling, repair and demolition of any civil structure of individual or organisation or authority who generates construction and demolition waste such as building materials, debris, rubble.

3. Definitions –(1) In these rules, unless the context otherwise requires,-

(a) " ACT' means the Environment (Protection) Act, 1986 (29 of 1986);

(b) "**construction**" means the process of erecting of building or built facility or other structure, or

building of infrastructure including alteration in these entities,;

(c) "**construction and demolition waste**" means the waste comprising of building materials, debris and rubble resulting from construction, re-modeling, repair and demolition of any civil structure;

(d) **"de-construction"** means a planned selective demolition in which salvage, re-use and recycling of the demolished structure is maximized;

(e) **"demolition"** means breaking down or tearing down buildings and other structures either manually or using mechanical force (by various equipment) or by implosion using explosives.

(f) **"form" means a Form annexed to these rules;**

(g) **"local authority"** means an urban local authority with different nomenclature such as municipal corporation, municipality, nagarpalika, nagarnigam, nagarpanchayat, municipal council including notified area committee and not limited to or any other local authority constituted under the relevant statutes such as gram panchayat, where the management of construction and demolition waste is entrusted to such agency;

(h) **" schedule"** means a schedule annexed to these rules;

(i) **"service provider'** means authorities who provide services like water, sewerage, electricity, telephone, roads, drainage etc. often generate construction and demolition waste during their activities, which includes excavation, demolition and civil work;

(j) **"waste generator" means any person or association of persons** or institution, residential and commercial establishments including Indian Railways, Airport, Port and Harbour and Defence establishments who undertakes construction of or demolition of any civil structure which generate construction and demolition waste.

(2) Words and expressions used but not defined herein shall have the same meaning defined in the ACT.

(4) Duties of the waste generator -

(1) Every waste generator shall prima-facie be responsible for collection, segregation of concrete, soil and others and storage of construction and demolition waste generated, as directed or notified by the concerned local authority in consonance with these rules.

(2) The generator shall ensure that other waste (such as solid waste) does not get mixed with this waste and is stored and disposed separately.

(3) Waste generators who generate more than 20 tons or more in one day or 300 tons per project in a month shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar and shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodeling work and keep the concerned

authorities informed regarding the relevant activities from the planning stage to the implementation stage and this should be on project to project basis.

(4) Every waste generator shall keep the construction and demolition waste within the premise or get the waste deposited at collection centre so made by the local body or handover it to the authorised processing facilities of construction and demolition waste; and ensure that there is no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains.

(5) Every waste generator shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities; Waste generators who generate more than 20 tons or more in one day or 300 tons per project in a month shall have to pay for the processing and disposal of construction and demolition waste generated by them, apart from the payment for storage, collection and transportation. The rate shall be fixed by the concerned local authority or any other authority designated by the State Government.

(5) Duties of service provider and their contractors -

(1) The service providers shall prepare within six months from the date of notification of these rules, a comprehensive waste management plan covering segregation, storage, collection, reuse, recycling, transportation and disposal of construction and demolition waste generated within their jurisdiction.

(2) The service providers shall remove all construction and demolition waste and clean the area every day, if possible, or depending upon the duration of the work, the quantity and type of waste generated, appropriate storage and collection, a reasonable timeframe shall be worked out in consultation with the concerned local authority.

(3) In case of the service providers have no logistics support to carry out the work specified in sub-rules (1) and (2) , they shall tie up with the authorised agencies for removal of construction and demolition waste and pay the relevant charges as notified by the local authority.

(6) Duties of local authority-The local authority shall,-

(1) issue detailed directions with regard to proper management of construction and demolition waste within its jurisdiction in accordance with the provisions of these rules and the local authority shall seek detailed plan or undertaking as applicable, from generator of construction and demolition waste;

(2) chalk out stages, methodology and equipment, material involved in the overall activity and final clean up after completion of the construction and demolition ;

(3c) seek assistance from concerned authorities for safe disposal of construction and demolition waste contaminated with industrial hazardous or toxic material or nuclear waste if any;

(4) shall make arrangements and place appropriate containers for collection of waste and shall remove at regular intervals or when they are filled, either through own resources or by appointing private operators;

(5) shall get the collected waste transported to appropriate sites for processing and disposal either through own resources or by appointing private operators;

(6) shall give appropriate incentives to generator for salvaging, processing and or recycling preferably in-situ;

(7) shall examine and sanction the waste management plan of the generators within a period of one month or from the date of approval of building plan, whichever is earlier from the date of its submission;

(8) shall keep track of the generation of construction and demolition waste within its jurisdiction and establish a data base and update once in a year;

(9) shall device appropriate measures in consultation with expert institutions for management of construction and demolition waste generated including processing facility and for using the recycled products in the best possible manner;

(10) shall create a sustained system of information, education and communication for construction and demolition waste through collaboration with expert institutions and civil societies and also disseminate through their own website;

(11) shall make provision for giving incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads.

(7) Criteria for storage, processing or recycling facilities for construction and demolition waste and application of construction and demolition waste and its products-

(1) The site for storage and processing or recycling facilities for construction and demolition waste shall be selected as per the criteria given in **Schedule I**;

(2) The operator of the facility as specified in sub- rules (1) shall apply in **Form I** for authorization from State Pollution Control Board or Pollution Control Committee.

(3) The operator of the facility shall submit the annual report to the State Pollution Control Board in **Form II.**

(3) Application of materials made from construction and demolition waste in operation of sanitary landfill shall be as per the criteria given in **Schedule II.**

(8) Duties of State Pollution Control Board or Pollution Control Committee-

(1) State Pollution Control Board or Pollution Control Committee shall monitor the implementation of these rules by the concerned local bodies and the competent authorities and the annual report shall be sent to the Central Pollution Control Board and the State Government or Union Territory or any other State level nodal agency identified by the State Government or Union Territory administration for generating State level comprehensive data. Such reports shall also contain the comments and suggestions of the State Pollution Control Board or Pollution Control Committee with respect to any comments or changes required;

(2) State Pollution Control Board or Pollution Control Committee shall grant authorization to construction and demolition waste processing facility in **Form-III** as specified under these rules after examining the application received in **Form I**;

(3) State Pollution Control Board or Pollution Control Committee shall prepare annual report in **Form IV** with special emphasis on the implementation status of compliance of these rules and forward report to Central Pollution Control Board before the 31st July for each financial year.

(9) Duties of State Government or Union Territory Administration-

(1) The Secretary in-charge of development in the State Government or Union territory administration shall prepare their policy document with respect to management of construction and demolition of waste in accordance with the provisions of these rules within one year from date of final notification of these rules.

(2) The concerned department in the State Government dealing with land shall be responsible for providing suitable sites for setting up of the storage, processing and recycling facilities for construction and demolition waste.

(3) The Town and Country planning Department shall incorporate the site in the approved land use plan so that there is no disturbance to the processing facility on a long term basis.

(4) Procurement of materials made from construction and demolition waste shall be made mandatory to a certain percentage (say 10-20%) in municipal and Government contracts subject to strict quality control.

(10) Duties of the Central Pollution Control Board - (1) The Central Pollution Control Board shall,-

(a) prepare operational guidelines related to environmental management of construction and demolition waste management;

(b) analyze and collate the data received from the State Pollution Control Boards or Pollution Control Committee to review these rules from time to time;

(c) coordinate with all the State Pollution Control Board and Pollution Control Committees for any matter related to development of environmental standards;

(d) forward annual compliance report to Central Government before the 30th August for each financial year based on reports given by State Pollution Control Boards of Pollution Control Committees.

(11) Duties of Bureau of Indian Standards and Indian Roads Congress -The Bureau of Indian Standards and Indian Roads Congress shall be responsible for preparation of code of practices and standards for use of recycled materials and products of construction and demolition waste in respect of construction activities and the role of Indian Road Congress shall be specific to the standards and practices pertaining to construction of roads.

Schedule III
Timeframe for Planning and Implementation
[See Rule 13]

Sl. No.	Compliance Criteria	Cities with population of 01 million and above	Cities with population of 0.5-01 million	Cities with population of less than 0.5 million
1	Formulation of policy by State Government	12 months	12 months	12 months
2	Identification of sites for collection and processing facility	18 months	18 months	18 months
3	Commissioning and implementation of the facility	18 months	24 months	36 months
4	Monitoring by SPCBs	3 times a year – once in 4 months	2 times a year – once in 6 months	2 times a year – once in 6 months

The time Schedule is effective from the date of notification of these rules.

FORM – I
See [Rule 7 (2)]
Application for obtaining authorisation

To,
The Member Secretary

_____Name of the local authority or Name of the agency appointed by the municipal authority :

Correspondence address Telephone No. Fax No.	
Nodal Officer and designation (Officer authorized by the competent authority or agency responsible for operation of processing or recycling or disposal facility)	
Authorisation applied for (Please tick mark)	Setting up of processing or recycling facility of construction and demolition waste
Detailed proposal of construction and demolition waste processing or recycling facility to include the following Location of site approved and allotted by the Competent Authority. Average quantity (in tons per day) and composition of construction and demolition waste to be handled	

Appendix 6: The West Bengal Inland Fisheries Act, 1984

Chapter IIIA Bar to conversion of water area etc. for other use

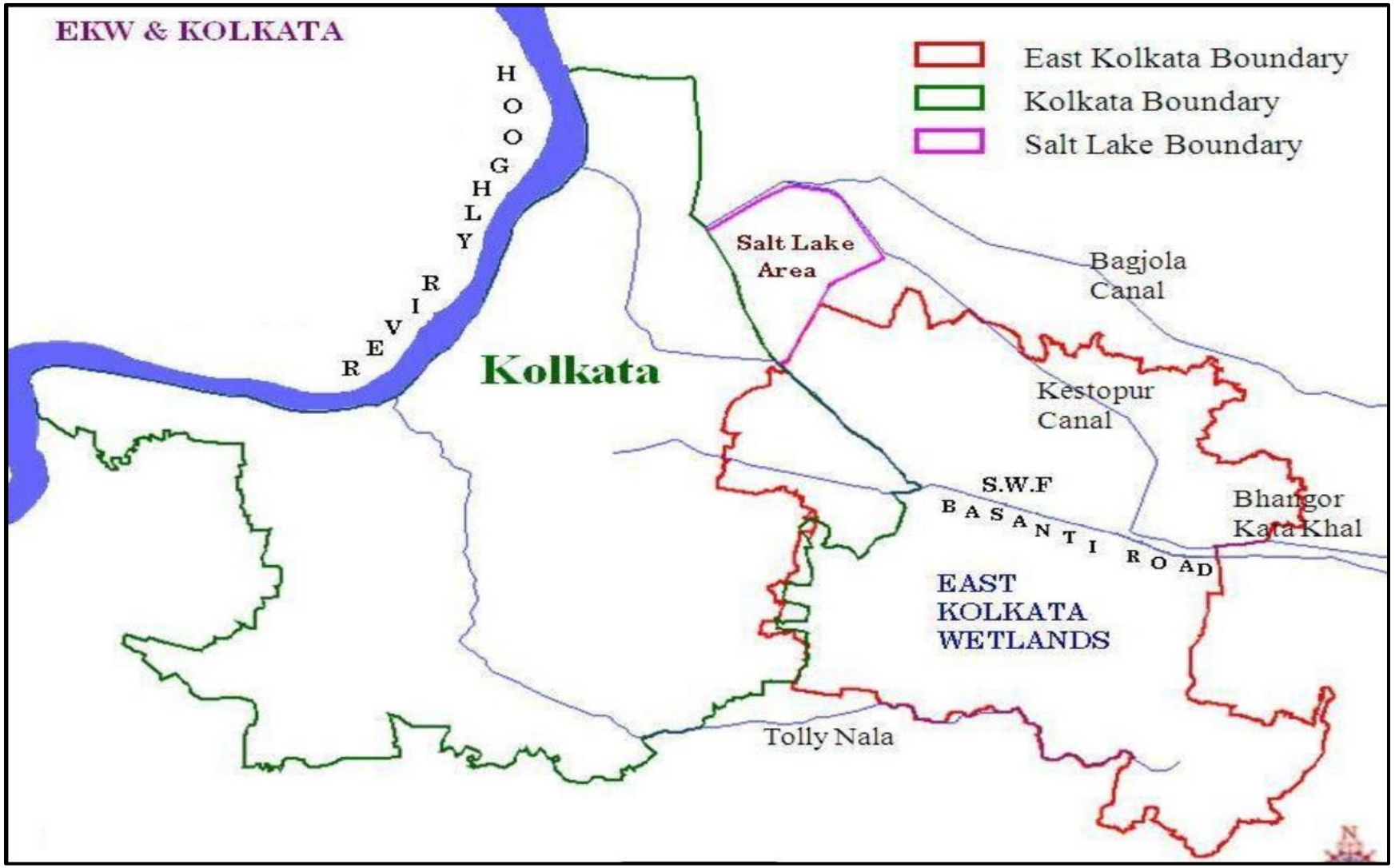
Rule 17A. Bar to conversion of water area, etc. for other use. — (1) No person shall—
(a) put any water area, including embankment, measuring 5 cottahs or 0.0335 ha or more, which is capable of being used as fishery, or any naturally or artificially depressed land holding measuring 5 cottahs or 0.035 ha or more, which retains water for a minimum period of 6months in a year, to such use, other than fishery, as may result in abolition of fishery, or

(b) fill up any water area, including embankment or naturally or artificially depressed land holding as aforesaid, with a view to converting it into solid land for the purpose of construction of any building thereon or for any other purpose, or

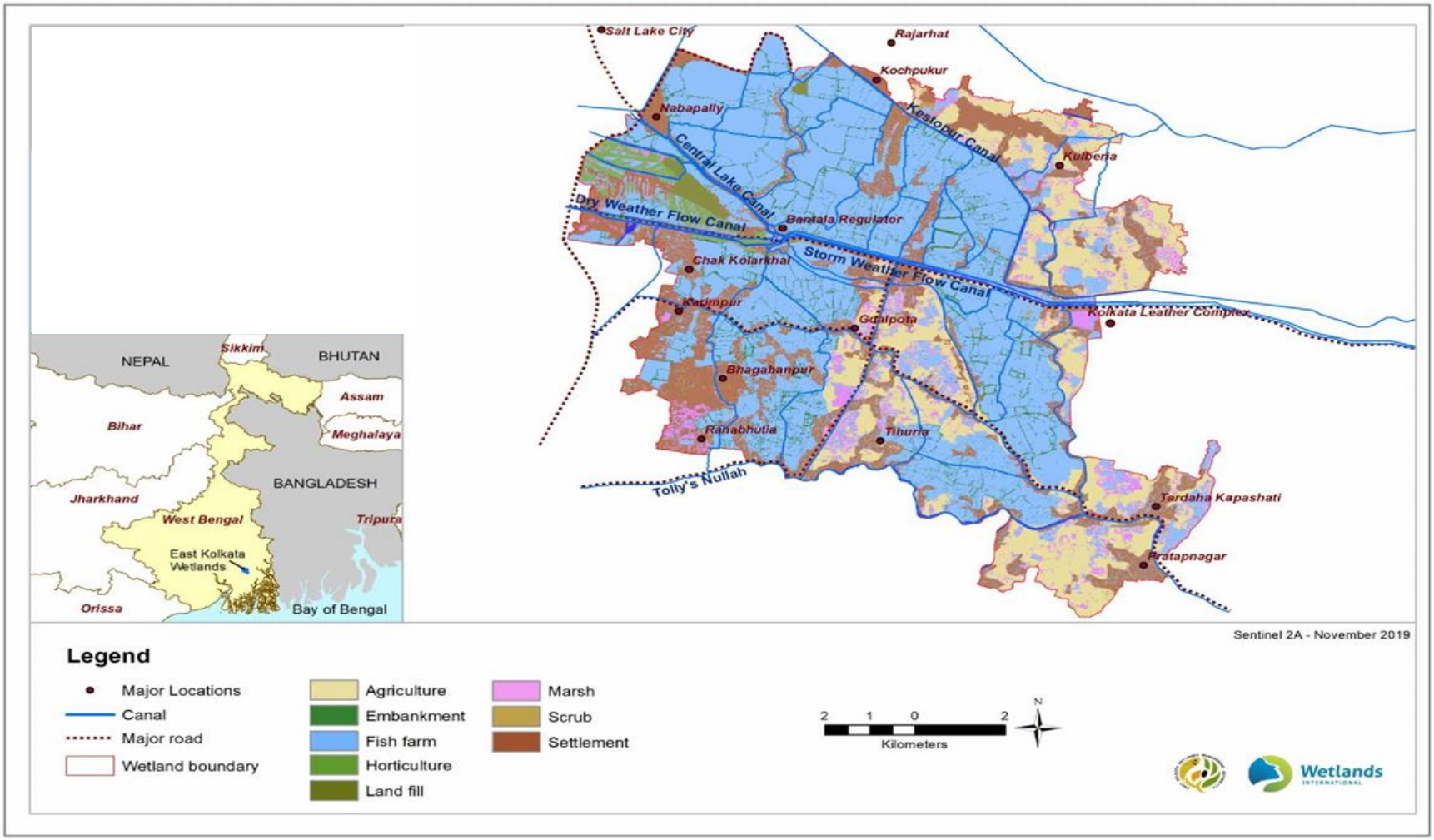
(c) divide any water area, including embankment or naturally or artificially depressed land holding as aforesaid, into parts so as to make any such part measure less than 5 cottahs or 0.0335 hafor any purpose other than pisciculture, or transfer any part of any such water area, including embankment or naturally or artificially depressed land holding as so divided, to any other person.
(9) No water area including embankment or naturally or artificially depressed land holding, referred to in clause (a) of sub-section (I), shall be

(a) put to any use other than for fishery, or
(b) filled up with a view to converting it into solid land, for the purpose of implementation of any development scheme by any department of the central government or the state government or any public undertaking under the administrative control of the central government or the state government or any statutory body or local authority or any organization in the public sector or any organization or individual in the private sector, except with the prior approval of the state government in the Department of Fisheries.

Appendix 7: EKW Area Maps

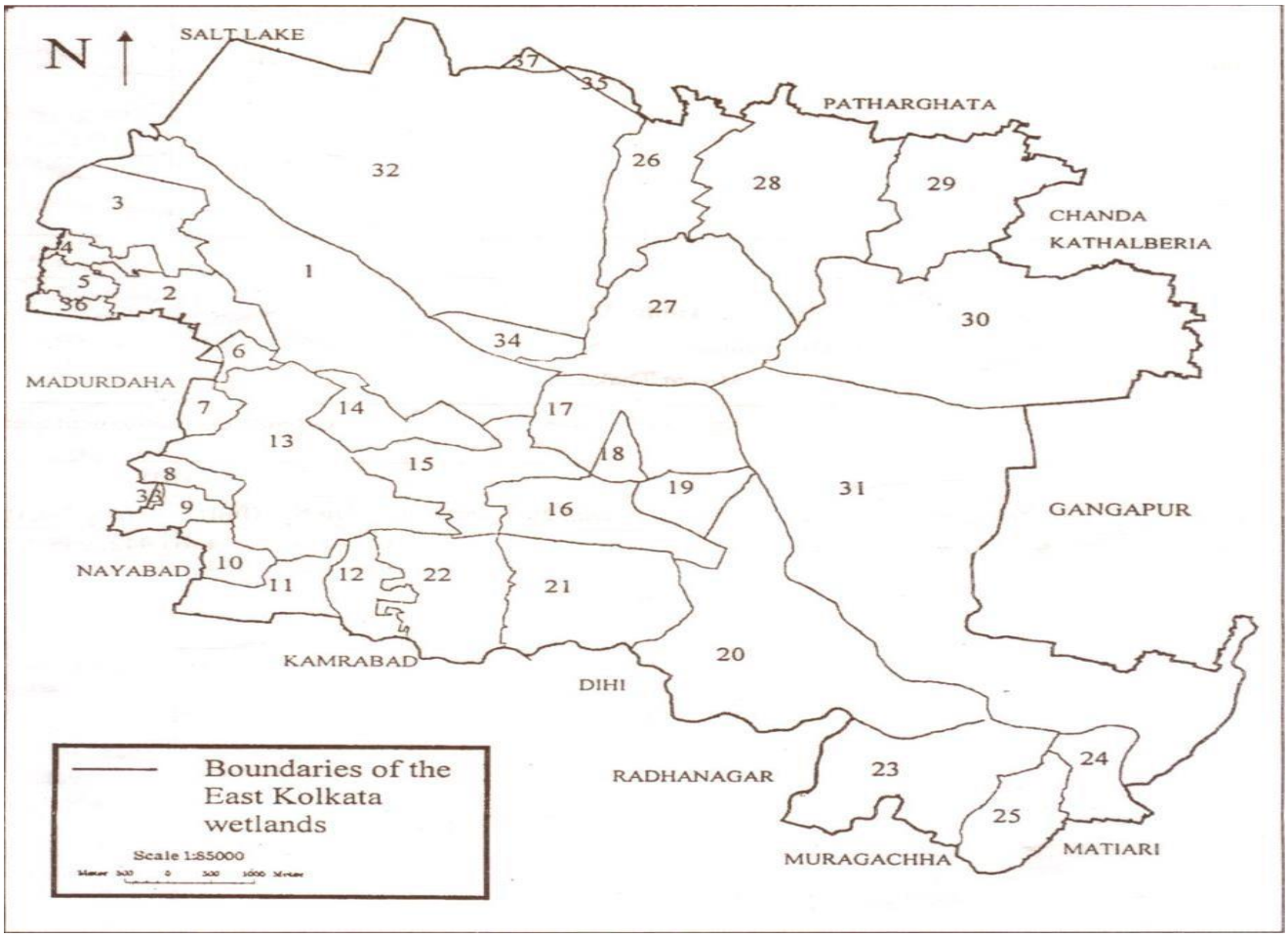


East Kolkata Wetland



Source: EKWMA and WISA,2021
https://ekwma.in/ek/

Appendix 8: EKW Area Map with Mouza and J.L number



District	Police Station	Mouza	J.L. No.	S. No. as Shown in the Above
24-Parganas (South)	Tiljola	Dhapa	2	1
		Chowbaga	3	2
		Bonchtala	4	3
		Dhalenda	8	4
		Paschim Chowbaga	9	5
		Nonadanga	10	36
	Sonarpur	Chak Kolar Khal	1	6
		Karimpur	2	7
		Jagatipota	3	8
		Mukundapur	4	9
		Atghara	5	10
		Ranabhutia	6	11
		Kantipota	7	12
		Bhagabanpur	8	13
		Kharki	9	14
		Deara	10	15
		Kheadaha	11	16

District	Police Station	Mouza	J.L. No.	S. No. as Shown in the Above
		Khodahati	12	17
		Goalpota	13	18
		Kumapukuria	14	19
		Tardaha	15	20
		Tihuria	16	21
		Nayabad	17	22
		Samukpota	91	23
		Pratapnagar	92	24
		Garal	93	25
	Kolkata Leather Complex	Dakshin Dhapa Manpur	1	34
		Dhapa Manpur (presently	2	35
		Kochpukur)	4	26
		Hatgachha	5	27
		Hadia	6	28
		Dharmatala Pachuria	7	29
		Kulberia	27	30
		Beonta	38	31
		Tardaha Kapashati		
	Purba Jadabpur	Kalikapur	20	33
24-Parganas (North)	South Bidhan Nagar	Dhapa Manpur	1	32
	Rajarhat	Thakdari	19	37

Appendix 9: Minutes of the 12th Meeting of East Kolkata Wetland Management Authority (EKWMA) held on 14.09.2010

f) Covered area beyond 200 sq.m.

g) Ground coverage 30% of the total area for residential building.

h) Use of organic construction material should be promoted as far as possible.

I) Color of the building may be blending with the overall wetland habitat.

j) The building plan of the respective authorities in the EKW area shall incorporate special directions of the EKWMA.

k) Optional use of water harvesting structures within the wetland settlement.

l) An urgent plan needs to be undertaken regarding water and sanitation provisions within EKW residential area.

m) Sanitation, proper connectivity, education facilities, health facilities are to be extended which enables the local people to enhance their livelihood without compromising the basic principles of the EKW under Ramsar wise use policy. Improvement of fish markets, proper storage of vegetables, fish, horticultural crops, medicinal plants produced in EKW area and its primary processing are also to be thought with proper restrictions.

n) Educational facilities, like schools, colleges, research institutions related subjects are to be allowed on the condition that local stakeholders interests are to be fulfilled and also for up keeping of environment in exercise of Sec 10 of The East Kolkata Wetlands (conservation and management) Act, 2006.

2. Demarcation /Boundary of the site shall be made of 3 feet brick and rest will be steel covered with green verge.
3. Solar lighting and use of alternative sources of energy is to be encouraged in the area as a general program.
4. Use of water harvesting structures within the wetland settlements is to be encouraged.

Dr. Nitai Kundu also presented the guideline for eco-tourism in EKW area. He informed that the entire EKW area has been divided into 5 zones in this report, on the basis of need for enhancement of the livelihood and mandate for conservation of Biodiversity (See Map). The zones are described as under:

Zone1:

This is ecologically the most important zone of the Ramsar site. This zone is ecologically sensitive. No construction of buildings will be permitted. Temporary structures shall be made only for operational purpose like tourist sitting, toilet facilities and eating centre. In this zone generally there will be no provision for night stay of the tourists.

Zone2:

In this zone eco-tourism can be promoted for providing additional employment opportunity as employment is not guaranteed throughout the year. Labour intensive ecotourism may be promoted extensively to cater inherent need of the area. Eco-friendly establishments like log huts and cottage may be allowed for ecotourism purpose with maximum cover area of 10% of the total land area. The proposed land use shall be as: compulsory plantation in 50% of the land area and 30% will be open space, and 10% will be used for infrastructure like pathways and 10% will be cover area.

Zone3:

It covers mainly Dhapa area; it is fragile and vulnerable area. Construction work cannot be permitted. Only low impact tourism may be permitted. No development or change of use is permitted in this zone excepting temporary sheds for the purpose of solid waste management or temporary sheds for operational purposes of Eco-Tourism like tourist sitting, toilet facilities and eating centre.

Zone4:
Eco-tourism as well as productive farming including Horticulture, Floriculture, Apiculture or similar activities including Green House Conditions may be promoted in this area for livelihood improvement of the local people. Limited construction activity may be allowed for eco-tourism and diversification of livelihood with no pollution load. Institutional, Educational, Multipurpose Cold storage and such other buildings with restriction of 8 metre shall be allowed. Proposed land use shall be as: Compensatory water area in 40% of the project area, plantation in 15% of the project area and 20% will be open space and 13% will be used for infrastructure like road and 12% will be cover area excluding existing waterbodies designated in The East Kolkata Wetlands (conservation and management) Act, 2006. The ground coverage will be 12% of the area and height shall not exceed two storied and 8 metre.

Zone5:

This zone is identified for recreational activity and low degree of developmental activity shall be allowed for eco-tourism keeping parity with wetland conservation. Waste recycling activities are proposed in this zone. Research and Development, Educational and other institutions may be allowed as per the demarcation in the drawing with the guidelines made in the respective sector with preference to local farmer and local people. Proposed land use shall be as: compulsory water area in 40% of the project area, plantation in 20% of the project area and 10% will be open space and 15% will used for infrastructure like road and 15% will be cover area existing waterbodies designated in The East Kolkata Wetlands (Conservation and Management) Act, 2006. The height of the building will be two storied and 8 metre and ground coverage will be 15% of the area.

The activities or events that are specified for the development of Eco-Tourism in this report are:

a) **Development of recreational facilities**

   i) **Board Walk and Nature Trails**
   ii) **Guided boat rides**
   iii) **Watch Towers**
   iv) **Angling Spots**
   v) **Showcasing Bheries**
   vi) **Wetland Park**
   vii) **Natural Aquarium**
   viii) **Mangroves and Banbibi**
   ix) **Waste Recycling Park**

b) **Development of visitor education facilities at EKW area**

- Exhibits including posters, models, flying patterns hanging from ceiling, wetland birds interactive panel and ecosystem food chain
- Viewing Gallery comprising panels highlighting the ecological, socioeconomic and cultural aspects. Desks fitted with adequate displays, bird identifications books and wooden benches should be constructed along the gallery
- Hydrological model of East Kolkata Wetlands indicating the various hydrological influences and wetland conservation
- Waste recycling model of East Kolkata Wetlands indicating treatment of wastes through natural processes and functions of wetlands
- Children's Play area consisting of open dioramas and floorings with underwater paintings should be developed as a special section to cater to the young visitors. The area should have several innovative environment oriented games and interactive food chain, fish trap games, jigsaw

puzzles etc Auditorium having audiovisual facilities for screening documentaries and arranging talks / workshops / meetings

- Souvenir Shop for visitors having wetland products, wetland biodiversity replicas, reading materials, photographs, maps for the visitors to take away on payment basis as memorabilia from the visit.

Dr. Kundu mentioned that the following guidelines are therefore proposed for regulating eco-tourism activities within the EKW area in all these zones:

1. Transfer of water body and land should be done in its present configuration to avoid fragmentation, filling up and change of character.
2. Use of organic construction material should be promoted as far as possible
3. Demarcation /Boundary of the site shall be made of 3 feet brick and rest will be steel covered with green verge.
4. Solar lighting and use of alternative sources of energy is to be encouraged in the area as a general Program.
5. Color of the building should be blending with the overall wetland habitat
6. Compulsory use of water harvesting structures within the wetland settlements
7. Allied activities like live stock rearing, horticulture, floriculture eco friendly resort tourist spot etc. may be carried out in the holdings marked as water body or farming area along with agriculture and aquaculture.
8. Permit will be given in two stages: consent to establish and consent to operate. If it is found that the Ecotourism programme is not in the line of guidelines the consent to operate will not be issued till the applicant is not complying with guidelines.
9. Submission of Annual Environmental Report is mandatory: Any lapse in the condition will result into closure and all facilities including electricity & water supply will be withdrawn or stopped.
10. There should be a committee to consider the consent to establish, consent to operate and annual renewal on the basis of environmental performance.
11. Participation of the applicants for Eco-Tourism permission in the CEPA programme is also mandatory. The concerned committee will finalize the responsibility of the applicant.

After detailed discussion the authority accepted the report. Authority requested the committee to prepare a separate guideline for integration of the interest of the local stakeholders with the Eco Tourism and submit to the authority as soon as possible.

3. Proposals of the Conservation and Management programme in EKW area.

Dr. Kundu informed the committee that afforestation and disiltation of canal has been taken up with the Government Of India sponsored scheme, it was also decided that DWF and SWF canal from Topsia to Chowbagan point is to be taken up for afforestation along both sides so that encroachment of land side can be avoided. It was further decided that a letter is to be initiated by the EKWAMA to KEIP requesting to take care of the damages of culvert, bridge, houses during the disiltation work. Further, another separate letter is to be initiated by EKWMA to take up two other canals for disiltation for better sewage management in the EKW area.

4. Infrastructural support to EKWMA related programmes.

   Presently the regular activities of EKW are carried out by a team of scientists engaged through project. Considering the significance of monitoring of such important wetland eco-system the committee proposed to initiate proposal for creation of posts for better management. Posts may be filled up from Forest and Fisheries Department on deputation as much as possible.

5. Wetland Interpretation Centre

EKWMA has already decided to set up a Wetland Interpretation Centre for which DPR has already been prepared by WWT,UK. Now the site has to be selected.

6. Miscellaneous

A) The WBSCDCL and CESC are to be asked to comply the condition given by EKWMA at the time of issuance of NOC.
B) A grant of 40 lakhs to BDO, Bhangor to repair the road from Bamunghata to Hatgacha.
C) Project submitted by Burdwan University on breeding of endangered fish may be recommended to the Finance Department through environment department for financial assistance.
D) The progress of the implementation of the Adiganga Project has been discussed at length. It is decided that I&D, Silt Trap, Lifting Station and STP is not required as informed by KMDA. Fund allotted for this purpose may be utilized for other components like construction of roads along the Adiganga upto Suryapur. These components will be taken up under JNNURM programme later if required. A letter is to be initiated by EKWMA to MOEF in this line.

Meeting ended with thanks to the Chair.

Sd/-
(Ardhendu Sen)
Chairman, EKWMA &
Chief Secretary, Govt. of West Bengal

Appendix 10: West Bengal Trees (Protection and Conservation in Non-Forest areas) Rules, 2007 under West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006

Permission to fell trees. 4(1) Permission for felling or otherwise disposing of any tree shall be granted for the following purposes:

a) if it causes serious inconvenience to the local residents, or poses threat to human life or a building or property, or disrupts pubic services (transportation system);
b) if it attains natural death due to any disease, or natural calamities like storm or lightning;
c) if a tree was raised with the purpose of social forestry or farm sorestry and has since attained maturity for harvesting;
d) if the tree is sought to be removed for facilitating reforestation of the land for the purpose of social forestry or farm forestry;
e) if the owner intends to carry out the felling of trees to meet expenses for family obligations, such as medical treatment, marriage, education, or to meet requirement of timber for construction or repair of his own house;
f) if it becomes absolutely necessary to fell the trees for the disposing of land or settling of the land dispute; and
g) if in a tea garden, proviso to sub-section (3) of section 6 shall be complied with.

2 (a) A person other than a developer, seeking permission for felling or otherwise disposing of any tree, shall submit an application to the competent authority in form I (A), provided, however, that a developer shall submit application to the competent authority in the form I (B).

Procedure for obtaining permission to fell tree. 5. (1) For the purpose of obtaining permission to fell or otherwise dispose of any tree, the applicant shall pay the following fee to the competent authority at the time of submitting application:

a. Developer: Rs. 1,000.00
b. A person other than a developer: Rs. 25.00 (in rural areas) and Rs 100.00 (other than rural areas)

Obligation to plant trees 6. (1) Every person who, after obtaining permission by the competent authority, fells any tree, shall undertake plantation of two trees in place of every tree felled, in the same plot of land, and will tend to such plantation for trees.

Compulsory plantation of trees. 7. A developer shall undertake plantation of trees over at least 20% of the total area in the same plot or plots of land as subject to such development, in accordance with a plantation plan approved by the competent authority, and provided that the total number of trees to be planted shall be at least five times the number of trees to be felled. The species to be planted, spacing, planting pattern, and time schedule for plantation and maintenance shall be specified in the plan.

Competent authority
Divisional Forest Officer – Kolkata Municipal Corporation area

Form I-(A) and Form I-(B) can be downloaded from (http://www.westbengalforest.gov.in)

Appendix 11: Comparative Government and ADB Safeguard Requirements

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
All subprojects	**EIA Notification, 2006** **Not applicable** (None are listed activities/projects in Schedule I of Environmental Impact Assessment (EIA) Notification, 2006. Do not require Environmental Clearance from MOEF&CC. No EIA, public consultation, disclosure required). *As per National Green Tribunal (NGT) Order, EIA study is required for any work proposed in notified stretch of River Ganga (Hooghly) near Kolkata. it will not, however, require Environmental Clearance under the EIA Notification, but EIA study and EMP is prerequisite for getting clearance from Kolkata Port Trust which is regulatory authority of port and port approaches that include almost entire stretch of Ganges River in the state of West Bengal.*	**Safeguard Policy Statement 2009** Classify the project using Rapid Environmental Assessment (REA) checklist. Categorization (A/B/C). Projects will mostly be classified as B. Category A projects will be excluded from HKSHARP. Preparation of Initial Environmental Examination (IEE)	KSHARP subprojects do not require EIA study as per Government of India regulations whereas ADB SPS 2009 requires the process of screening, environmental assessment, public consultation, disclosure, etc., for all projects.
		For projects involving facilities and/or business activities that already exist or are under construction, undertake an environment compliance audit or due diligence. Where non-compliance is identified, a corrective action plan is required. Public consultation in a manner commensurate with the impacts, process and its results are to be documented and reflected in the IEE.	Conduct environmental assessment complying with the ADB SPS 2009

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
Sub-projects with Sewerage Treatment Plant (STP)	Water (Prevention and Control of Pollution) Act of 1974, Rules of 1975, and amendments Air (Prevention and Control of Pollution) Act of 1981, Rules of 1982 and amendments**.** **Applicable to STP component –** requires Consent to Establish (CTE) and Consent to Operate (CTO) from WBPCB. Detailed Project Report to be submitted to WBPCB along with the form (combined form for Air and Water Acts) and prescribed fee. **CTE**. Based on project review and site inspection WBPCB provides CTE before construction, and stipulate the disposal standards to be met **CTO**. CTO issued prior to start of operation, after confirming compliance with CFE conditions, if any **Renewal of CTO.** Based on the performance of the WTP and its compliance with the disposal standards CTO is renewed every two/three year. Disposal standards are notified under the Environment (Protection) Act, 1986 and CPCB Environmental Standards. Appendix 2 provides applicable standards.	Disclosure on ADB's website of the final IEE; updated IEEs and corrective action plans; and environmental monitoring reports. Public disclosure (complete IEE) in an accessible place and local language. Mitigation measures specified in IEE incorporated in project design; incorporate mitigation and monitoring measures (including the EMP) into bid/contract documents. ADB approval of IEE prior to invitation of bids All necessary government approvals/clearances should be in place prior to award of contracts Implementation of EMP; corrective action plans in case of non-compliance Submission of semi-annual monitoring report and disclosure SPS 2009 covers all the aspects of pollution control SPS also requires	**No gap** As per the ADB all projects must comply with the country environmental regulations to be eligible for funding. KSHARP projects shall comply with all environmental regulations and the consents, clearances, approvals, as required for subproject should be obtained.
All subprojects.	**Noise Pollution (Regulation and Control) Rules, 2000 amended up to 2010**	that all subprojects should comply with county safeguard policies	**No gap** As per the ADB all projects must

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
	Rule 3 of the Act specifies ambient air quality standards in respect of noise for different areas/zones. Appendix 2 provides applicable noise standards. **Construction and Demolition Waste Management Rules, 2016** Rule 4 and 5 specifies the duties of waste generator, and duties of service provider and their contractors. These are to be followed during the construction (Appendix 4)	In project implementation, pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines shall be applied. When Government regulations differ from these levels and measures, project shall achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, provide full and detailed justification-	comply with the country environmental regulations to be eligible for funding. KSHARP projects shall comply with all environmental regulations and the consents, clearances, approvals, as required for subproject should be obtained.
All Subprojects	**Direction of West Bengal Department of Environment under the Air Act, 1981 Direction No. EN/3170/T-IV-7 /001/2009 dated: 10 December 2009** - lays out norms for control of air pollution from construction activities (Appendix 6)		Same as above-
Subprojects located within 300 m of protected monument	Ancient Monuments and Archaeological Sites and Remains Act, 1958 and Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010 The Act designates areas within 100 meters (m) of the "protected monument or area" as "prohibited area" and beyond that up to 200 m as "regulated area" respectively.	SPS 2009 requires that all the impacts on archeological, historical and cultural resources shall duly be covered in environmental assessment	Same as above-

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
	No "construction" is permitted in the "prohibited area" and any construction activity in the "regulated area" requires prior permission of the Archaeological Survey of India (ASI).		
Applicable to subprojects located within core or buffer zone of Protected Areas	Wildlife Protection Act, 1972 Permission from chief wildlife warden/ State Wildlife Board/National Board of Wildlife	SPS 2009 requires that all impacts related to environmental sensitive areas (forest, protected areas etc.,) and wildlife are duly being covered in the environmental assessment	-Same as above-
Sub-projects located in forest lands	Forest (Conservation) Act, 1980 amendment 1988 and the rules/notifications Prior permission to use forest land for non-forest (project) purposes	-same as above-	-Same as above-
Sub-projects located in East Kolkata Wetlands (Conservation and Management Act, 2006)	Applicable to projects located in East Kolkata Wetlands, a designated Ramsar wetlands Activities undertaken in the proximity of EKW shall follow the guidelines of the convention (The Ramsar Convention Handbooks for the wise use of wetlands, 4th ed. (2010), (http://www.ramsar.org/cda/en/ramsar-pubs- handbooks/main/ramsar/1-30-33_4000_0) and provisions of the Wetlands (Conservation and Management) Rules, 2010 and East Kolkata Wetlands (Conservation and Management) Act, 2006.	-same as above-	-Same as above-

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
All subprojects	**Labor laws** Contractor shall register with the state labor department and comply with the provisions, in terms of minimum wages, equal wages for men and women, no child labor, inter-state labor, working conditions, amenities to be provided etc.	SPS 2009 requires due consideration of occupational health and safety impacts in environmental assessment, and mitigation measures During the design, construction, and operation of projects funded by ADB, practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines shall be followed.	As per the ADB all projects must comply with the country environmental regulations to be eligible for funding. Therefore, KSHARP projects shall comply with all labor laws (central and state) following international Finance Corporation (IFC) EHS guideline [35] during implementation

[35] World Bank Group, Environmental, Health and Safety Guidelines101. http://www.ifc.org/wps/wcm/connect/a99ab8804365b27aa60fb6d3e9bda932/EHS-Guidelines+101-Webinar.pdf?MOD=AJPERES

Appendix 12: ADB Prohibited Investment Activities List

The following do not qualify for Asian Development Bank financing:

- production or activities involving harmful or exploitative forms of forced labor[36] or child labor;[37]
- production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phase outs or bans, such as (a) pharmaceuticals,[38] pesticides, and herbicides,[39] (b) ozone-depleting substances,[40] (c) polychlorinated biphenyls[41] and other hazardous chemicals,[42] (d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora,[43] and (e) transboundary trade in waste or waste products;[44]
- production of or trade in weapons and munitions, including paramilitary materials;
- production of or trade in alcoholic beverages, excluding beer and wine;[45]
- production of or trade in tobacco;
- gambling, casinos, and equivalent enterprises;
- production of or trade in radioactive materials,[46] including nuclear reactors and components thereof.
- production of, trade in, or use of unbonded asbestos fibers;[47]
- commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and
- Marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

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[36] Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty.

[37] Child labor means the employment of children whose age is below the host country's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

[38] A list of pharmaceutical products subject to phase outs or bans is available at http://www.who.int.

[39] A list of pesticides and herbicides subject to phase outs or bans is available at http://www.pic.int.

[40] A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phaseout dates. Information is available at http://www.unep.org/ozone/montreal.shtml.

[41] A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

[42] A list of hazardous chemicals is available at http://www.pic.int.

[43] A list is available at http://www.cites.org.

[44] As defined by the Basel Convention; see http://www.basel.int.

[45] This does not apply to project sponsors who are not substantially involved in these activities. Not substantially involved means that the activity concerned is ancillary to a project sponsor's primary operations.

[46] This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any equipment for which ADB considers the radioactive source to be trivial and adequately shielded.

[47] This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

Appendix 13: ADB Rapid Environmental Checklists

Sewage Treatment

Screening Questions	Yes	No	Remarks
B. PROJECT SITING IS THE PROJECT AREA…			
▪ DENSELY POPULATED?			
▪ HEAVY WITH DEVELOPMENT ACTIVITIES?			
▪ ADJACENT TO OR WITHIN ANY ENVIRONMENTALLY SENSITIVE AREAS?			
• CULTURAL HERITAGE SITE			
• PROTECTED AREA			
• WETLAND			
• MANGROVE			
• ESTUARINE			
• BUFFER ZONE OF PROTECTED AREA			
• SPECIAL AREA FOR PROTECTING BIODIVERSITY			
• BAY			
A. POTENTIAL ENVIRONMENTAL IMPACTS 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?			
▪ 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?			

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

Appendix 14: Outline Contents of Initial Environmental Examination Report

Executive Summary

- Describe concisely the critical facts, significant findings, and recommended actions of environmental assessment study as documented in the report.

Introduction

Purpose of the report
• Identification of project & project proponent
• Brief description of nature, size, location of the project and its importance to the country, region
• Scope of the study – details of regulatory scoping carried out (As per Terms of Reference)

Description of the Project

- Describe the proposed project; its major components, including any associated facility required by and for the project (for example, access roads, power lines, water supply, quarries and borrow pits, and spoil disposal).
- Include drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

Policy, Legal, and Administrative Framework

- Discuss national and local legal and institutional framework within which the environmental assessment is carried out.
- Also identify project-relevant international environmental agreements to which the country is a party.

Description of the Environment (Baseline Data)

- Describes relevant physical, biological, and socioeconomic conditions within the study area.

Anticipated Environmental Impacts and Mitigation Measures

- Identify, predict and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic and impacts on livelihoods and physical cultural resources in the project's area of influence
- Examine alternatives to the proposed project site, technology, design and operation. Also state the basis for selecting the particular project design, location etc.
- Identify mitigation measures to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority)

Information Disclosure, Consultation

- Summarize the consultation and disclosure activities undertaken during project preparation
- Summarize comments and concerns received from affected person and other stakeholders and how these comments have been addressed in project
- Describes the planned information disclosure and consultation activities during the implementation.

Grievance Redress Mechanism

- Describe the grievance redress framework – process, responsibilities and timelines.

Environmental Management Plan

- Summarize stage wise (design, construction and operation) environmental impacts and detail mitigation and management measures (Table 1)
- Describe monitoring measures (Table 2)
- Describe implementation arrangements and responsibilities for EMP implementation

Conclusion and Recommendation

- Provide the conclusions drawn from the assessment and provide recommendations

Appendix 15: Proceedings of Sub Project Level Stakeholder Consultation Meeting

Subproject_____ **Venue and date**_____

A. Brief of the consultation meeting (date, venue, organizer, and participants)

B. Topics discussed during the meeting

C. Reports / Materials disclosed to the participants

D. Suggestions and feedback of participants and response of project team

Photographs:

List of Participants: (insert scanned image of the attendance sheet)

West Bengal Drinking Water Sector Improvement Project
Stakeholder Consultation Workshop

Subproject:_____ Date:_____ Venue:_____

Organized by_____ (PIU)

S. No	Name	Designation / Agency	Contact No.	Signature
1				
2				
3				
4				
5				
6				
7				
8				
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26				
27				

Use additional sheets if required.

Appendix 16: Sample Grievance Registration Form
(To be available also in Bengali, Hindi, and Urdu)

The _____Project welcomes complaints, suggestions, queries, and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		Place of Registration			
Contact Information/Personal Details					
Name		Gender	* Male * Female	Age	
Home Address					
Village/Town					
District					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where, and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official Registering Grievance)	
Mode of communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Official(s) Reviewing Grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	

Appendix 17: 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

Appendix 18: Sample Construction Site Checklist For Environmental Management Plan Monitoring

Project Name: **Name of the Subproject:** **Contractor:**	**Yes (√) No (x)**
Monitoring Details: _____	
EHS supervisor appointed by contractor and available on site	
Construction site management plan (spoils, safety, material, schedule, equipment etc.,) prepared	
Traffic management plan prepared	
Dust is under control	
Excavated soil properly placed within minimum space	
Construction area is confined; no traffic/pedestrian entry observed	
Surplus soil/debris/waste is disposed without delay	
Construction material (sand/gravel/aggregate) brought to site as and when required only	
Tarpaulins used to cover sand and other loose material when transported by vehicles	
After unloading, wheels and undercarriage of vehicles cleaned prior to leaving the site	
No Asbestos Cement pipes disturbed/removed during excavation	
No chance finds encountered during excavation	
Work is planned in consultation with traffic police	
Work is not being conducted during heavy traffic	
Work at a stretch is completed within a day (excavation, pipe laying and backfilling)	
Pipe trenches are not kept open unduly	
Road is not completely closed; work is conducted on edge; at least one line is kept open	
Road is closed; alternative route provided and public is informed, information board provided	
Pedestrian access to houses is not blocked due to pipe laying	
Spaces left in between trenches for access	
Wooden planks/metal sheets provided across trench for pedestrian	
No public/unauthorized entry observed in work site	
Children safety measures (barricades, security) in place at work sites in residential areas	
Prior public information provided about the work, schedule and disturbances	
Caution/warning board provided on site	
Guards with red flag provided during work at busy roads	
Workers using appropriate PPE (boots, gloves, helmets, ear muffs etc.)	
Workers conducting or near heavy noise work is provided with ear muffs	
Contractor is following standard and safe construction practices	
Deep excavation is conducted with land slip/protection measures	
First aid facilities are available on site and workers informed	
Drinking water provided at the site	
Toilet facility provided at the site	
Separate toilet facility is provided for women workers	
Workers camps are maintained cleanly	
Adequate toilet and bath facilities provided	
Contractor employed local workers as far as possible	
Workers camp set up with the permission of PIU	
Adequate housing provided	
Sufficient water provided for drinking/washing/bath	
No noisy work is conducted in the nights	
Local people informed of noisy work	
No blasting activity conducted	
Pneumatic drills or other equipment creating vibration is not used near old/risky buildings	

Appendix 19: Quarterly Progress Report Checklist
Environment Safeguards QPR checklist[48]

Activity	Yes / No	Remarks (If Answer Is No)
A. For subproject packages under bidding		
1. IEEs cleared by ADB?		
2. IEEs/EMPs included in the bidding documents?		
3. Are there changes in the scope of work of the cleared IEEs?		
4. Core labor standards and environment, health and safety (EHS) incorporated in Section 8 of the bid documents?		
5. BOQ line item includes EMP requirements?		
6. IEE disclosed in form and language understood by stakeholders and affected persons (APs)?		
For subproject packages with contracts awarded (no works yet)		
1. All statutory clearances/permits obtained?		
2. Each contractor appointed EHS and/or safety officer?		
3. Baseline regarding condition of roads, agricultural land and other infrastructure prior to start of transportation of materials and construction has been recorded?		
4. Contractor has established tie-ups with local hospitals/clinics for emergencies onsite?		
5. For DBO packages, detailed design completed and updated IEE submitted to ADB?		
6. For civil works packages, site-specific EMP submitted to ADB?		
For subproject packages with contracts awarded and works on-going		
1. Contractors have appointed EHS and/or safety officer onsite per subproject package?		
2. Site-specific EMP posted onsite?		
3. Contractors' records of accidents / incidents submitted to PMU on a monthly basis?		
4. Contractors provided PMU with a notification/incident report of any accident(s) within 24 hours of its occurrence?		
5. Reports of complaints/grievances reported monthly to PMU?		
6. Records of information disclosure/consultations submitted by PIUs to PMU monthly?		
7. Records of site inspection by PIU submitted to PMU monthly?		

[48] This checklist should provide the Project's general compliance to environment safeguards during the reporting period. The indicators are aligned with project loan agreement, PAM, IEEs and ADB's Sustainable Development Safeguards Division Safeguards project performance rating. The detailed environmental safeguards compliance status should be provided in the semi-annual environmental monitoring report.

Appendix 20: Semi-Annual Environmental Monitoring Report Template

This template must be included as an Appendix in the IEE that will be prepared for the project. It can be adapted to the specific project as necessary.

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	Roles
1. PMU				
2. PIUs				
3. Consultants				

(i) Overall project and subproject progress and status
(ii) 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	Contract Status (specify if under bidding or contract awarded)	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M)[49]	If On-going Construction	
				%Physical Progress	Expected Completion Date

II. Compliance status with National/State/Local statutory environmental requirements

[49] If on-going construction, include %physical progress and expected date of completion.

Package No.	Subproject Name	Statutory Environmental Requirements[50]	Status of Compliance[51]	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish[52]

III. Compliance status with environmental loan covenants

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

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 IEE Documentation Status

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

For each package, provide name/s and contact details of contractor/s' nodal person/s for environmental safeguards.

[50] Specify (environmental clearance? Permit/consent to establish? Forest clearance? Etc.)
[51] Specify if obtained, submitted and awaiting approval, application not yet submitted
[52] *Example: Environmental Clearance requires ambient air quality monitoring, Forest Clearance/Tree-cutting Permit requires 2 trees for every tree, etc.*

Package-wise Contractor/s' Nodal Persons for Environmental Safeguards

Package Name	Contractor	Nodal Person	Email Address	Contact Number

With reference to approved EMP/site-specific EMP/construction EMP, complete the table below

Summary of Environmental Monitoring Activities (for the Reporting Period)[53]

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

[53] 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

Briefly describe 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)

Discuss the general condition of surroundings at the project site, with consideration of the following, whichever are applicable:

- Confirm if any dust was noted to escape the site boundaries and identify dust suppression techniques followed for site/s.
- Identify if muddy water is escaping site boundaries or if muddy tracks are 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 are intact following heavy rain;
- Identify designated areas for concrete works, chemical storage, construction materials, and refueling. Attach photographs of each area in the Appendix.
- 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 in the Appendix.
- Indicate if there are any activities being under taken out of working hours and how that is being managed.

Briefly discuss the basis for environmental parameters monitoring.
Indicate type of environmental parameters to be monitored and identify the location.
Indicate the method of monitoring and equipment 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 µg/m3	SO2 µg/m3	NO2 µg/m3

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 µg/m3	SO2 µg/m3	NO2 µg/m3

Water Quality Results

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

Site No.	Date of Sampling	Site Location	Parameters (Monitoring Results)					
			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_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Monitoring Results)	
			Day Time	Night Time

VI. 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).

VIII. 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).

IX. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

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

X. APPENDICES

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection report
- all supporting documents including signed monthly environmental site inspection reports prepared by consultants and/or contractors