Environmental Assessment and Review Framework

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India: Himachal Pradesh Rural Drinking Water Improvement and Livelihood Project

Prepared by Jal Shakti Vibhag Government of Himachal Pradesh for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 3 December 2021)

Currency unit	–	Indian rupee (₹)
₹ 1.00	=	$ 0.0133
$ 1.00	=	₹ 74.982

ABBREVIATIONS

ADB	-	Asian Development Bank
ACM	-	Asbestos-containing Material
ASI	-	Archeological Survey of India
BOCW	-	Building and Other Construction Workers
CGWB	-	Central Ground Water Board
CPCB	-	Central Pollution Control Board
CPHEEO	-	Central Public Health and Environmental Engineering Organization
CTE	-	Consent to Establish
CTO	-	Consent to Operate
DBO	-	Design-Build-Operate
DBOC	-	Design-Build-Operate Contractor
DPR	-	Detailed Project Report
EAC	-	Expert Appraisal Committee
EHS	-	Environmental Health and Safety
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
GOI	-	Government of India
GOHP	-	Government of Himachal Pradesh
GWSS	-	Gravity Water Supply Scheme
HPSPCB	-	Himachal Pradesh State Pollution Control Board
HPRDWILP	-	Himachal Pradesh Rural Drinking Water Improvement and Livelihood Project
IEE	-	Initial Environmental Examination
IFC	-	International Finance Corporation
JSV	-	Jal Shakti Vibhag
LPCD	-	Liters per Capita per Day
MCFT	-	Million Cubic Feet
CMC	-	Million Cubic Meter
MLD	-	Million Liters per Day
MOEF&CC	-	Ministry of Environment, Forest and Climate Change
NHAI	-	National Highways Authority of India
NOC	-	No Objection Certificate
OHSR	-	Overhead Service Reservoir
PIU	-	Project Implementation Unit
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
SEMP	-	Site Environmental Management Plan
SPS	-	Safeguard Policy Statement, 2009
ULB	-	Urban Local Body
WHO	-	World Health Organization
WSS	-	Water Supply Scheme
WTP	-	Water Treatment Plant

WEIGHTS AND MEASURES

cm	-	centimeter
dB	-	decibels
ha	-	hectare
kg	-	kilogram
km	-	kilometer
l	-	liter
m	-	meter
m^2	-	square meter
m^3	-	cubic meter
mg/l	-	milligrams per liter
ml	-	milliliter
MLD	-	million liters per day
mm	-	millimeter
km^2	-	square kilometers
$\mu g/m^3$	-	micrograms per cubic meter

NOTE

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

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I. INTRODUCTION

A. Background

1. Himachal Pradesh is the least urbanized state in India, where 1.7 million households (or 90%) live in rural areas across the state. During 2001–2011, Himachal Pradesh registered the slowest urban growth with an annual growth rate of 1.45%.[1] The state has a total land area of 55,673 square kilometers (km^2) and has a low population density, at 123 per km^2 compared against the national average of 382 per km^2.[2] From 2001 to 2011, the annual total population growth rate was 1.29%. At this rate, the population is expected to be 7.9 million by 2041—which is likely to remain predominately rural.

2. Approximately 75.5% of the state's rural population has access to drinking water from improved sources (i.e., a functional tap connection of piped drinking water supply), substantially higher than the national average of 33.6%.[3] Despite a relatively high access rate, the existing rural water supply infrastructure is in poor condition and the service level is low. This is a result of aging infrastructure and the absence of an overall asset management framework, further exacerbated by a lack of operation and maintenance (O&M) funding. The existing water supply is intermittent at 6–8 hours per day, with an average of 40 liters per capita per day (LPCD). With small schemes located in remote and steep terrain, data gathering is subject to physical field inspections, making the rural systems difficult to manage. The current monthly tariff is fixed at ₹34.54 and is insufficient for O&M cost recovery.

3. Himachal Pradesh's Jal Shakti Vibhag (JSV), formerly the Irrigation and Public Health Department, is responsible for delivering bulk water to villages. At the village level, village bodies or *gram panchayats* manage the village schemes. *Gram panchayats* are constrained by their dependence on intergovernmental transfers—the unpredictability of funds makes reliable water supply and universal sanitation a challenge. JSV plans to optimize its rural water supply operations to ensure end-to-end delivery system across the state, resulting in improved and equitable access to quality drinking water and better sanitary conditions. The coronavirus disease (COVID-19) pandemic poses an additional challenge. Measures to combat COVID-19 pandemic include the COVID-19 vaccination drive recently launched; however, to curb the spread of the disease, safe management of drinking water and sanitation services, and hygiene practices are fundamental to protect human health.[4]

4. In 2019, the Government of India launched the Jal Jeevan Mission, which aims to provide piped water supply to all rural households by 2024, ensuring 100% coverage. To enhance O&M for adequate and safe drinking water supply, the Government of India decentralized service delivery responsibilities to local bodies. In 2013, the state's Water Policy was approved,

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[1] Government of India, Ministry of Urban Development. 2016. *Handbook of Urban Statistics*. Delhi.
[2] Government of India, Office of the Registrar General & Census Commissioner. 2011. *Census*. Delhi.
[3] Jal Jeevan Mission. The mission follows on from the National Rural Drinking Water Programme, 2009–2019. Government of India, Ministry of Jal Shakti, Department of Drinking Water and Sanitation. 2019. *Jal Jeevan Mission*. Delhi. The Jal Jeevan Mission vision states: "Every rural household shall have assured drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities."
[4] ADB. 2020. *Technical Assistance for Accelerating Sanitation for All in Asia and the Pacific*. Manila. The regional technical assistance promotes the concept of citywide inclusive sanitation. It will complement the pilot inclusive sanitation component through development and implementation support.

advocating that “adequate, safe, and sustainable drinking water facilities will be provided” and safe disposal of sewage promoted.[5] The policy acknowledged that tariffs needed to be restructured. To achieve the state’s vision—Drishti Himachal Pradesh 2030: Sustainable Development Goals (SDG): “providing adequate, safe, and wholesome water and sanitation services”—the Government of Himachal Pradesh (GOHP) is committed to ensuring that 100% of the rural population has access to drinking water at 70 LPCD, including nonrevenue water reduction from 30% to 10%, and universal coverage of improved sanitation facilities (from 69.7%) by 2030[3].

5. In view of the above, the GOHP proposed to renovate old rural water supply schemes across the state, with the objective to ensure end-to-end delivery system of rural water supply across the state, resulting in overall equitable access to quality drinking water and better sanitary conditions. This is posed for funding of Asian Development Bank (ADB).

6. The existing rural water supply schemes are sourced from local sources such as springs, khads, nallahs and tube wells located near the villages. Over time water demand has increased due to increased population and in some cases existing water supply schemes do not match the increased demand for water. The lack of maintenance has also resulted in repair and rehabilitation being deferred. Most of the transmission and distribution lines were laid over 20 years ago and have now past their design life. JSV has identified 187 water supply schemes commissioned before 2000 to be included in the proposed ADB supported project scope for renovation and remodeling schemes in 10 districts of the state. The renovation and remodeling of 187 schemes will provide 24 hours and seven days a week water supply system with the automation of pumps and real-time monitoring of water quality at water treatment plants and quantity from the water supply source and at the household level.

7. The Himachal Pradesh Rural Drinking Water Improvement and Livelihood Project (HPRDWILP) Project will adopt a sector approach, and subprojects will be selected and proposed for funding adhering to the agreed Subproject Selection Criteria (SSC). The project will be aligned with the following impact: water and sanitation services in Himachal Pradesh sustainably managed. The outcome of the project will be safe, reliable, efficient, and sustainable drinking water and sanitation services provided in project districts.[6] The project will have the following two outputs:

B. Project Outputs

8. **Output 1: Rural water supply and sanitation systems in project districts improved.** Water services will be improved to the minimum 70 LPCD of potable, uninterrupted water supply to about 400,000 rural residents, across 2,800 habitations through single and multi-village schemes in the selected project districts. The output will finance the upgrade of 187 water supply systems, comprising components such as groundwater wells, surface-water intake facilities, water treatment plants, storage tanks, overhead and ground-level reservoirs, pumping stations, and construct 2,000 kilometers of bulk water supply and distribution pipelines, and household service connections. The JSV will use extended O&M contracts with a 5-year operation service period for the water supply schemes. Both the bulk water supply system, the distribution system, and

[5]Government of Himachal Pradesh, Department of Irrigation and Public Health. 2013. *Himachal Pradesh State Water Policy 2013*. Shimla.

[6] The targeted districts comprise Bilaspur, Chamba, Hamirpur, Kangra, Kullu, Mandi, Shimla, Sirmaur, Solan, and Una.

associated customer services will be monitored by supervisory control and data acquisition and geographic information systems and managed by a management information system. These measures incorporate climate resilience by assuring the system's capacity to adapt to a changing climate. Households will be fitted with volumetric water meters. Smart water management (SWM) will provide frequent, continuous, accurate, and reliable monitoring to ensure sustainability. A pilot inclusive sanitation program will be implemented in Sirmaur district covering 424,270 beneficiaries across 970 rural villages to ensure fecal sludge is safely managed, treated, and disposed, with consideration of resource recovery and re-use. The learnings from this pilot program will be taken into consideration when designing future sanitation programs.

9. **Output 2: Institutions and capacity of stakeholders for rural water supply and sanitation services strengthened.** The project will (i) strengthen institutional capacity of the JSV and *gram panchayats,* for improved efficiency and sustainable service delivery by (a) introducing a SWM system for monitoring and benchmarking of household water consumption as basis for tariff adjustments, (b) approval of state-level asset management framework and district specific asset management plans, and (c) endorsement of relevant amendments to the state water tariff policy; (ii) train key project stakeholders on financial management, water conservation, billing and collection, customer services, and O&M of water supply facilities, including SWM; and (iii) mainstream participation of women in capacity development and awareness-raising. The output will promote inclusive sanitation through improving capacity of the Rural Development Department (RDD) and *gram panchayats.* Activities supported under this output for enhancing rural FSM and sustainable non-networked sanitation solutions includes (i) water and sanitation safety planning; (ii) preparing FSM guidelines;[7] (iii) developing and implementing guidelines and standard operating procedures on gender mainstreaming; and (iv) raising public awareness on the health benefits of improved water supply, sanitation, and hygiene practices to prevent disease and the spread of COVID-19. Consultations with civil society organizations have been carried out with interested parties where the project will be implemented.

10. **Implementation Arrangement.** Himachal Pradesh's JSV will be the executing and implementing agency. JSV) will establish a central Project Management Unit (PMU) headed by a Project Director (PD) and will be supported by three Deputy Project Directors (DPD I, II and III). DPD-I and II will be responsible for procurement and contract management in two zones each (DPD-I -Hamirpur and Dharamshala, and DPD-II - Shimla and Mandi). DPD-III will be responsible for finance management of the project. PMU will be staffed with technical, administrative, finance, procurement, safeguards, gender, etc., The PMU includes dedicated RDD staff for implementing the pilot inclusive sanitation component. Under the PMU, four Project Implementation Units (PIUs) will be established at zonal level (Hamirpur, Dharamshala, Shimla and Mandi), and each PIU will be headed by a Project Manager. PMU and PIUs will be supported by Project Design, Management and Supervision Consultant (PDMSC) team.

11. Four project implementation units (PIUs) are established at the zonal offices for supervision, monitoring, and reporting to the PMU. The PMU will engage a project design, management, and supervision consultant (PDMSC). The PMU and PIUs will supervise all works. A state-level empowered committee and 10 district-level committees have been established for the project. The state-level committee will overseeing overall project progress, coordinate state-level clearances, and provide policy and reform guidance. The district-level committees will focus on day-to-day project implementation with due coordination between the JSV, the RDD, gram

[7]ADB support may extend to state policy, guidelines on liquid waste, and/or non-networked sanitation management.

panchayats, and project stakeholders. The JSV will be responsible for operating the bulk systems up to the gram panchayats boundaries. The upgraded village distribution systems will be transferred to gram panchayats to operate and maintain.

C. Project Components

12. The project will improve the water supply and septage management in the identified rural areas of 10 districts in the state. The main types of infrastructure components are shown in Table 1.

Table 1: Water supply Subprojects and Components Proposed Under HPRDWILP

Subproject	Components	Proposed Infrastructure (New / Refurbishment)
Water Supply	Water Source	Small head weirs[8] across Khad and Nallah sources
		Intake structures to withdraw water from surface water sources (i.e., rivers (*Khad,*[9] *Nallah,*[10]), dams, springs, etc.,)
		Tube wells, infiltration wells, jack wells
	Water transmission	Raw water transmission mains
		Clear water transmission mains
		Pump houses with raw water and clear water pumps
	Water treatment	Water treatment plant (slow/rapid sand filter)
		Disinfection (chlorinator) units
	Storage	Main balancing reservoirs
		Overhead service reservoirs
		Ground level service reservoirs
	Distribution system	Distribution networks
		Valves and flow meters
		House service connections and domestic meters
Sanitation / Faecal sludge management	Collection & conveyance of septage	Mobile tankers with suction arrangement to collect septage from septic tanks and transfer to septage treatment plants
	Septage treatment	Septage treatment plants

D. Purpose of Environmental Assessment and Review Framework

13. This environmental assessment and review framework (EARF) was developed in accordance with requirements per ADB SPS, Government of India and Government of Himachal Pradesh's environmental laws and regulations. The EARF ensures that all subprojects, in the entirety of their project cycle, will not deteriorate or interfere with the environmental sensitivity of a project area, but rather improve environmental quality. 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). The EARF:

(i) includes environmental criteria to be used in selecting subprojects and/or components to be funded under HPRDWILP;
(ii) specifies the environmental laws, rules and regulations, statutory clearances to be obtained and applicable environmental standards;

(iii) specifies the requirements in subproject screening and categorization, assessment, and planning;
(iv) explains the anticipated environmental impacts of the subprojects and recommends mitigation and monitoring measures;
(v) specifies requirements for meaningful consultation with affected person and other stakeholders, grievance redressal mechanism, and information disclosure;
(vi) indicates capacity development for project management and implementing units, and other stakeholders;
(vii) provides safeguards institutional arrangements, roles and responsibilities; and
(viii) specifies monitoring and reporting requirements including sample checklists and templates.

14. 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 Himachal Pradesh Rural Drinking Water Improvement and Livelihood Project

15. The project is classified as category B for environment per ADB SPS. Initial environmental examination (IEE) conducted for three sample subprojects[8] indicate that HPRDWILP 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. Subprojects projected to be categorized as A (potential impacts are significant, irreversible, diverse or unprecedented) will not be considered for implementation under the project. Assessment was conducted using tools such as ADB Rapid Environmental Assessment (REA) Checklist, various technical discussions, and site visits. The IEEs concluded potential impacts are mainly due to land preparation, construction and operations and unlikely to affect areas larger than the sites or facilities subject to physical works.

16. While the IEEs are prepared based on preliminary designs for inclusion in bid and contract documents, the scope and sites are unlikely to be changed during detailed design and implementation. Thus, the potential impacts are expected to be of the same magnitude, duration and significance and will not affect the categorization. The IEEs will be updated during detailed design following this EARF and will be reviewed and disclosed prior to commencement of works.

17. 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.

[8] (i) water supply improvement in Mandi Zone-01 (MZ01), (ii) water supply improvement in Mandi Zone-02 (MZ02), and (iii) water supply improvement in Shimla Zone-03 (SZ03)

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Country Environmental Safeguard Policies

18. **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 HPRDWILP 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. Appendix 2 provides the environmental standards for air, surface water, groundwater, emissions, noise, and vehicular exhaust.

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

(i) Conservation of critical environmental resources.
(ii) Intra-generational equity: livelihood security for the poor.
(iii) Inter-generational Equity
(iv) Integration of environmental concerns in economic and social development.
(v) Efficiency in environmental resource use.
(vi) Environmental governance.
(vii) Enhancement of resources for environmental conservation.

20. **Environment (Protection) Act, 1986, Amended 1991**. This Act is promulgated as umbrella legislation for the protection of 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 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 Himachal, the Himachal Pradesh State Pollution Control Board (HPSPCB) can notify more stringent standards for their states but can't be relaxed.

21. **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. 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 State Pollution Control Board (SPCB) to enter directly or 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 SPCB:

(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
(e) Penalties for violation of provisions of the Act

22. **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.

23. **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) 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.

24. **Construction and Demolition 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 construction and demolition (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 require 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.

25. **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.

26. In the sample subprojects, components at places are located on forest lands. JSV will obtain requisite permission from the Forest Department. The proposal for diversion of forest land under FCA will be submitted online by the user agency (JSV) for approval of the Nodal officer, State Forest Department, GOHP. After acceptance by the Nodal officer, it will be forwarded it to the Ministry of Environment, Forest and Climate Change (MOEFCC), GoI involving forest land of more than 40 Ha. The proposals involving up to 40 Ha of forest land are sent to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change (MOEFCC) located at Dehradun for North Central zone. The Head of the concerned regional office is competent to either agree in-principle or reject, all proposals involving forest land up to 5 hectares. The proposals involving diversion of forest area above 5 hectares and up to 40 ha is reviewed by the Regional Empowered Committee (REC) constituted at each regional office of the MOEFCC under Chairmanship of the Head of the Regional Office. In sample IEEs most of the individual elements are relatively small and total amount of forest land required to be diverted for non-forest purposes in each subproject is less than 5 Ha. Hence these will be cleared from regional office at Dehradun.

27. The following guidelines are required 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.

28. MOEFCC (vide letter no. 11-9/98-FC dated 16 October 2000) has provided general approval under Section 2 of the Forest (Conservation) Act, 1980 for laying of underground drinking water supply pipelines along the roads (within right of way) in forest areas, without felling trees, subjected to a maximum size of the trench (2 m deep and 1 m wide). This is not applicable for forests in National Parks and Wildlife sanctuaries.

29. **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.

30. **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 200m 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.

31. **Environmental Assessment Notification, 2006 and its subsequent amendments**. Issued under the Environment Protection Act (EPA), 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 (EC) 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** requires environmental clearance (EC) from the national MOEFCC. The proponent is required to provide preliminary details of the project in the form of a notification, after which an Expert Appraisal Committee (EAC) of the MOEFCC prepares comprehensive terms of reference (TOR) for the EIA study, which are finalized within 60 days. On completion of the study and review of the report by the EAC, MOEF&CC considers the recommendation of the EAC and provides the Environmental Clearance if appropriate.

(ii) **Category B projects** requires EC 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. On completion of the study and review of the report by the EAC, the SEIAA issues the EC based on the EAC recommendation. The notification also provides that any project or activity classified as category B will be treated as category A if it is located in whole or in part within 10 km from the boundary of protected areas, notified areas or inter-state or international boundaries. At present, water supply and sewerage projects proposed under HPRDWILP do not fall under the ambit of the EIA Notification, 2006, and therefore, EC is not required.

32. **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. Himachal Pradesh is landlocked state, therefore this Notification is not applicable.

33. **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.

34. **State and State–specific Legislations**. Following Acts, Rules, Directions etc., that are in force in Himachal Pradesh and may apply to the project implementation. applicability, and requirements of these legislations are discussed in Table 2 and 3.

(i) The Himachal Pradesh State Water Policy, 2013

(ii) The Himachal Pradesh Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1976
(iii) The Biological Diversity Act, 2002 and its amendments
(iv) The Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act, 2005
(v) The Himachal Pradesh Hydropower Policy 2007.
(vi) Resettlement, Relief, Rehabilitation and Compensation Policy, May 2011.
(vii) The Himachal Pradesh Non-Biodegradable Garbage (control) Act, 1995
(viii) The Himachal Pradesh Fisheries Act, 1976 and subsequent amendments
(ix) Guideline for Diversion of Forest Land for Non-Forest Purposes under the Forest (Conservation) Act,1980 [vide letter no. 11-9 / 98- FC dated 16.10.2000 MOEF, GOI had conveyed its general approval under Section -2 of the Forest (Conservation) Act), 1980 for diversion of forest land for underground laying of drinking water supply pipelines]
(x) The Himachal Pradesh Forest (Sale of Timber) Act, 1968.
(xi) The Himachal Pradesh Kutlehar Forest (Acquisition of Management) Act, 1992
(xii) The Himachal Pradesh Forest Produce (Regulation of Trade) Act, 1982
(xiii) The Himachal Pradesh Private Forests Act, 1954
(xiv) The Himachal Pradesh Minerals (Vesting of Rights) Act, 1983
(xv) The Himachal Pradesh Factories (Control of Dismantling) Act, 1973
(xvi) The Himachal Pradesh Village Common Lands Vesting and Utilization Act, 1974
(xvii) The Himachal Pradesh utilization of Lands Act, 1973
(xviii) The Himachal Pradesh Land Revenue Act, 1954
(xix) The Himachal Pradesh Instruments (Control of Noises) Act, 1969
(xx) The Himachal Pradesh Preservation of Forests and Maintenance of Supplies of Forest Based Essential Commodities Act, 1984

35. Table 2 presents salient features and applicability of acts, rules and regulations currently in force that could apply to HPRDWILP including the specific requirements. Appendix 2 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. Appendix 2 provides the applicable as per Indian and World Health Organization drinking water guideline values.[9]

Table 2: Applicable Government of India Environmental Legislations and Specific Requirements for the HPRDWILP Project

Law	Description	Requirement
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	HPRDWILP should adhere to NEP principle of “enhancing and conservation of environmental resources and abatement of pollution”.

[9] 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, HPRDWILP will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of HPRDWILP circumstances, JSV will provide full and detailed justification for any proposed alternatives that are consistent with ADB SPS requirements.

Law	Description	Requirement
	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.	
EIA Notification, 2006	The EIA Notification of 2006 set out the requirement for environmental assessment in India. Environmental Clearance is required for certain defined 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. Category A projects require EC from the MOEF&CC. Category B projects require Environmental Clearance from the SEIAA.	None of the components of this subproject falls under the ambit of the notification. Therefore, EIA and Environmental Clearance is not required.
Water (Prevention and Control of Pollution) Act of 1974, Rules of 1975, and amendments (1987)	Act was enacted to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, by Central and State Pollution Control Boards and for conferring on and assigning to CPCB/SPCBs powers and functions relating to water pollution control. Control of water pollution is achieved through administering conditions imposed in consent issued under provision of the Water (Prevention and Control of Pollution) Act of 1974. These conditions regulate the quantity and quantity of effluent, the location of discharge and the frequency of monitoring of effluents. Any component of the subproject having the potential to generate sewage or trade effluent will come under its purview. Such projects have to obtain Consent to Establish (CTE) under Section 25 of the Act from HPSPCB before starting implementation and Consent to Operate (CTO) before commissioning.	Construction of new and expansion/ rehabilitation of existing WTPs and construction of Septage Treatment Plants (STPs) requires CTE before start of construction works and CTO before start of operation. All relevant forms, prescribed fees and procedures to obtain the CTE and CTO can be found in the HPSPCB website. HPSPCB website. (http://hppcb.nic.in)
Air (Prevention and Control of Pollution) Act of 1981, Rules of 1982 and amendments.	This 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. The Act also establishes ambient air quality standards The projects having potential to emit air pollutants into the atmosphere have to obtain CTE and CTO under Section 21 of the Act from HPSPCB The occupier of the project/facility has the responsibility to adopt	All relevant forms, prescribed fees and procedures to obtain the CTE and CTO can be found in the HPSPCB website. (http://hppcb.nic.in) CTE and CTO will be required for batching plant, hot mix plant, crushers etc. if specifically established for this project. If contractor is purchasing ready mix concrete, asphalt/macadam

Law	Description	Requirement
	necessary air pollution control measures for abating air pollution.	and aggregates from third party, he has to be assured that third party is having CTE/CTO from HPSPCB and should collect the copy of these and submit to PIU/consultants. Pollution Under Control (PUC) certificates should be available for all the vehicles and construction equipment DG sets more than 5KVA should have authorization from HSPCB during construction or operation
Environment (Protection) Act, 1986 and CPCB Environmental Standards. For National Ambient Air Quality Standards 2009 (NAAQS)	Emissions and discharges from the facilities to be created or refurbished or augmented shall comply with the notified standards	Appendix 2 provides applicable standards for NAAQS.
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 -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	WTPs should be designed and operated with appropriate wastewater and sludge treatment and disposal facilities. - compliance with emission and disposal standards during construction.
Noise Pollution (Regulation and Control) Rules, 2000 amended up to 2010.	Rule 3 of the Act specifies ambient air quality standards in respect of noise for different areas/zones. 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	Compliance with noise standards. Appendix 2 provides applicable noise standards.

Law	Description	Requirement
Biodiversity Act of 2002	The Biodiversity Act 2002 primarily addresses access to genetic resources and associated knowledge by foreign individuals, institutions or companies, to ensure equitable sharing of benefits arising out of the use of these resources and knowledge to the country and the people.	Not applicable
Indian Wildlife (Protection) Act, 1972 amended 1993 and Rules 1995; Wildlife (Protection) Amendment Act, 2002	This overarching Act provides protection to wild animals, birds, plants and matters connected with habitat protection, processes to declare protected areas, regulation of wildlife trade, constitution of state and national board for wildlife, zoo authority, tiger conservation authority, penalty clauses and other important regulations. In Himachal Pradesh there are 5 National Parks (NP), 26 Wildlife Sanctuaries (WLS) and 3 Conservation (Appendix 8)	Applicable to subprojects located in in protected areas - Permission from the Chief Wildlife Warden/ State Wildlife Board/ National Board of Wildlife; and the Supreme Court of India Not applicable as there are no wildlife protected areas in Project towns
Notification of Eco Sensitive Zones (ESZ):	Eco sensitive zones (ESZ) 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. Seven Notified ESZs in Himachal Pradesh are: ESZ around Rakchham-Chitkul WLS, Daranghati WLS, Shimla Water Catchment WLS; Talra WLS ; Majathal WLS; Sechu-Tuan Nalla WLS and Inderkila National P Besides, 10 numbers are under scrutiny and field verification and 13 pending with Govt. of India (Appendix 10)	- Restriction of activities (including construction, tree cutting, etc.) in the notified zones -Any project activity located in ESZs will require prior permission from ESZ monitoring committee Not applicable as subprojects components are not located in designated ESZ
Forest (Conservation) Act, 1980 and its subsequent amendments	The Forest (Conservation) Act prohibits the use of forest land for non-forest purposes without the approval of MOEF&CC. As per Forest Survey of India (FSI),2019 report Himachal Pradesh has 15433.52 km^2 of forest area. District wise Forest in Himachal Pradesh is given in Appendix 11	Locating subproject facilities in forest lands will be avoided. However, in unavoidable cases like non-availability suitable non-forest lands, and water supply rising mains/trunks mains traversing forest lands, the forest land conversion will follow the "Guidelines for Diversion of Forest Lands for Non-Forest Purpose" under Forest (Conservation) Act, 1980. Some components of

Law	Description	Requirement
		HPRDWILP including Intakes, WTPs. Pump houses, MBRs and SRs are proposed in Forest land. Hence, JSV will obtain requisite permission from the Forest Department. Forest department has exempted laying of drinking water pipelines requiring excavation/trench of 1m width and 2 m depth. In case of this current subproject the trench width is 0.6m, hence no permission required for pipeline laying (Appendix 13)
Solid Waste Management Rules 2016	Responsibility of Solid Waste Generator (i) segregate and store the waste generated in three separate streams namely bio-degradable, non-biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorized waste pickers or waste collectors as per the direction or notification by the local authorities from time to time. (ii) store separately construction and demolition waste, as and when generated, in his own premises and shall dispose of as per the Construction and Demolition Waste Management Rules, 2016; and No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.	Contractor to follow all the rules during construction works
Construction and Demolition Waste Management Rules 2016	(i) Every waste generator shall segregate construction and demolition waste and deposit at collection Centre or handover it to the authorized processing facilities (ii) Shall ensure that there is no littering or deposition so as to prevent obstruction to the traffic or the public or drains. (iii) Large generators (who generate more than 20 tons or more in one day or 300 tons per project in a month) shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodeling work, (iv) Large generators shall have environment management plan to address the likely environmental issues from construction, demolition, storage, transportation process and disposal / reuse of C & D Waste.	Contractor to follow all the rules during construction works Extract From Construction and Demolition Management Rules, 2016 is given in Appendix 4.

Law	Description	Requirement
	(v) Large generators shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar, (vi) Large generators shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities.	
Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989	-Defines hazardous chemicals - stipulates rules, procedures to manufacture, storage and import of hazardous chemicals -chlorine, which will be used for WTP for disinfection is a hazardous chemical as per the rule -requires permission, authorization from various agencies if the total storage exceeds specified quantity; requires emergency management plan	Proposed WTPs that requires storage of chlorine will fall under this if exceeds the stipulated storage amount.
Hazardous Waste Rules 2016	Responsibilities of the occupier for management of hazardous and other wastes. - (1) For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:- (a) prevention; (b) minimization; (c) reuse, (d) recycling; (e) recovery, utilization including co-processing; (f) safe disposal. (2) The occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes. (3) The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorized actual user or shall be disposed of in an authorized disposal facility. (4) The hazardous and other wastes shall be transported from an occupier's establishment to an authorized actual user or to an authorized disposal facility in accordance with the provisions of these rules. (5) The occupier who intends to get its hazardous and other wastes treated and disposed of by the operator of a treatment, storage and disposal facility shall give to the operator of that facility, such specific information as may be needed for safe storage and disposal. (6) The occupier shall take all the steps while managing hazardous and other wastes to- 6 (a) contain contaminants and prevent accidents and limit their consequences on	Applies to disposal of hazardous waste sludge generated from WTP is unlikely to be classified as hazardous waste Contractor to comply all the requirements of this Act during construction works.

Law	Description	Requirement
	human beings and the environment; and (b) provide persons working in the site with appropriate training, equipment and the information necessary to ensure their safety.	
e-waste (Management) Rules, 2016	Rules apply to manufacturer, producer, consumer, bulk consumer, collection centers, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts and spares which make the product operational but shall not apply to batteries, radioactive waste. Schedule 1 specifies electrical and electronic equipment in the following categories: Information technology and telecommunication equipment, consumer electrical and electronics	Since as there are no rules at present regulating solar panel waste, e-waste rules are presented here, which can be considered for disposal of solar PV panels after end-of-life period Responsibilities of the consumers/bulk consumers (like JSV) include: ensuring that e-waste generated is channelized through collection center or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler, and maintain e-waste records
Wetlands (Conservation and Management) Rules, 2017	The Rules specify activities which are harmful and prohibited in the wetlands such as industrialization, construction, dumping of untreated waste and effluents, and reclamation. The Central Government may permit any of the prohibited activities on the recommendation of Central Wetlands Regulatory Authority. There are 92 wetlands in Himachal Pradesh covering 2.25 hectares area, out of which 85 are natural and 7 are man-made which constituted one percent of the total geographical area. Pong Dam Lake (Kangra), and Renuka (Sirmaur) have been identified as **Ramsar sites** whereas Rewalsar (Mandi) and Khajiar (Chamba) lakes have also been included by the Ministry of Environment Forests & Climate Change, Govt. of India for its conservation and management.	The Himachal Pradesh State Wetland Authority (HPSWA) constituted in the year 2017 under the aegis of H.P. Council for Science, Technology & Environment (HIMCOSTE) is acting as a nodal agency to coordinate the Wetland Conservation Programing with the active participation of all the stakeholders. Prohibits/regulates certain activities in and around the notified wetlands. These include: handling or storage or disposal of construction and demolition waste, solid waste dumping; discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements
Ancient Monuments and Archaeological Sites and Remains Act, 1958 and	Act for better and effective preservation of the archaeological wealth of the country, at par with constitutional provisions	- Applicable to subprojects located in proximity of the protected monuments/ sites.

Law	Description	Requirement
Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010	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. The Act designates areas within 100 meters (m) of the "protected monument/area" as "prohibited area" and beyond that up to 200 m as "regulated area" respectively. 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).	- There are 40 Monuments of National Importance (ASI) in 8 districts of Himachal Pradesh; most (13 nos.) are in Chamba followed by Kangra (11 nos.) and Kullu (5 nos.) districts (See Appendix 5) - Besides, 5 State Protected Monuments have been recognized by the ASI in Himachal Pradesh
Contract Labour (Regulation and Abolition) Act, 1970.	The contractor shall not make employment decisions based upon personal characteristics unrelated to job requirements. The contractor shall base the employment relationship upon equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment or retirement, and discipline. The contractor shall provide equal wages and benefits to men and women for work of equal value or type.	Applicable labor laws including amendments issued from time to time applicable to establishments engaged in construction of civil works (Appendix 7)
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.,

Law	Description	Requirement
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.
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.
IS 11768: 1986/2005: Recommendations for disposal of asbestos waste material	The standard emphasis that every employer who undertakes work which is liable to generates asbestos containing waste, shall undertake adequate steps to prevent and /or reduce the generation of airborne dust during handling, storing,	The crux is waste avoidance: the practice inculcated should focus the on minimal waste generation. Waste Collection: In the project circumstance, the waste is referred to the damaged powered asbestos which will be collected in the Permissible plastic bags to be disposed to the nearest TSDF facilities. Not applicable as subprojects will not use any asbestos containing material (such as AC pipes) and no asbestos material is present in the existing water supply

Law	Description	Requirement
		system
State Water Policy, Department of Irrigation and Public Health, Govt. of Himachal Pradesh	Also known as Himachal Pradesh State Water Policy-2013 states that adequate, safe and sustainable drinking water facilities will be provided to the entire population both in urban and rural areas throughout the year as per relevant BIS Standards/CPHEEO Manual Jal Shakti Vibhag (JSV), has the mandate for irrigation and public health (drinking water) in Himachal Pradesh. As per the State Water Policy drinking water is the first priority and Jal Shakti Vibhag, Himachal Pradesh has the mandate for providing safe drinking water.	Compliance with Himachal Pradesh State Water Policy-2013. (Concerned pages of this policy are attached as Appendix 6) JSV does not require permission from other departments for the construction of intake structures on surface water sources, except for cases in which water is abstracted from Dam reservoirs (Under BBMB and NHPC).
The Himachal Pradesh Ground Water (Regulation, Development and Management) Act 2005	An act to regulate and control the development and management of ground water and matters connected therewith or incidental thereto.	Proposed Tube wells and bore wells will require permission (prior to start of construction works) from Member Secretary Himachal Pradesh Ground Water Authority-Cum-Superintending Engineer, P&I-II Unit, Shimla
The Himachal Pradesh Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1976	An Act to provide for the preservation of ancient and historical monuments, archaeological sites and remains other than those of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects. 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

36. **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 PIUs, 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 PIUs shall report to PMU the status of compliance to clearances/permits as part of the regular progress reporting. Table 3 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 3: Clearances and Permission required for Construction Activities

Sr. No	Construction Activity	Clearance Required	Implementation	Supervision
1	Land for Project Activity	Allotment and Approval for specific land use	JSV	JSV (PMU)
2	Permission for abstraction of raw water from khad/nallah and rivers and construction of intake/head weir	JSV has the mandate if Irrigation department in this regard. In few cases the Dam authorities regulate the source and permission is required	JSV	PIU/PMU
3	Permission for extraction of ground water	Permission from Member Secretary Himachal Pradesh Ground Water Authority-Cum-Superintending Engineer, P&I-II Unit, Shmila-9 under Ground Water (Regulation, Development and Management) Act 2005	PIU and DBO Contractor	PMU
4	Construction of WTP and STP	CTE and CTO under Water Act, 1974 from HPSPCB	PIU and Contractor	PIU
5	Tree Cutting	State forest department or Revenue department	PIU	PIU and PMU
6	Hot mix plants, Crushers and Batching plants	CTE and CTO under Air Act, 1981 from HPSPCB	Contractor	PIU
7	Storage, handling and transport of hazardous materials	Hazardous Wastes (Management and Handling) Rules. 2016 Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989 from HPSPCB	Contractor	PIU
8	Sand mining, quarries and borrow areas	Permission from District Collector/ State Department of Mining	Contractor	PIU
9	New quarries and borrow areas	Environmental clearance under EIA Notification 2006 from MOEF&CC, GOI or SEIAA, GOHP	Contractor	PIU
10	Temporary traffic diversion during construction	Temporary traffic diversion measures including use of alternate roads from district traffic police	Contractor	PIU
11	Establishment of Construction Camps	Approval for Land Use from ULB	Contractor	PIU
12	Storage, Handling and Transport of Hazardous Materials	Approval for all stages of Hazardous Materials Use and Disposal from HPSPCB	Contractor	PIU
13	Construction Waste and Demolition Debris Disposal	Approval for use of land for disposal of construction waste and demolition debris from ULB	Contractor	PIU
14	Overall Construction Activity	Labour License from Labour Commissioner, GOHP	Contractor	PIU
15	Use of Vehicles and Equipment	Pollution Under Control (PUC) Certificate from HPSPCB	Contractor	PIU

37. JSV/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. Respective PIUs, 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 PIUs shall report to PMU the status of compliance to clearances/permits as part of the regular progress reporting.

A. International Environmental Agreements and Applicability to HPRDWILP

38. India is a party to various international agreements and conventions related to environment, which include the followings:

Table 4: International Conventions and Treaties and Applicability to HPRDWILP

International Agreement	Description	Applicability to HPRDWILP 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.	Applicable to projects located in or near Ramsar wetlands. There are three Ramsar Sites in Himachal Pradesh: Pong Dam Lake (Kangra), and Renuka (Sirmaur) have been identified as Ramsar sites. There are no Ramsar sites near three sample subprojects. If in future any of the subprojects are undertaken in the proximity of Ramsar wetlands, it 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)
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	Not applicable
Montreal Protocol 1992	India is a signatory of this convention which aims to reduction in the consumption and production of ozone-depleting substances (ODS), while recognizing differences in a nation's responsibilities. Ozone depleting substances are divided in two groups Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)	Not applicable in this project as no ODS are involved in construction works
Basel Convention on Trans-boundary	India is a signatory of this convention which aims to reduce trans-boundary	Not applicable

International Agreement	Description	Applicability to HPRDWILP and Specific Requirements
Movement of Hazardous Wastes, and Their Disposal,1989	movement and creation of hazardous wastes	
Convention on Migratory Species of Wild Animals (CMS), 1979 (Bonn convention)	CMS, also known as Bonn convention, was adopted in 1979 and entered into force on 1 November 1983, which recognizes that states must be the protectors of migratory species that live within or pass through their national jurisdictions, and aims to conserve terrestrial, marine and avian migratory species throughout their ranges. Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these species, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Migratory species that need or would significantly benefit from international cooperation are listed in Appendix II, and CMS encourages the Range States to conclude global or regional agreements.	Not applicable to this project as no migratory species of wild animals are reported in the project areas.

B. ADB Safeguard Policy Statement's Environmental Requirements

39. **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.

40. **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.

41. **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.

42. **Natural,**[10] **Modified**[11] **or Critical Habitat.**[12] 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.[13] 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.

[10] 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

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

[12] 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.

[13] 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;

43. **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. Himachal Pradesh 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 40 monuments / places / sites that are declared as notionally important protected monuments/sites and are protected and managed by ASI. Besides, there are 5 monuments of local/state importance (Appendix 5). 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.

44. **Occupational Health and Safety.** PMU shall ensure that workers[14] 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 Coronavirus Disease (COVID-19); (vi) documenting and reporting occupational accidents, diseases, and incidents; and (vii) having emergency prevention, preparedness, and response arrangements in place.

45. 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.

46. **Community Health and Safety.** JSV. 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.

47. **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

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

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.

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

(i) For environmental category A projects, draft EIA report at least 120 days before board consideration.
(ii) Final or updated EIA and/or IEE upon receipt; and
(iii) Environmental monitoring reports submitted by the implementing agency during project implementation upon receipt.

49. **Consultation and Participation.** Meaningful consultation[15] shall be carried out with affected people and other concerned stakeholders including civil society and facilitate their informed participation. The consultation process and its results are to be documented and reflected in the environmental assessment report.

50. **Grievance Redress Mechanism.** JSV 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.

51. **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 during the construction phase, and annual environmental monitoring reports during the operation and maintenance phase 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.

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

53. **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

[15] 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 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.

standards such as the World Bank Group's Environmental, Health and Safety Guidelines.[16] 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.

54. **Bidding and Contract Documents.** The IEE reports and EMPs are to be included in bidding and contract documents[17]. PMU shall also ensure that bidding and contract documents include specific provisions requiring contractors to (i) comply with all other conditions required by ADB,[18] 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 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.

55. **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.

B. Compatibility between Country's and ADB Safeguard Policy

56. The ADB environmental safeguard policy principles are encompassed entirely in SPS. Government of India has different but robust environmental legislative framework, embedded in various Acts, Policies, Rules and Regulations. While the ADB SPS is in line with the multilateral development financing institutions, Government's policies are also comparable to international environmental framework including that of ADB. Government's environmental regulatory framework derived from Constitutional Provisions; the National Environmental Policy, 2006 is a comprehensive policy document, addresses all relevant aspects of environmental protection and

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

[18] 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.

conservation, environmental sustainability and enforcement. The Environmental (Protection) Act, 1986 and its Rules, Notification, Standards, etc., have created robust regulatory framework. Besides, there are parallel and complementing legislations dealing with specific aspects like forest, wildlife, pollution control, archeological conservation, etc.

57. The Government of India's environmental assessment and clearance process is, in principle, consistent with ADB's environmental assessment process and public disclosure requirements. Environmental impact assessments (EIAs) for development projects under Category 'A' and 'B1' projects are like ADB's screening, categorization, assessment, and clearance/approval systems. The difference between both the requirements is that while the ADB "environmental safeguards are triggered if a project is likely to have potential environmental risks and impacts", the Government of India EIA Notification clearly defines the projects or activities and their environmental categories (A/B1/B2) that require environmental assessment. The project/activities included are on the nature, scale and location, and cover activities that are likely to have adverse environmental impacts. The ADB SPS requires the review of environmental assessment requirement for every project separately and assigns classification (A/B/C). Consequently, except the projects with no or very minimal physical construction activities, all the projects will be classified as B or A, and therefore requires environmental assessment.

58. The water supply and sanitation projects, including that are implemented under HPRDWILP are not listed in the EIA Notification, 2006 and therefore do not require EIA study or EC. However, may require clearances or permission under other legislations if the project location is sensitive or notified. Such as if a project is in forest lands or near protected monuments; it will require approvals as per those regulations. WTPs and STPs require CTE and CTO from Himachal Pradesh State Pollution Control Board (HPSPCB).

59. The Government of India framework does not prescribe a due diligence or environmental audit to check existing facilities at subproject site(s) to determine whether they could cause, or is causing, environmental risks and impacts. However, ADB's SPS principles require an environmental due diligence or audit even in such circumstances. If the subproject does not foresee any major expansion except refurbishment of existing buildings and facilities, the due diligence or environmental audit constitutes the environmental assessment for the subproject.

Table 5: 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).	**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 HPRDWILP. Preparation of Initial Environmental Examination (IEE)	HPRDWILP 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.

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
		For projects involving facilities and/or business activities that already exist or are under construction, undertake an environment compliance audit. 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
Subprojects with WTP / 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 WTP/STP component –** requires Consent to Establish (CTE) and Consent to Operate (CTO) from HSPCB. Detailed Project Report to be submitted to HPSPCB along with the form (combined form for Air and Water Acts) and prescribed fee. **CTE**. Based on project review and site inspection HPSPCB 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	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 that all subprojects should comply with county safeguard policies In project implementation, pollution prevention and control	**No gap** As per the ADB all projects must comply with the country environmental regulations to be eligible for funding. HPRDWILP projects shall comply with all environmental regulations and the consents, clearances, approvals, as required for subproject should be obtained.

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
	renewed every two/three year. Disposal standards are notified under the Environment (Protection) Act, 1986 and CPCB Environmental Standards. Appendix 2 provides applicable standards.	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-	
All subprojects.	**Noise Pollution (Regulation and Control) Rules, 2000 amended up to 2010** 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)		**No gap** As per the ADB all projects must comply with the country environmental regulations to be eligible for funding. HPRDWILP projects shall comply with all environmental regulations and the consents, clearances, approvals, as required for subproject should be obtained.
Subprojects intake construction in River	JSV has the mandate of irrigation department for withdrawal of water and construction of intake. In few cases The Dam authorities regulate the source and permission is required		-Same as above-
Subprojects located within 300	Ancient Monuments and Archaeological Sites and Remains Act, 1958 and	SPS 2009 requires that all the impacts on archeological, historical and cultural resources	Same as above-

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
m of protected monument	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. 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).	shall duly be covered in environmental assessment	
Applicable to subprojects located within core or buffer zone of Protected Areas	**Wildlife Protection Act, 1972** It is unlikely that any project located within protected area is included in the project 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-
Subprojects 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 -- Some components of this subproject including WTPs, Pump house, MBR, SR and pipelines are proposed in Forest land. Hence, JSV will obtain requisite permission from the MOEF&CC / Forest Department. Forest department has exempted laying of drinking water pipelines requiring excavation/trench of 1m width and 2 m depth. In this	-same as above-	-Same as above-

Subproject	Government Regulatory Requirement	ADB Requirement	Gap
(1)	(2)	(3)	(4)
	current subproject the trench width is 0.6m, hence no permission required for pipeline laying (Appendix 13)		
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, PRDWSIP projects shall comply with all labor laws (central and state). Following international Finance Corporation (IFC) EHS guideline[19] during implementation

C. Institutional Capacity for Environmental Safeguard Implementation Arrangement

60. JSV is the executing and implementing agency. A Project Management Unit (PMU) set up within JSV exclusively for the HPRDWILP will be implementing the project. PMU will be supported by four zonal PIUs.

61. Under the current government regulations, there is no need to conduct EIA studies or prepare EIA reports and EMPs, and therefore the capacity of JSV to deal with environmental assessment studies and the preparation of an EIA is limited. Consideration of safeguard aspects in JSV is limited to compliance with government regulations as per the government law, and obtaining necessary clearances, like consent from HPSPCB for WTPs and MOEF&CC for forest lands. Consequently, at present, there is no institutional set-up within the JSV to specifically deal with environmental safeguard aspect.

62. The Himachal Pradesh State Pollution Control Board (HPSPCB) is the main state-level regulatory agency responsible for environment protection and pollution control in Himachal Pradesh. HPSPCB through its 10 Regional Offices (RO) and 2 Sub-Regional Offices across the

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

state regulate environmental protection related activities. HPSPCB has one Central Laboratory and four Regional Laboratories in the state. The involvement of the HPSPCB in monitoring of the environmental safeguards of HPRDWILP activities will be limited, and mainly include issuance of consent, and monitoring of compliance of WTPs and air pollution from project activities during construction and operation and maintenance phases. Nevertheless, HPSPCB mandate covers overall pollution control HPSPCB deals with public complaints related to pollution and environmental degradation due to any activity. As per the procedure, (i) the WTP operator should submit a laboratory report of the treated effluent once every quarter (yearly four times), (ii) during yearly renewal of Consent tor Operation (CTO), laboratory report of supplied water quality from a HPSPCB approved laboratory is mandatory; (iii) surveillance monitoring by HPSPCB staff, at least once a year, by visiting the WTP and collecting the sample and testing at HPSPCB laboratory, and (iv) specific monitoring in case of public complaints.

63. **Forest and Wildlife.** Robust implementation and enforcement system exists for protected areas, and for use of forest lands for non-forest purposes (e.g., for locating project components in forests). The process is cumbersome and time consuming that rightly discourages the location of projects in forest lands unless it is unavoidable. In HPRDWILP, there may cases where some components of the subprojects including WTPs, Pump houses, MVRs, SRs and linear components like raw water mains and distribution pipelines have to transverse through forest lands. Hence, JSV will obtain requisite permission from the MOEF&CC / Forest Department. In Himachal Pradesh Forest department has exempted laying of drinking water pipelines requiring excavation/trench of 1m width and 2 m depth (Appendix 13). In all the proposed subproject the trench width is proposed around 0.6m, hence no permission is required for pipeline laying. Forest clearance is issued by MOEFCC. Area less than 40 hectares is cleared by regional office (Dehradun) of the MOEFCC, while the rest are cleared by MOEFCC at Delhi. Conversion of forest lands that are part of protected areas (PAs) - National Parks/Wildlife Sanctuaries are not permitted. In exceptional case, the State Government requires consent and approval of the National Board for Wildlife and the Supreme Court. No project facilities will be in the protected areas. Eco-sensitive zones (ESZ) are notified around the PAs to act as transitions zone by regulating and managing the activities around the PAs.

64. At present, there are 5 National Parks, 26 Wildlife Sanctuaries and 3 Conservation Reserves in Himachal Pradesh (Appendix 8). Final notification on ESZ is issued for six WLS and one National Park whereas ten are under scrutiny and thirteen pending with Govt. of India (Appendix 10). General guideline is that ESZ shall be about 10 km around a PA, however, it is flexible and depending on the site-specific condition it can vary. Therefore, any work within ESZ or 10 km (if ESZ not notified) from the boundary of the national park shall be implemented only after consultation with the respective authorities of the protected area.

65. JSV, the Executing Agency, is responsible for overall strategic planning, guidance and management of the HPRDWILP, and for ensuring compliance with conditions and loan covenants responsible. Implementing Agency, JSV 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.

66. JSV PMU will set up zone based PIUs for implementation of HPRDWILP in respective packages. PMU/PIUs will be supported by consultants in all activities during the implementation, including the safeguard activities. PMU will supervise the PIUs day-to-day work and will review and advise as required in all aspects of project implementation. During the implementation phase

of HPRDWILP, PIUs will be supported by specialist consultants for management and monitoring of environmental safeguards implementation.

67. Subsequent to completion and commissioning, DBO contractor will operate until the end of contract period, after which JSV will be responsible for operation and maintenance of the improved infrastructure, either directly or through a O&M contracting agency. During the operation phase, JSV will monitor the safeguards compliance. WTP operation will also be monitored by HPSPCB to ensure compliance with their consent conditions as per statutory requirements. The capacity to handle environmental safeguard related tasks at JSV level is negligible.

68. 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 JSV PMU, PIU 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

III. ANTICIPATED ENVIRONMENTAL IMPACTS

69. 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.

70. HPRDWILP will finance water supply projects in ten (10) selected districts of Himachal Pradesh. Subprojects include source development, water treatment, raw water and clear water transmission, storage, distribution to consumers via individual connections. Pilot schemes will also be implemented in select areas in sanitation (fecal sludge management) Draft IEEs prepared for three sample subprojects concluded that these projects are unlikely to have significant adverse impacts.

71. 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, HPRDWILP 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 (Appendix 1) that determine project environmental category, HPRDWILP unlikely to have significant adverse impacts, and potential impacts are mostly due to construction, which can be minimized/mitigated with appropriate mitigation measures. Subprojects likely to have potentially significant adverse impacts (categorized as A) will not be funded under HPRDWILP.

A. Anticipated Impacts

72. 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.

73. **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 water supply subprojects that determine the significance of impacts include: selection of water source, level of water abstraction, raw water quality, potential pollution sources, conflicting uses and users of water source, treatment process, treated water quality, energy and resource efficiency, generation of wastewater and sludge and their management, noise from pumping operations, water contamination during transmission and use of harmful/hazardous chemicals and materials, health and safety impacts. The design aspects of septage subprojects that determine the significance of impacts include: septage treatment process efficiency, discharge standards, reuse potential, sludge management, receiving water quality and water uses, noise and odour nuisance resulting from system design and selected technology, use of harmful/hazardous chemicals, materials, inlet sewage quality and potential changes, health and safety impacts.

74. **Impacts due to design – abstraction of water (sustainability).** The main design impact of water supply system in general are due to abstraction of water and quality of raw water. The existing water supply systems in project towns are mostly surface and groundwater based, and water supply is inadequate. The new water supply schemes will mostly be based on surface water-based sources (khads/nallah/rivers/springs/dams) along with Groundwater sources (bore well, infiltration well and tube well). No new dams/reservoirs will be developed, except small head weirs.[20]

75. The existing rural water supply schemes are sourced from local sources such as springs, khads, nallahs and tube wells located near the villages. Over time water demand has increased due to increased population and in some cases existing water supply schemes do not match the increased demand for water. The lack of maintenance has also resulted in repair and rehabilitation being deferred. Most of the transmission and distribution lines were laid over 20 years ago and have now past their design life. JSV has identified 187 water supply schemes commissioned before 2000 which are included in the ADB supported HPRDWILP project scope for renovation and remodeling schemes in 10 districts in Himachal Pradesh. The renovation and remodeling of 187 schemes will provide 24 hours and seven days a week water supply system with the automation of pumps and real-time monitoring of water quality at water treatment plants and quantity from the water supply source and at the household level.

[20] This will only include small head weirs of height 1 m or less above river/stream bed, which are essentially proposed to increase the water head to facilitate abstraction. Submergence will be within the river/stream course, and water will flow freely over top the weir.

76. Therefore, it is proposed to adopt conjunctive use approach, utilizing both surface and groundwater sources to meet the demand. Therefore, project will mostly design surface water-based water supply systems – either new river intakes or drawing water from new/existing dams/reservoirs/springs/khads/nallahs. Construction of small head weirs at Khad and Nallah sources with rectangular channels and Rail and Winch arrangements for fluctuating rivers are also proposed.

77. Creation of new infrastructure to extract groundwater will be limited to areas where there are no feasible surface water sources. Tube wells, infiltration wells, jack wells etc., will be constructed to abstract ground/subsurface water. State Groundwater Authorities recommendations for the area of interest will be duly considered in the design.

78. Source sustainability needs to be established during preparation, and downstream impacts, and user conflicts needs to be assessed, if any notable impacts, needs to be avoided / mitigated. Sample subprojects assessment shows that sources have been selected carefully based on the water availability to meet the design demand, and water availability is much more than the water demand of these small water schemes. The proposed surface water supply sources in this project are the tributaries of those major Rivers (like Beas and Sutlej), Khads and Nallahs. All the rivers are perennial, and are typical snow and rainfed, and also some have springs as origins. Since these are not major rivers, none of these are gauged for flow. Most of these streams carry high flow during monsoon and post monsoon months (July to October), after which flow slightly reduces but retain considerable (medium) flow in the months of November-February. After which flow further reduces in the months of March and April (low flow), followed by lean flow season of May and June. The river which are snow fed carry considerable flow even during May and June but show lean flow during some period in December-January. Therefore, depending on the nature of river/stream contribution from rain, snow, etc., lean season vary. JSV has measured the discharge at proposed water supply source locations in the lean season to estimate the minimum water availability to plan for water supply schemes.

79. Analysis in sample IEEs show that abstraction of water from sources during the lean season vary from: 0.01% to 70% for schemes in MZ 01, MZ02, and SZ03 sample subprojects. In other seasons, water abstraction will even be very minimal or negligible. There are no notable water abstraction points in the downstream, and moreover most of the streams are joined by numerous small streams in its course. Therefore, no notable downstream impacts or user conflicts envisaged.

80. Raw water quality is good given that there are no notable pollution sources. However, care must be taken to not to locate intake in the downstream of wastewater outfalls from villages / towns, either treated or untreated discharges, if any. Raw water quality shall be carefully analyzed, and appropriate design and monitoring measures shall be put in place to ensure that water supply to consumers always meet the drinking water standards.

81. **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. Location of some facilities such as septage treatment plant close to sensitive areas / human habitations may create nuisance and inconvenience local people from emitting with high noise.

82. **Impacts due to location - Critical Habitat/Biodiversity Impacts**. Almost all of the design impacts can generally be mitigated while there can be significant impacts if the components will be located in environmentally sensitive areas (in or near wildlife sanctuaries, national parks, wetlands, etc.). HPRDWILP will not undertake activities within such sensitive areas and will exclude projects which will cause significant environment impacts[21] such as construction of dams and reservoirs. Most of the facilities will be in government owned vacant unused lands. The project area is located in Western Himalayan broadleaf forests with hilly terrain of mainly agriculture and forest land use. The forest area transverse by subproject components is classified as protected forest with shrubs and tree species. Some water sources are located in forest lands mostly close to habitations. However, none of these components are located in protected areas. Minimal tree cutting is envisaged, and except the construction disturbances during works, no impacts envisaged. Measures needs to be taken to avoid/minimize construction phase impacts. Locating components obstructing/encroaching natural drainage channels, ponds etc., will significantly impact natural drainage pattern and may lead to water logging and flooding, and related public health issues.

83. From an aquatic perspective, the project area falls within the Ganges-Himalayan Foothill freshwater ecoregion. It is an area of very high aquatic species richness and was believed to be an area of only moderate aquatic species endemism. For aquatic species, freshwater habitat is the most important parameter to consider in the selection of an ecologically contiguous area. In Himachal Pradesh 61 species of fish observed, belongs into 13 families in general waters and trout waters, with estimated length of 600 km and 2400 km respectively. The major fishes available in these streams are Trout, Mahseer (Tor putitora), Nemacheilus spp, Barilus sp, Schizothoracids Crossocheilus sp. Glyptothorax spp. etc. Rainbow trout and Mahseer are the important fishes in Himachal Pradesh. The trout being the focal fish, the seed of brown and rainbow trout used to be produced in three trout farms located at Chirgoan, Mahli/ Patlikuhl and Barot. Beas River and its tributaries in the Kullu valley is habitat for both brown and rainbow trout, while many rivers and streams in the Kangra valley are well-known for Mahseer. Mahseer is distributed all along the Himalayas including the freshwaters of Kashmir, Sikkim, Himachal Pradesh, Uttar Pradesh, Punjab, Haryana, Darjeeling district of West Bengal and Assam. It inhabits the mountains and sub mountains regions, running streams and rivers. The fish species is present in around 500 sq. km area of Himachal Pradesh state. The rivers Beas and Satluj in Himachal Pradesh like other Himalyan rivers supports a good population of T. putitora. The state has recorded highest 45.311 MT Mahseer catches during year 2019-20. The production is mainly from water reservoirs named Gobind Sagar, Koldam, Pong Dam and Ranjeet Sagar. The state has Golden Mahseer fish eggs production of 20900, 28700 and 41450 during year 2017-2018, 2018-2019 and year 2019-2020; respectively.

84. In Sample subprojects, endangered T. putitora is reported only in three major streams/canals: Beas River, Giri River and BBMB Canal. In all other small streams/khads selected as sources, fish species are either not notable or limited to local species. Fishing activity is negligible. This will be checked further during the detailed design phase to reconfirm that there are no endangered fish species. The section of Beas between the two dams of Pong Dam Pandoh Dam (about 100-120 km) is said to be a favourable for spawning/breeding of fish include T.putitora. Given that Beas is a major source of water in that state, dependence on it cannot avoided, and under the project it is proposed to withdraw water from Beas at one location. Considering the potential sensitivity, proposal to avoid direct water abstraction from Beas River

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

at this stretch is avoided by selecting another alternative to construct a jack well outside the river and collect subsurface water to avoid any disturbance. In Giri River, and BBMB canal, water withdrawal is proposed via an intake structure constructed on the bank, and just an intake pipe extended into water. Water withdrawal in both the cases is negligible even in lean season (<1%), and further to avoid any impacts on fish species, an expert in fisheries will be engaged during the detailed design to design the intake with screens to avoid entry of fish into intake. For all the sources in future subprojects planning and design, an assessment needs to be done to identify if such protected species are found, site specific options, alternative and measures should be integrated into the design implemented.

85. **Impacts due to location – in Forest land**. Given the large expanse of forest lands in Himachal Pradesh, locating some subproject facilities in forest lands is unavoidable. No project facilities will however be located in protected areas such as national parks or wildlife sanctuaries. The forest land conversion will follow the "Guidelines for Diversion of Forest Lands for Non-Forest Purpose" under the Forest (Conservation) Act, 1980. Components in some subprojects such as Intakes, WTPs, Pump houses, reservoirs and water pipelines are proposed in Forest land. Hence, JSV will obtain requisite permission from the Forest Department. However, as most of the individual elements are relatively small, forest land requirement at each location is not considerable (in the sample IEEs total amount of forest land requirement for each subproject is less than 5 ha). Forest department has exempted from clearance procedure for laying of drinking water pipelines requiring excavation/trench of less than 1m width and 2 m depth along the roads in forest land. In case of sample subproject IEEs, the proposed trench width is 0.6m, hence permission from local forest department will be adequate for pipeline laying (Appendix 13). New pipelines will be laid mostly along the existing pipelines or along the forest trails, without needing to cut notable trees or clearing forest.

86. **Impacts due to location – Physical Cultural Resources**. Himachal Pradesh 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 40 monuments / places / sites that are declared as nationally important protected monuments/sites and are protected and managed by ASI. Besides, there are 5 monuments of local/state importance (Appendix 5). These 40 Monuments of National Importance (ASI) in 8 districts of Himachal Pradesh; most (13 nos) are in Chamba followed by Kangra (11 nos) and Kullu (5 nos) districts. Besides, 5 State Protected Monuments have been recognized by the ASI. No works or components will be located within the protected area of monuments. Any components, located outside the monument boundary but within 300 m of regulated buffer area, permission will be obtained from the competent authority.

87. **Impacts due to location – Sensitive Receptors.** Proposed works are primarily located in rural 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 septage treatment plants, if located close to habitations will have adverse impacts, and may significantly affect the vulnerable groups like children and old people. Generation of bad odours and fugitive air emissions on the surrounding population needs to be considering in selecting the sites. For STPs, especially, a 500 m buffer distance, shall be ensured. This distance may be reviewed based on the proposed STP technology, and its odour potential.

88. **Impacts during construction.** Most impacts of HPRDWILP will result from considerable construction activities. Water pipelines will be laid along the public roads within rural habitations, access roads, and some through forest areas. Construction activities of other components like storage tanks, WTP etc., will be confined to the selected sites, and the interference with the public

and community around is minimal. Some components are located in forests. 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. It may be noted that due to hilly terrain, some sites are not accessible by motorable roads, and in such cases, material will be transported manually, and work will be conducted with minimal tools and mostly manually. During the construction phase of pipeline, impacts arise from the invasive nature of excavation and trenching work mostly along the roads. 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, and there are well-developed methods for their mitigation. Given the hilly terrain, cuts and fills can promote instability and erosion although proposed excavation will not be significant, necessary measures will be put in place to avoid construction during rains, and cuts, fills and sloped surfaces in construction sites will be properly stabilized to avoid erosion. Site clearance will be strictly confined to actual work area, no clearance of topsoil or vegetation will be done outside the site. Temporary containment drains, silt fences will be used to contain silt laden run off from sites. Various measures will be put in place for work in forest lands to avoid any impacts or damage / disturbance to flora and fauna.

89. **Impacts during construction: work within River / Reservoirs/ Head Weirs.** Since during construction of intake workers should have to work within or adjacent to the river, safety precautions and emergency protocol is necessary. Caution shall be maintained against flash floods in general, and untimely/unexpected rains and floods, dam releases etc., during the construction phase, and necessary safety protocols and awareness shall be created among workers, supervisory staff etc., Works shall be conducted in the lean season and confining work area to avoid any pollution of water, no chemical use, and cleaning up the site after completion of work etc., needs to be followed. Arrangement will be made to maintain the flow of the Khad and Nallah to downstream uninterrupted during the works.

90. **Impacts during commissioning – Occupational Health and Safety**. Hydro testing of pipes for leaks and pressure prior to commissioning, poses safety risk to workers, to access the pipelines in the confined spaces (trenches). 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 testing, 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.

91. **Impacts due to operation and maintenance**. Anticipated impacts of water supply and FSM projects during operation and maintenance (O&M) will be related to operation of WTP and STP, handling and application of chlorine, operation of pump houses, and repair and maintenance activities. Provisions will be made in the design: to recirculate wastewater from WTP; collect, thicken and dispose sludge; chlorine safety; use energy efficiency equipment. Water supply system will need to 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 water supply system. Solar lighting is proposed for campus lighting in some facilities like WTPs, reservoirs. This will generate solar panel waste at the end-

of-life (25-30 years). Considering presence of harmful metals, though in small quantities, may have adverse impacts if not handled and disposed properly. Channeling the discarded panels to reuse by authorized agencies and following e-waste management rules will mitigate the impacts. 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. Sewage / septage collected from septic tanks contain disease-causing organisms that may be dispersed in water or air. Disinfection and containment will follow WHO's interim guidance on water sanitation, hygiene and waste management for the COVID19 virus (Appendix 18) and to be considered in the detailed engineering design to avoid and risks of diseases or illnesses to the workers and the community such as the spread of viruses.

B. Avoidance and Mitigation Measures

92. 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 Measures to Avoid and Mitigate Impacts

Anticipated Impacts	General Mitigation Measures
Water Supply - 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. Design surface water intake structures to minimize impacts on aquatic life. Limit maximum through-screen design intake velocity to limit entrainment of aquatic organisms If there are threatened, endangered, or other protected species within the hydraulic zone of influence of the surface water intake, ensure reduction of impingement and entrainment of fish and shellfish by the installation of technologies such as barrier nets (seasonal or year-round), screens, and aquatic filter barrier systems Avoid constructing structures across the streams obstructing flow; in unavoidable circumstances, limit the weir height to maximum 1 m Do not locate intakes in or near fish spawning/breeding grounds Do not construct head weirs / check dams across the streams/rivers where there are protected / endangered fish species in the river water Weirs/check dams should also be avoided across the rivers/streams where there are no protected fish species; in unavoidable circumstances of no feasible alternatives, weir proposal should be preceded by a thorough technical justification, and height of such weir should not exceed 1 m; a study should be conducted by an expert in fisheries/aquatic ecology to assess impacts and provide measures to avoid such impacts; these shall include fish passes where needed, but such structures should be simple and to in line with the local conditions; structures like natural ramps suiting the natural landscape shall be proposed Conduct screening of project influence area to identify protected areas/sites and conservation status of species Utilize tools like Integrated Biodiversity Assessment Tool (IBAT), and data from government sources, and international agencies like World Database of Key Biodiversity Areas website (WPDA), Important Bird Areas (Birdlife International); Ramsar website; IUCN Red list; etc., Carryout critical habitat assessment (CHA) in case of screening confirms protected areas and/or species with protection status within 10 km of project influence area Engage biodiversity expert to conduct assessment and develop mitigation measures

Anticipated Impacts	General Mitigation Measures
	Conduct field-level site visits for the review and updating of the Environmental Management Plan If species of interest are found on-site, ensure that the findings are recorded and reported to the PIU. No disturbances or works on the site should start/continue until PIU 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. If cannot be avoided, consult with Archaeological Survey of India (ASI) (for ASI-protected PCRs) or State Archaeological Department (for state-protected PCRs) 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
Pollution of source water from upstream anthropogenic activities and soil erosion runoff	Conduct sanitary survey to avoid locating new water supply sources downstream of pollution sources (sewage and/or drainage outfall, catchment of area of extensive agricultural activities/nutrient runoff, waste dumpsites, pit latrines, toilets, or sewerage treatment plant discharge point)
Impacts due to excessive/unsustainable groundwater extraction (land subsidence, degradation of water quality, etc.)	Conduct groundwater tests to estimate the sustainable yield Utilize existing dams/reservoirs as water source subject to technical and economic feasibility Modify extraction rates and locations as necessary to prevent unacceptable adverse current and future impacts, considering realistic future increases in demand.
Impacts due to excessive/unsustainable surface water withdrawal	Evaluate potential adverse effects of surface water withdrawal on the downstream ecosystems Ensure that water withdrawal from any river/stream/khad/nallah/spring is in sustainable levels duly considering downstream uses and ecological flow; Ensure that in no case water exceeding 70% of lean season (lowest flow) is abstracted from any source; for rivers/streams with protected aquatic species, this shall be worked out on case to case basis duly considering eco system requirements
Impacts due to construction of weir across the khad and Nallah and downstream impact	Limit the height of the weirs to as much as possible and in no case it shall not exceed 1m above the river bed level or the height of banks whichever is lower, The submergence shall be confined to river course only There shall be no significant reduction in flow nor there shall be any sensitive environmental features in the downstream (like wildlife sanctuaries, national parks etc.), and shall also not have any negative impacts on downstream uses
Risk of pollution of source water due to inadequate protection of intake works or wells	Develop water source protection plan. It is important to involve the Village committee members, water regulating authorities, property owners, farmers, businesses, community groups, and public health officials. Locate new facilities at sites where there is low risk of flooding or other hazards that might impair functioning of or present a risk of damage to water treatment plants, tanks/reservoirs, or their environs.
Health impacts due to unsatisfactory water supply	Follow design criteria in the Ministry of Urban Development’s (MoUD) Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Water Supply and Treatment Conduct regular water (raw and treated) quality monitoring

Anticipated Impacts	General Mitigation Measures
Social conflicts from abstraction of raw water for water supply from other water uses of same surface/groundwater sources	Avoid sources with such conflicts by identifying sources that do not have conflicting water uses / demands Obtain approval of jurisdictional Village Panchayat for the source
Health risks (carcinogenic dusts) due to replacement of existing asbestos cement pipes	Avoid any repairs or new connections to/from existing asbestos cement pipes No Asbestos Cement pipes to be used
Social conflicts arising from displacement of communities	Avoid land acquisition to 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.
Fecal Sludge Management – Design and Location	
Location of septage treatment plant	Do not locate septage treatment plants close to habitation areas; maintain at least 500 m distance to avoid nuisance; this distance may be reviewed based on the proposed septage treatment process and potential for odour and emissions; Do not locate plants where there is risk of hazards such as floods, landslides etc., Provide a green buffer zone of 10-20 m wide 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
Design of septage treatment plant	Ensure that the selected process is appropriate for the rural set up and meets discharge standards Prepare sludge management plan
All subprojects - 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 night. 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.

Anticipated Impacts	General Mitigation Measures
	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 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 generated 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 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 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.

Anticipated Impacts	General Mitigation Measures
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 coronavirus 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
Health risk of construction workers due to COVID-19.	• Prepare the health and safety guidance for COVID-19 at work sites and get approval of PMU Ensure project staff, consultants, contractors, and workers have in their mobile devices the Aarogya Setu App, which is a mobile application developed and recommended by the government to proactively reach out to and inform the users of the app regarding risks, best practices and relevant advisories pertaining to the containment of COVID-19. Follow best practice health and safety guidelines: IFC's General EHS Guidelines, WHO Interim Guidance (and its updates) on Water, Sanitation, Hygiene and Waste management for the COVID19 virus (Appendix 23) and ADB's Interim Advisory Note on Protecting the Safety and Well-Being of Workers and Communities from COVID-19 (2020) (Appendix 24) Mandatory isolation of the personnel or workers, either asymptomatic or showing symptoms, who have had direct contact with anyone tested positive for COVID-19. Follow the isolation procedures issued by the government. Avoid face to face meetings – critical situations requiring in-person discussion must follow social distancing. Do not convene in-person meetings of more than 10 people. If possible, conduct all meetings via conference calls. Recommend use of cell phones, texting, web meeting sites and conference calls for project discussions. • Strictly follow and implement the H&S guidance for COVID-19 at worksite. • Everyone entering the worksite must wear a mask. • At the entrance of the worksite/camp site every personnel must wash their hands for 20 second with maintaining a distance of at least 1m (3 ft) from each other. • A designated EHS/Medical person should stay all time during work and ensure physical distances (minimum 1m) among workers, disinfecting surfaces that are commonly used and investigate worker/site personnel health and safety. • Discourage site personnel to gather and gossip at any time, rather encourage physical distance while chatting/discussing. • Ensure sufficient stock of soap, sanitizer, washing facility and safe water at the workers' dwelling (both camp site and home). • Encourage frequent hand washing and social distancing at campsite. • Ensure personal distance at least 1 meter (3 feet), preferably 2m (6ft) during

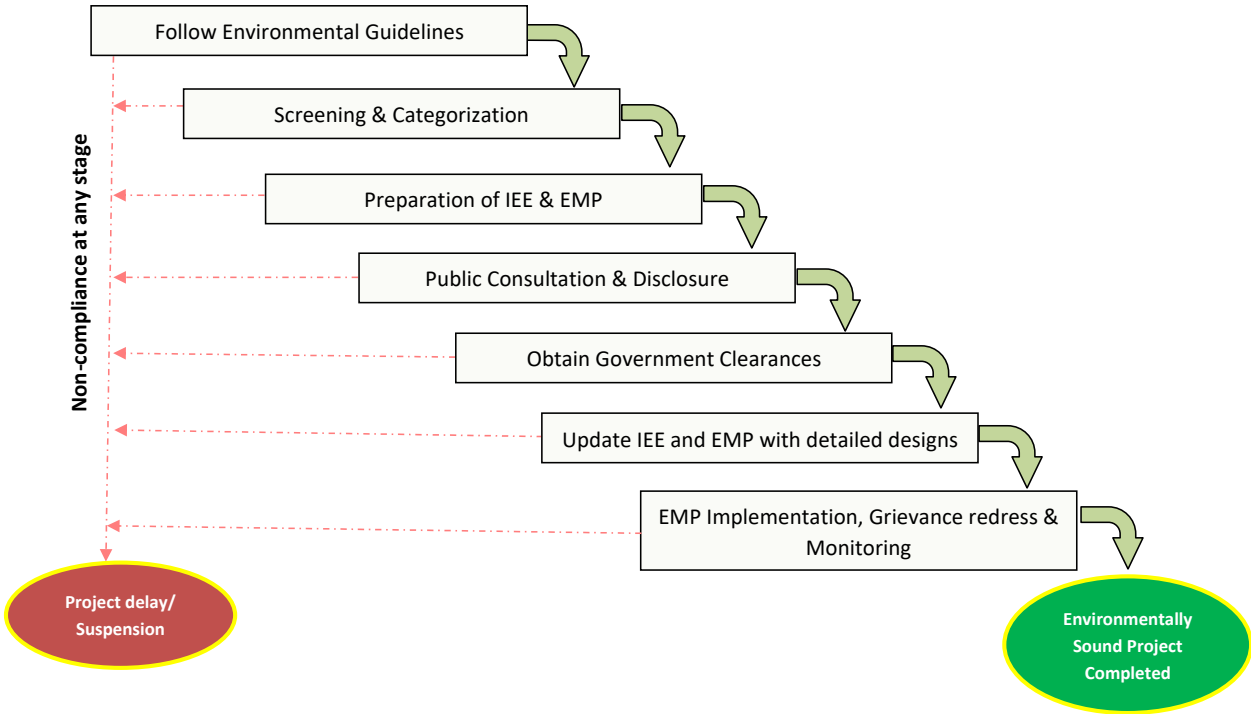
Anticipated Impacts	General Mitigation Measures
	lunch, dinner and prayer. • Train workers on how to properly put on, use/wear, and take off protective clothing and equipment. Make these trainings mandatory at worksites and provide 10-15 minutes of a workday for such 'training and encouragement' activities.
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 nature and duration of work • Liaise with PIU/ULB in identifying high-risk areas on route cards/maps. • 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	
Health impacts due to unsatisfactory raw water supply	Conduct water quality monitoring at intake, water treatment plant and at strategic points in the distribution system Ensure standard water quality surveillance procedures and protocols as a key obligation of the Contractor with third party checks
Health and safety hazards to workers from the handling of chlorine and public safety risks from accidental leakage of chlorine gas	Prevent, minimize, and control potential impacts associated with the storage, handling and use of disinfection chemicals (e.g., chlorine) Ensure proper labelling of disinfection chemicals Minimize the amount of chlorination chemicals stored on site while maintaining a sufficient inventory to cover intermittent disruptions in supply Ensure that all site personnel have a basic level of health and safety training and protective equipment
Safety risks due to pipe repairs (workers and public)	Provide sign boards and barricades
Fecal sludge management – Health and environment issues of septage 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

Anticipated Impacts	General Mitigation Measures
	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 HSPCB for operation of STP Ensure that all conditions/standards prescribed by HSPCB are complied 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 operations
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 a chlorine emission. • 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.
Occupational Health and Safety (Health risk of workers due to COVID-19)	• Prepare and implement a health and safety plan that is based on the developments about COVID-19 at the local and global fronts. All protocols contained in the health and safety plan should comply with all national health and safety regulations related to COVID-19 and with internationally recognized guidelines for dealing with COVID-19, such as the WHO guidelines.
Environment and health impacts due to improper handling and disposal of discarded / end-of-life solar panels	• Remove end-of-life / discard solar panels from site and store temporarily in an identified place; ensure no contact with soil or water • Use appropriate personal protection equipment • Dispose material for reuse as per the rules/regulations in force at the time • If there are no specific regulations, follow e-waste management rules, 2016. • Maintain records of discarded/end-of-life solar panel

IV. ENVIRONMENTAL ASSESSMENT OF SUBSEQUENT SUBPROJECTS

A. Environmental Safeguard Compliance Process for HPRDWILP Subprojects

93. 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

94. Environmental assessments of the sample subprojects confirm that the HPRDWILP 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 HPRDWILP. 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.

95. The scope of HPRDWILP includes provision of rural water supply infrastructure from source to consumer and wastewater system. 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

96. The following criteria will be used for excluding sites / activities which might have significant negative environmental impacts. No Category A (ADB SPS[22]) projects will be considered for implementation under HPRDWILP. 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. HPRDWILP will not include and/or involve any activities listed in ADB's Prohibited Investment Activities List.

Table 7: Exclusion Criteria

S. No	Projects / Components to be Excluded from HPRDWILP
I	**Type of water supply projects excluded from HPRDWILP**
A	New water source development - Dams or reservoirs21F[23]
II	**Projects that are located in the following environmentally sensitive areas excluded from HPRDWILP**
A	**All new projects/components located within**: • Wildlife sanctuaries • National parks • Tiger reserves • Elephant reserves • Core Zone of Biosphere reserves • Ramsar wetlands and wetlands notified under the Wetland (Conservations and. Management) Rules 2017
B	No water intakes shall be located within or close to spawning/ breeding grounds of protected fish species (endangered or above as per IUCN Red list)
C	No head weirs shall be constructed across the rivers / streams / khads / nallahs where there protected fish species (endangered or above as per IUCN Red list)
D	**Rehabilitation works of existing projects/facilities located in the environmentally sensitive areas (wildlife sanctuaries, national parks etc.) shall be excluded if the following criteria is not met:** • Proposed rehabilitation works will be confined to the existing footprint, and within the right of way of existing infrastructure • Proposed rehabilitation works will not require any new clearance/permissions. A written confirmation to that effect from the local office of the respective protected area regulatory agency shall be obtained.
III	**Projects with significant adverse impacts**
A	• Projects 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 (i.e., category A projects as per ADB SPS 2009) will be excluded from HPRDWILP. • Activities listed in ADB's Prohibited Investment Activities List (Appendix 5 of ADB SPS). See Appendix 25 for complete list.

[22] ADB Safeguards Policy Statement, 2009.

[23] This will include only small head weirs of height 1 m or less above river/stream bed, which are essentially proposed increase the water head to facilitate abstraction. Submergence will be within the river/stream course, and water will flow freely over top the weir.

2. Environmental Guidelines for Subproject Selection

97. 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 8:

Table 8: Environmental Guidelines for Water Supply Subproject Selection

Components	Criteria	Design Considerations (If criterion is not met)
All Subprojects		
	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 as indicated below	
	Does not include and/or involve any activities listed in ADB's Prohibited Investment Activities List[24]	
	Reflect inputs from public consultations	Refer to ADB SPS requirements on meaning consultations[25]
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 1:10 as replacement ratio.
Critical habitats	Avoid locating subproject components in critical habitats	Conduct IBAT preliminary screening If in a likely critical habitat, conduct Biodiversity Assessment and identify mitigation measures and action plans.

[24] ADB SPS Appendix 5.

[25] 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	Criteria	Design Considerations (If criterion is not met)
		Follow suggested mitigation measures.
Physical Cultural Resources	Should not result in the destruction/damage of or encroachment onto physical cultural resources (PCR)[26] 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[27] 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[28]	Analyze environmental impacts and risks to be included in the IEE	
Asbestos-containing materials (ACM) including, but not limited to, pipes, roofing, ceilings, insulation materials, etc.	Avoid handling or removing any ACM. Ensure asbestos concrete (AC) pipes facilities containing asbestos will not be disturbed and left in-situ.	If ACM is suspected, asbestos verification by a competent expert is required and an asbestos management plan is (AMP) prepared.
	When designing subproject infrastructure that involves excavation in project areas the relevant authorities must be consulted to ascertain the location of any ACM prior to any subproject activity. Locations of new infrastructure must then be designed to avoid excavating or disturbing any ACM.	
Right-of-way	Locate water supply pipelines within the right of way (ROW) of other linear structures (roads) as far as possible, to reduce new land acquisition.	

[26] 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."

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

[28] 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"

Components	Criteria	Design Considerations (If criterion is not met)
Water supply subprojects		
Sustainability	Utilize water sources at sustainable levels of abstraction only (i.e., without significant reductions in the quantity or quality of the source overall)	Water source sustainability or the relevant clearance from JSV should be provided in the subproject's IEE.
	Ensure that water withdrawal from any river/stream/khad/nallah/spring utilized as source of water in the project do not exceed 70% of lean season flow - (This will not apply to sources with protected aquatic species; in such cases abstracting 70% flow may be detrimental to the aquatic species, and therefore safe abstraction levels shall be worked out on case-to-case basis)	
Quality (raw water, treated water)	Ensure that water supply to consumers comply with the national drinking water standards at all times and confirm this by regular monitoring at WTPs and in domestic premises.	
	Avoid using water sources that may be polluted by upstream users	Baseline raw water quality to be included in the IEE.
	Avoid water-use conflicts by not abstracting water that is used for other purposes (e.g., irrigation)	If there are other users, permits or clearance for the allocation should be provided in the IEE.
Location	Avoid locating Water Treatment Plants (WTP), Pump house (PH), within 100m from houses, shops or any other premises used by people, thus establishing a buffer to reduce the effects of noise, dust and the visual appearance of the site.	
	Locate WTP at sites where there is no risk of flooding or other hazards that might impair functioning of the WTP or present a risk of damage to the WTP or the surrounding area	
Design	Ensure sludge management facilities are included in the water treatment plant. Also ensure that efficient water treatment process; avoid wastage of backwash water by recirculation	
	Avoid locating water intake where there are fish with notable density	Design surface water intake structures to minimize impacts on aquatic life. Limit maximum through-screen design intake velocity to limit entrainment of aquatic organisms

Components	Criteria	Design Considerations (If criterion is not met)
		If there are threatened, endangered, or other protected species within the hydraulic zone of influence of the surface water intake, ensure reduction of impingement and entrainment of fish and shellfish by the installation of technologies such as barrier nets (seasonal or year-round), screens, and aquatic filter barrier systems
	Weirs should also be avoided across the rivers/streams where there are no protected fish species	in unavoidable circumstances, weir proposal should be preceded by a thorough technical justification, and height of such weir should not exceed 1 m; a study should be conducted by an expert in fisheries/aquatic ecology to assess impacts and provide measures to avoid such impacts; these shall include fish passes where needed, but such structures should be simple and to in line with the local conditions; structures like natural ramps suiting the natural landscape shall be proposed
Fecal sludge management		
Location of septage treatment plant	Do not locate septage treatment plants close to habitation areas; maintain at least 500 m distance to avoid nuisance;	this distance may be reviewed based on the proposed septage treatment process and potential for odour and emissions Provide a green buffer zone of 10-20 m wide all around the STP with trees in multi rows
	Do not locate septage treatment plants where there is risk of hazards such as floods, landslides etc.,	-
	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	Ensure safe discharge facilities for treated wastewater Assess the location of downstream intake, maintain minimum distance based on the lean season flow / lowest water level, and likely dilution, and social acceptance of downstream population Obtain consent of HPPCB for STP and discharge location

D. Environmental Assessment Process for Subprojects

1. Screening and Categorization

98. As soon as sufficient information on a subproject is available, screening is to be conducted using the ADB's REA checklist (Appendix 1) to determine the subproject environmental category. Requirements as per the government regulations (clearances, approvals, consent etc.,) shall also be identified at this stage, including the requirement for environmental clearance as per the EIA Notification, 2006 and its amendments.

99. Based on the screening, subprojects are to be classified into one of the following 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. Category A subprojects will not be allowed under HPRDWILP.

(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.

100. Under HPRDWILP 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

101. **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. HPRDWILP will improve infrastructure through the implementation of a series of subprojects, each providing improvements in water supply or sanitation in particular zone. Each subproject will require one IEE Report. Outline and content of an IEE Report is given in Appendix 14. The IEEs prepared during the feasibility period for priority subprojects can be used as model documents for future subprojects.

102. **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. A template for environmental management process and monitoring plan is provided in Appendix 15 as a guide for preparing an EMP.

103. 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, if the compensation is used to provide environmental benefits of the same nature and is commensurate with the project's residual impact.

104. **Pollution prevention and applicable standards.** 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 and PIUs will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the PMU and PIUs will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

105. 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,[29] 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.

106. 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.

3. Environmental Audit of Existing Facilities

107. 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

[29] 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.

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. Public Consultation, Information Disclosure and Grievance Redress

108. Public consultation and information disclosure is mandatory as part of the environmental assessment process for HPRDWILP 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

109. IEE including EMPs, prepared/updated by consultants/contractors, will be reviewed and approved by the PMU. Approval of safeguard documents of respective subproject is pre-requisite to initiate the bidding process. 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.

110. 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.

111. Environmental assessment for subprojects must follow both the ADB SPS and the Government processes. It is the responsibility of the JSV and 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 9 discusses the steps in complying with these processes per subproject stage.

Table 9: Environmental Assessment Process for Subprojects

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
Subproject identification	Subproject selection criteria (Table 8) Rapid Environmental Assessment	Categorization according to schedule and general/specific conditions in the government's Environmental Impact

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
Feasibility/ preliminary design	Checklist (REA)	Assessment (EIA) Notification, 2006 (as amended till date)
	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.	PMU to review the subproject proposals and classify (A/B1/B2) as per the schedule. As of now, none of the subprojects to be proposed under the HPRDWILP are currently listed in the Schedule of EIA Notification 2006, and therefore EIA study and environmental clearance is not required. Liaise with the State Environmental Impact Assessment Authority (SEIAA)/MOEF&CC regularly for future policy changes in the EIA Notification and its applicability to the HPRDWILP. Identify other environmental related regulatory requirements based on the nature and location of the subproject (consent from HPSPCB, clearance/approvals from ASI, 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 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 JSV, 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.	Public (hearing) consultation and disclosure is required for A and B1 projects and consists of (i) a public hearing at or near the proposed site, and (ii) responses in writing from stakeholders.
	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	Disclosure is part the consultation. Regulatory agency discloses the Summary EIA report on their website and invites responses from stakeholders. The Draft EIA report is made available on request until the public hearing.

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
	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.	
	Identify and incorporate environmental mitigation and monitoring measures (including the EMP) 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
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).	EIA Report is reviewed by an Expert Appraisal Committee (EAC), constituted by MOEF&CC for category A projects and SEIAA for B1 projects. Applications for other clearances/approvals will be apprised by respective agencies based on submissions and site reconnaissance
	ADB will review draft final reports of all IEEs	Based on the EAC recommendation, MOEF&CC or SEIAA will issue an environmental clearance, stipulating the conditions to be met during the implementation. Concerned agencies will issue clearances/approvals, stipulating conditions
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.	There is no regulatory condition on contract award, but as per the EIA Notification, environmental clearance is to be obtained before any construction work or land preparation (except land acquisition) may commence. All other clearances are also to be obtained before the start of work including land clearance.
Detailed design	Finalization of draft IEE based on detailed design	Submit application in the prescribed format to SEIAA for Category B and to MoEFCC for category A projects, for issue of TOR for the EIA study. Prepare EIA Report as per the TOR and submit to SEIAA and MOEFCC. For B2 projects, no EIA Report is required; appraisal and issue of environmental clearance will be based on the application form.

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
		Submit applications for other environmental related approvals to respective agencies (HPSPCB, ASI, Forest 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 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 JSV, 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.	Public (hearing) consultation and disclosure is required for A and B1 projects and consists of (i) a public hearing at or near the proposed site, and (ii) responses in writing from stakeholders.
	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.	Disclosure is part the consultation. Regulatory agency discloses the Summary EIA report on their website and invites responses from stakeholders. The Draft EIA report is made available on request until the public hearing.
	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) (ii) corrective action plan prepared during project implementation, if any	Project proponent to submit half-yearly compliance reports in respect of the stipulated environmental clearance conditions. MOEF&CC or SEIAA will initiate necessary action in case of non-compliance.

Project Stage	Environmental Assessment and Review Framework Procedure	Government of India Procedure
	(iii) semi-annual environmental monitoring reports EA to ensure the effective implementation of the following: (i) Safeguards induction of Contractors (ii) Information disclosure (iii) GRM establishment (iv) EMP monitoring and supervision (v) Reporting corrective actions.	

[a] The plan will define necessary remedial actions, the budget for such actions, and the period 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 Safeguard Requirements 1–3.

V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

A. Public Consultation and Information Disclosure

112. 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.

113. 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. The consultation process during the project preparation has solicited inputs from a wide range of stakeholders, including government officials, NGOs, residents of the project areas, marginalized/vulnerable beneficiary groups, and project-affected persons (APs).

114. Consultation, participation, and disclosure will ensure that information is provided and feedback on proposed subproject design is sought early (within three months of the IEE preparation), right from the subproject preparation phase, so that the views/preferences of stakeholders including potential beneficiaries and affected people can be adequately considered,

and continue at each stage of the subproject preparation, processing, and implementation. 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.

115. 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.

116. Relevant information about any major changes to project scope will be shared with beneficiaries, affected persons, vulnerable groups, and other stakeholders.

117. 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.

118. The key stakeholders to be consulted during project preparation, EMP implementation, and project implementation include:

(i) project beneficiaries.
(ii) elected representatives, community leaders, religious leaders, and representatives of community-based organizations.
(iii) local NGOs.
(iv) Himachal Pradesh State Pollution Control Board
(v) local government and relevant government agency representatives, including local authorities responsible for land acquisition, protection, and conservation of
(vi) forests and environment, archaeological sites, religious sites, and other relevant
(vii) government departments.
(viii) residents, shopkeepers, and businesspeople who live and work alongside the roads where pipes will be laid and near sites where facilities will be built; custodians, and users of socially and culturally important buildings.
(ix) Stakeholders within 100 meters from any water supply components except pipelines;
(x) Stakeholders in PCRs.
(xi) Stakeholders in areas with biodiversity concerns.
(xii) Vulnerable groups, women groups etc.
(xiii) JSV, PMU and consultants.

119. A variety of approaches can be adopted, and stakeholders should be consulted throughout the project implementation. At minimum, the following consultation activities (Table 10) should be conducted. This is indicative and 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.

120. **Approach for Consultations during COVID-19 Pandemic**. Meaningful consultations will continue even as the COVID-19 pandemic prevails. Consultations will be undertaken through a combination of online, virtual and in-face consultations. Field consultations will be undertaken only when necessary, but following safety guidelines to ensure project team members and participants are not put at high risk of contracting COVID-19. A set of guidelines has been developed for the project to ensure that the conduct of consultations will be a safe activity for the organizers and participants (see Appendix 16 A). This set of guidelines may be adopted wholly or adjusted depending on the prevailing local and national guidelines on COVID-19.

Table 10: Public Consultation Activities

Project Stage	Consultation Activities	Remarks
Subproject preparation	Household level consultations through sample questionnaire surveys on service levels, needs, priorities for project preparation	At the start of the project
	Focus group discussions with people residing/working near the project sites	During the visits to project sites
	A subproject level consultation workshop with all key stakeholders (Community Development block-wise or district-wise, as appropriate)	Once the draft IEE report is prepared
	Consultations with affected persons: affected persons shall be consulted to ensure: • incorporate their views/concerns on compensation/resettlement assistance • inclusion of vulnerable groups in project benefits. • identify assistance required by affected persons during rehabilitation, if any; and • Avoid 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 affected persons in the project process	At various stages, especially during, the preparation and implementation of resettlement plan
Subproject Implementation	Focus group discussions with the people residing/working near the project sites	During the EMP monitoring at work sites
	Informal discussions with the construction workers and construction supervision staff (contractor, consultants and PIU)	During the EMP monitoring at work sites
	Informal discussions with commuters and general public along the roads where works are implemented	During the EMP monitoring at work sites

121. JSV/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.

122. Outline for preparation of minutes of stakeholder consultation meetings is given at Appendix 16.

B. Information Disclosure

123. Project related information shall be disclosed through public consultation and making relevant documents available in public locations. PMU and PIUs 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.

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

(i) Summary of project and draft IEE (in Hindi 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)
(vi) Semi-annual Environmental Monitoring Reports (English)
(vii) Annual Environmental Monitoring Reports during O&M (English)

125. 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, PIU 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.

126. 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) for category B projects.[30]
(ii) final IEE.
(iii) a new or updated IEE and corrective action plan prepared during project implementation, if any; and
(iv) environmental monitoring reports
(v) For category C projects, Environmental Due Diligence Report.

127. JSV, PMU will send written endorsement to ADB for disclosing these documents on ADB's website. JSV 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.

[30] Category A subprojects will not be considered for funding under HPRDWILP. In case, during the implementation, if a potential category A subproject is identified and approved by ADB, the following documents will be submitted to ADB for disclosure: (a) draft EIA, at least 120 days before the ADB approval, (b) final EIA, (c). a new or updated EIA and corrective action plan prepared during project implementation, if any; and (d) environmental monitoring reports.

C. Grievance Redress Mechanism

1. Common Grievance Redress Mechanism

128. The project will adopt a three-tier Grievance Redress Mechanism (GRM) in implementing the project. The GRM will receive, evaluate, and facilitate the resolution of social, environmental or any other project related grievances. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. The GRM described below has been developed in consultation with stakeholders. Public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures is generated and shared with affected persons and other stakeholders. The campaign will ensure that the poor, vulnerable and others are made aware of the need for and process in availing the GRM.

129. 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 sample grievance/complaint register template is provided in **Appendix 17**. The three-tier GRM for the project is outlined below, each tier having time-bound schedules and with responsible persons identified to facilitate and address grievances at each stage, as required. Public awareness campaigns will ensure that awareness on grievance redress procedures is generated through the campaign. The Environmental Safeguard Officer and Social Safeguard and Gender Officer, PMU will have the overall responsibility for timely grievance redress on environmental and social safeguards concerns.

130. **Who can file a complaint:** A complaint may be registered by stakeholders who may be, directly or indirectly affected by the project. A representative can register a complaint on behalf of the affected person or group, provided that the representative is identified by the affected person or group and submits evidence of the authority to act on their behalf.

131. **What type of grievance/complaint?** Any comments, complaints, queries and suggestions pertaining to safeguard compliance - environment, involuntary resettlement, and indigenous people, design related issues, compensation, service delivery or any other issues or concerns related to the project can be registered. The complaint must indicate the name, date, address/contact details of the complainant, location of the problem area, along with the problem.

132. **Where and how to file a complaint:** The contractor's site office will be the primary point for receiving and lodging any complaint. Apart from that, grievances/suggestions/queries from affected persons can be dropped into suggestion boxes or conveyed through phone or e-mails. Affected persons or any complainant will also be able to register grievances on social, environmental or other related issues, personally to the Complaint Cell at PIU level. Complaints can also be filed anonymously.

133. **Process and Timeframe:** The grievance redress process and timeframe involved in the GRM[31] is described below:

[31] The existing grievance redress mechanism of government of Himachal Pradesh, such as Mukhyamantri Seva Sankalp Helpline and similar helplines will be integrated to the project GRM. Any project-related complaints received through the government's helplines will be routed through the project GRM.

(i) **1st Level grievance (Field Level).** In case of grievances that are immediate and urgent in the perception of the complainant, concerned officer (Junior Engineer, Civil) of PIU will direct the contractor to resolve the complaint and ensures that it is resolved. If the grievance is not under the contractor's scope, PDMSC (PIU level) safeguard personnel will resolve this issue with the support of respective PIU (Junior Engineer, Civil). Efforts will be made to resolve all grievances within seven days from the date of receipt of a complaint / grievance. Relevant government representatives from the respective districts and sub-districts, where the subproject will be implemented, can be consulted as and when required.

(ii) **2nd Level grievance (PIU Level).** Grievances that cannot be redressed at first level within seven days will be brought to the notice of PIU. The Project Manager will try to resolve the grievance/ complaint within a timeframe of seven days of receiving the complaint from the first level with the support of Safeguards/Environment Officer, PIU and Environmental Safeguards Specialist or Social, Gender and Community Development Specialist, PDMSC. Government representatives from the respective districts and sub-districts (Tehsils/ Development Blocks) where the subproject will be implemented can be consulted as and when required. Any unresolved complaint at the second level will be taken up to the third level.

(iii) **3rd Level Grievance (PMU Level):** All the grievances that are not addressed at 2nd level by PIU will be brought to the third level, Grievance Redressal Committee (GRC)[32] at the PMU level. The GRC will meet once a month and determine the merit of each grievance/s brought to the committee. The third level grievance redress committee will resolve the grievance within fifteen days of receiving the complaint from the second level. The GRC will be chaired by the Project Director and will have the following members: Social Safeguard and Gender Officer, Environmental Safeguard Officer and Community Development Officer from the PMU, the concerned Project Manager from the PIU, the Environmental Safeguard Specialist and Social, Gender and Community Development Specialist of PDMSC, women representative from a Civil Society Organization (CSO), and local elected representative (if required).

134. In case of any inter-departmental or inter-jurisdictional coordination required for resolution of specific grievances, the PIU will refer the matter directly to the PMU for state-level or inter-departmental coordination and resolution, instead of the District-level GRC. The project GRM notwithstanding, 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. Alternatively, if the grievance is related to land acquisition, resettlement and rehabilitation, the Affected Persons can approach the Land Acquisition, Rehabilitation and Resettlement Authority (LARRA) of Himachal Pradesh, established under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act, 2013[33]

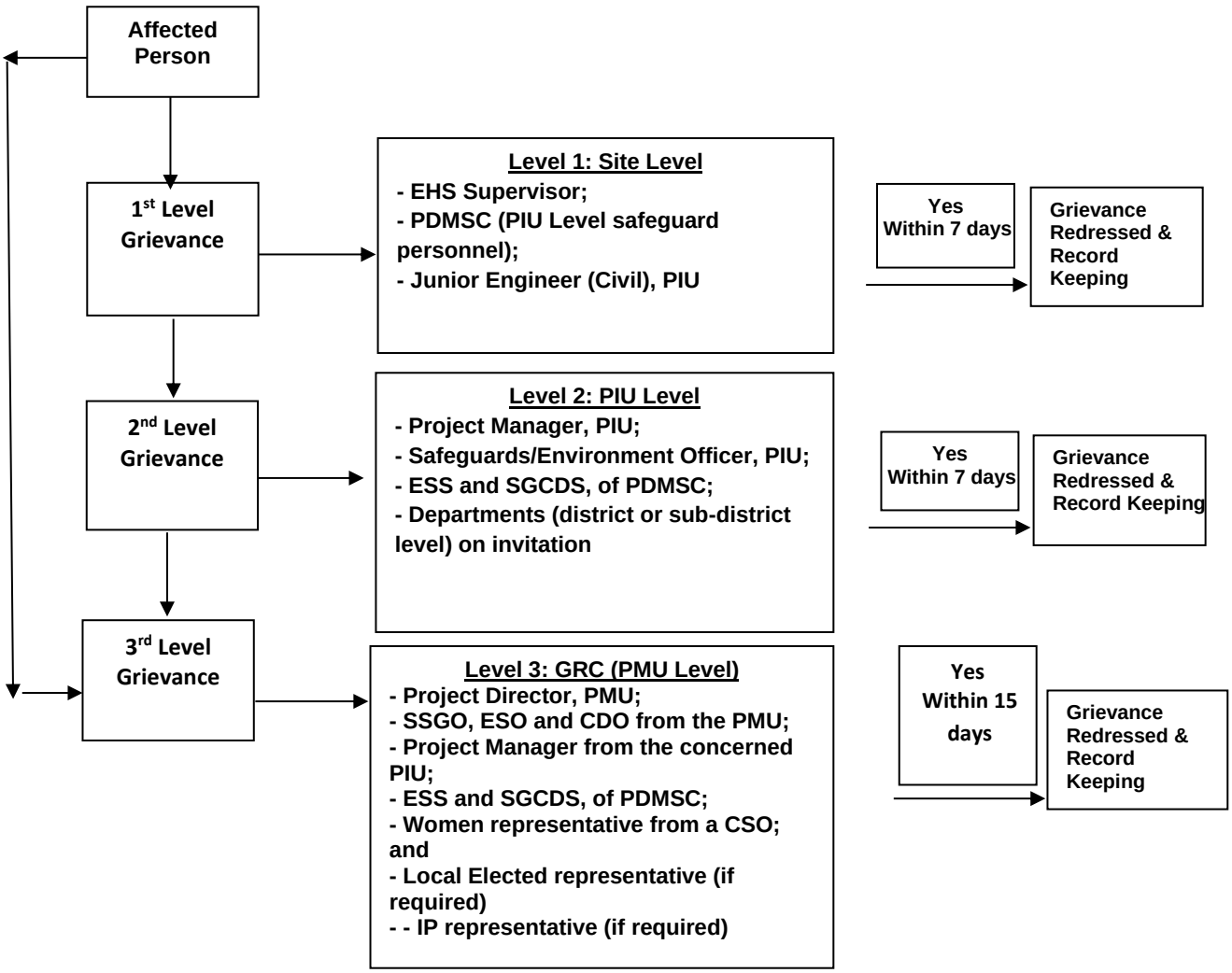
[32] Indigenous people representation in GRC as in case of any indigenous peoples impacts in the subproject area or the subproject is implemented in any scheduled areas or Integrated Tribal Development Projects (ITDP) blocks/tribal clusters; representative to be decided by PMU.

[33] The Authority admits grievance only with reference to the Land Acquisition and R&R issues under the RFCTLARRA, 2013.

135. The GRM notwithstanding, an aggrieved person shall have access to the country's legal system at any stage. This can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM.

136. The process of the project GRM is given in Figure 1.

Figure 1: Grievance Redressal Mechanism - (HPRDWILP)



CDO = Community Development Officer; CSO Civil Society Organization; ESO = Environmental Safeguard Officer ESS = Environmental Safeguard Specialist; GRC= Grievance Redressal Committee; IP=Indigenous People; PDMSC - Project Design, Management and Supervision Consultant; PIU = Project Implementation Unit; PMU = Project Management Unit; PM = Project Manager; SGCDS = Social, Gender and Community Development Specialist; SSGO = Social Safeguard and Gender Officer.

137. The timeframes within which to resolve the issues may be adjusted (to a maximum of 7 additional days at each level) accordingly during extraordinary circumstances, such as lockdowns or travel restrictions imposed by local or national governments due to the on-going COVID-19

pandemic. The adjustment will depend on the period of interruption during these events and will be decided upon by the PMU.

138. **Information Dissemination Methods about GRM**. Periodic community meetings will be held by PIUs, and PDMSC with affected communities to understand their concerns and help them through the process of grievance redress (including translation from local dialect/language, recording, and registering grievances of non-literate affected persons and explaining the process of grievance redress) if required. The above Grievance Redress Process will be discussed with the different stakeholders during stakeholder consultation meetings. These meetings will be held with affected persons and community members (beneficiaries) and the concerned local government representatives where civil works are proposed. The process and timelines for grievance redress and contact details of the persons responsible for grievance redress will be shared in the stakeholder meetings. Action taken in respect of all complaints will be communicated to the complainant by letter, over phone or e-mail or text messaging.

139. **Consultation Arrangements for GRM.** This will include group meetings and discussions with affected persons, to be announced in advance and conducted at the time of day agreed on with affected persons and conducted to address general/common grievances; and if required with the Environment/Social Specialist of PMU/PIU for one-on-one consultations. Non-literate affected persons/vulnerable affected persons will be assisted to understand the grievance redress process, at the site office of the contractor and at PIU level, the official appointed to receive grievances will assist the non-literate affected persons to register complaints and follow-up with actions at different stages in the process.

140. **Record Keeping.** Records of all grievances received, including contact details of complainant, date of receiving complaint/grievance, nature of grievance, agreed actions and measures, the date these were affected, and outcome will be kept by PIU. The number of grievances recorded and resolved, and the outcomes will be displayed/disclosed in the PIU office, and on the website of PMU, as well as reported in the semiannual social and environmental monitoring reports to be submitted to ADB. The Environmental Officer and the Social Safeguard Officer will be responsible for maintaining the grievance record.

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

142. **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.

143. **ADB Accountability Mechanism.** If the established GRM is not able to resolve the issue, the affected person can use the ADB Accountability Mechanism[34] through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters. Before submitting a complaint to the Accountability Mechanism, it is recommended that affected people make effort in good faith effort to resolve their problems by working with the concerned ADB operations department (in this case, the Indian Resident Mission (INRM)). Only after doing that, and if they

[34] Accountability Mechanism. http://www.adb.org/Accountability-Mechanism/default.asp.

are still dissatisfied, they could approach the Accountability Mechanism. The ADB Accountability Mechanism information will be included in the project-relevant information to be distributed to the affected communities, as part of the project GRM.

VI. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

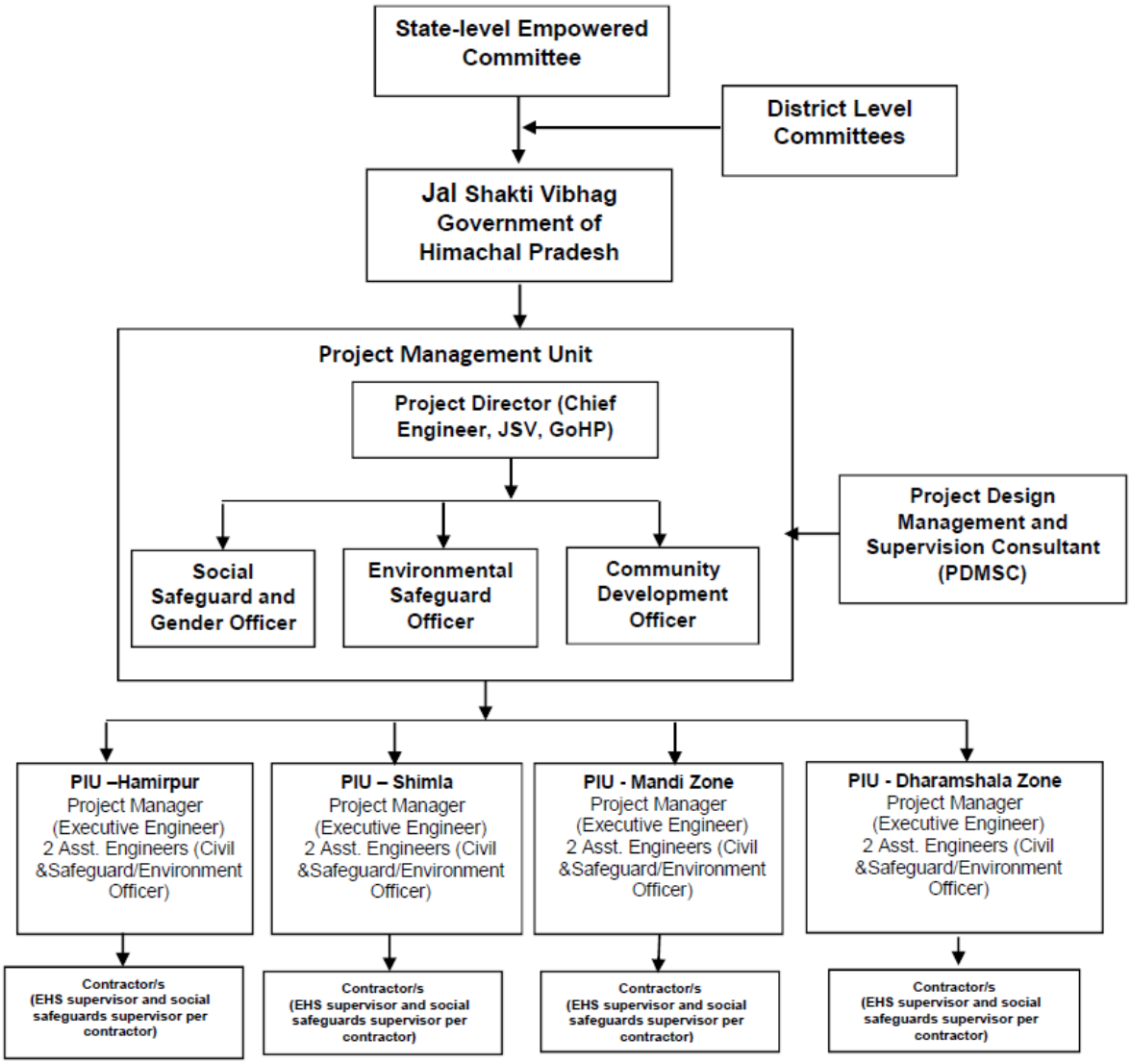
A. Implementation Arrangements

144. Jal Shakti Vibhag (JSV) will establish a central Project Management Unit (PMU) headed by a Project Director (PD) and will be supported by three Deputy Project Directors (DPD I, II and III). DPD-I and II will be responsible for procurement and contract management in two zones each (DPD-I -Hamirpur and Dharamshala, and DPD-II - Shimla and Mandi). DPD-III will be responsible for finance management of the project. PMU will be staffed with technical, administrative, finance, procurement, safeguards, gender, etc., Under the PMU, four Project Implementation Units (PIUs) will be established at zonal level (Hamirpur, Dharamshala, Shimla and Mandi), and each PIU will be headed by a Project Manager. PMU and PIUs will be supported by Project Design, Management and Supervision Consultant (PDMSC) team.

1. Safeguard Implementation Arrangement

145. PMU will be staffed with three safeguard officers: (i) Environment Safeguard Officer (ESO) (ii) Social Safeguard and Gender Officer (SSGO), and (iii) Community Development Officer (CDO) who will be responsible for compliance with the environmental, social safeguards and community related issues in program implementation respectively. Environment Safeguard Officer (ESO) and Social Safeguard and Gender Officer (SSGO) will have overall responsibility of safeguard implementation in compliance with ADB SPS 2009. At individual subproject level, Environment Safeguard Officer and Social Safeguard and Gender Officer will ensure that environmental assessment and social impact assessment is conducted, and IEE reports and corresponding EMPs and Social Management Plan (SMP) and Resettlement Plans (RP), due diligence reports (DDRs) are prepared and implemented, and the compliance, and corrective actions, are undertaken. Environmental Safeguard Specialist and Social Safeguards and Gender Specialist of the PDMSC will have primary responsibility of preparing the safeguard documents and supervising the EMP and resettlement plan implementation, while the Safeguards Officers at PMU will review, approve and oversee the compliance. At each PIU, a Safeguard/Environment Officer of Assistant Engineer rank, AE (SEO), will be responsible for safeguard implementation. AE(SEO) will oversee the safeguards implementation at PIU level and will be responsible for reporting to Environment Safeguard Officer and Social Safeguard and Gender Officer at PMU. The AE(SEO) will coordinate public consultation, information disclosure, regulatory clearances and approvals, EMP and resettlement plan implementation and grievance redress. Contractor will appoint an Environment, Health and Safety (EHS) supervisor to implement EMP; EHS supervisor of DBO Contractor will have responsibilities related to environmental and social safeguards compliance and grievance redress and management at field level.

Figure 2: Implementation Arrangement for Safeguard Implementation



2. Environmental Safeguards Compliance Responsibilities

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

(i) ensure subproject compliance with the statutory environmental requirements, ADB SPS 2009, EARF and loan covenants
(ii) ensure new and amended subprojects confirm with EARF exclusion criteria and subproject selection guidelines; review and approve subproject category

(iii) ensure that necessary environmental assessment studies are conducted, and IEEs including EMPs are prepared and submitted to ADB for approval and disclosure
(iv) ensure that IEEs including EMPs are included in bidding documents and contracts
(v) ensure that Health and Safety Plans including COVID-19 H&S Plans are included in bidding documents and civil works contracts
(vi) ensure that draft IEEs prepared based on preliminary designs are updated to reflect the final subproject detailed designs, and are approved by ADB and disclosed prior to commencement of works
(vii) coordinate with design engineers, to consider measures to avoid potential environmental impacts; ensure amended subproject designs/locations, if any, confirm with the subproject selection criteria
(viii) review and provide recommendations on the approval of site-specific EMPs (SEMPs) of contractors; ensure that no construction works are commenced until SEMPs are approved by PIU/PMU
(ix) ensure overall compliance with all national, state, and local government rules and regulations; ensure that approvals/permits/licenses are obtained in a timely manner
(x) ensure that construction works are not commenced until all applicable government clearances are obtained
Oversee and ensure that contractors and their subcontractors comply with labour legislations
(xi) provide oversight on environmental management aspects of the project; establish a system to monitor environmental safeguards including monitoring the indicators set out in the monitoring plan of the EMP
(xii) review, monitor and evaluate effectiveness with which the SEMPs, EMPs, and Health and Safety Plans are implemented, and recommend necessary corrective actions
(xiii) ensure that the IEEs including EMPs are updated in case of changes in detailed design that may occur during implementation phase
(xiv) confirm compliance with all measures and requirements set forth in the IEEs, the EMPs and any corrective or preventive actions set forth in safeguard monitoring reports
(xv) with support from PDMSC, consolidate quarterly monitoring reports from the PIUs and submit semi-annual environmental monitoring reports (SEMRs) to ADB
(xvi) ensure availability of budget for safeguards activities
(xvii) ensure adequate awareness campaigns, information disclosure among affected communities and timely disclosure of final IEEs/EMPs and SEMRs, including corrective action plans, if any, in project website and in a form accessible to the public
(xviii) assist in setting up of grievance redress mechanism (GRM), identifying grievance redressal committee (GRC) members and developing capacity of GRC members, PIUs, consultants, and contractors in addressing environmental safeguards-related issues/concerns/complaints
(xix) ensure any grievances brought about through the GRM are redressed in a timely manner
(xx) ensure timely disclosure of draft/updated IEEs/EMPs and SEMRs, including corrective action plans, if any, in project website and in a form accessible to the public
(xxi) organize periodic capacity building and training programs on safeguards for PMU, PIUs and contractors

147. **Project Implementation Units (PIU).** The PIUs will be responsible for the day-to-day activities of project implementation in the field and will have direct supervision of all contractors. Each PIU will be headed by a Project Manager, and assisted by a Safeguards Officer, will oversee, and monitor the day-to-day progress and implementation including environmental safeguards. PDMSC will place one environmental engineer in each PIU, With the support of PDMSC, Safeguards Officer will:

(i) Ensure compliance with government regulations and ADB requirements set forth in EARF, IEEs, including corresponding EMPs, and ADB SPS
(ii) confirm to ESO/PMU that IEEs and EMPs are up-to-date and reflect detailed engineering designs, or any change in location, alignment, or components
(iii) inform ESO/PMU promptly of any change in project locations / designs
(iv) Liaise with local offices of regulatory agencies in obtaining clearances /approvals; assist PMU for clearances obtained at town/city level; prior to award of contract; confirm PMU that all statutory clearances are in place
(v) Take necessary action for obtaining right of way prior to start of works
(vi) Review and approve contractor SEMPs
(vii) Oversee day-to-day implementation of SEMPs by contractors, including compliance with all government rules and regulations, and conduct regular site visits/inspections
(viii) Ensure that contractors and their subcontractors comply with labour legislations cited in IEEs and ADB's SPS Prohibited list requirements; ensure that workers are paid and treated according to the labor legislations
(ix) ensure contractors and subcontractors (a) comply with the measures forth in the IEEs, the EMPs, and any corrective or preventative actions set forth in a Semiannual Environmental Monitoring Report; (b) make available a budget for all such environmental and social measures; (c) provide the PIU and PMU with a written notice of any unanticipated environmental, impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP; (d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction
(x) ensure all workers are provided with OSH training prior to start of works and on a regular basis
(xi) ensure strict implementation of OSH requirements including but not limited to contractors' no personal protective equipment (PPE), no work policy
(xii) Recommend issuance of work construction work completion certification to the contractor upon verification of satisfactory post-construction clean-up.
(xiii) Review monthly reports from contractors on EMP implementation
(xiv) Prepare quarterly reports on all aspects concerning environmental assessment, management, and monitoring, and submit to ESO/PMU
(xv) Ensure continuous public consultation and awareness
(xvi) Coordinate grievance redress process and ensure timely actions by all parties; and
(xvii) Support all other environmental safeguards-related activities and tasks of the PMU as may be needed

148. **Project Design Management and Supervision Consultants (PDMSC)**. The PMU and PIUs will be supported by PDMSC's Environmental Expert at PMU level, and one support environmental engineer in each PIU. Environmental Expert will assist in preparing, updating,

reviewing, implementing, monitoring, and reporting of all tasks related to environmental safeguards. Environmental Engineer will assist in day-to-day monitoring of EMP implementation, regulatory compliance, grievance redress, reporting etc., Key tasks of Environmental Expert, assisted by Environmental Engineers at PIU level will include, but not limited to, the following:

(i) Ensure that subprojects comply with key exclusion criteria and subproject selection guidelines stipulated in this EARF
(ii) Conduct environmental categorization of subprojects per EARF, and validate when necessary to reflect project changes based on the final detailed design
(iii) Work closely with design teams to include environmental considerations in subproject location, design and technical specifications
(iv) Carry out environmental assessment (IEE) for the proposed subprojects and formulating environmental management plans (EMPs) for the different components of the civil works in line with ADB and national requirements
(v) Lead / assist PIU in public consultations and include inputs from the public consultation in the project design and EMP, and proper documentation in the IEEs
(vi) Ensure that the relevant provisions of EMPs, including costs of implementing the EMPs, are fully included in bid and contract documents, particularly in the bill of quantities and cost line items
(vii) Identify statutory clearance / permissions / approvals required and assist the PMU and PIU in obtaining them
(viii) Assist in including standards/conditions of regulatory clearances and consents, if any, in the project design
(ix) Review designs, bidding documents, BOQ, and safeguard documents to ensure environment, health and safety considerations including issues related to COVID 19 pandemic, are adequately covered and costed
(x) Calculate and provide the indicative cost estimate to implement EMPs, environmental monitoring programs, awareness programs, etc.
(xi) Update the subproject IEE studies and reports and EMPs to reflect any changes in subproject detailed design or implementation.; the IEE shall reflect the final subproject design; the IEE shall also be updated in case of any unanticipated impacts
(xii) Assisting with awareness campaigns for and meaningful consultations with affected communities
(xiii) Identify and conduct capacity building activities for PMU, PIU and contractors
(xiv) Ensure compliance with ADB's disclosure requirements as per the SPS
(xv) Assist PMU/PIUs in reviewing and approving contractor SEMPs, health and safety plan including Health and Safety COVID-19 Plan, and any other associated plans as required
(xvi) Carry out site verification of EMP/SEMP implementation on a regular basis, and monitor the implementation and ensure compliance by the Contractors including subcontractors
(xvii) Conduct regular monitoring and ensure that contractors and their subcontractors comply with labour legislations and ADB SPS Prohibited list requirements; ensure that workers are paid and treated according to the labor legislations
(xviii) 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

(xix) Assist the PIU in the preparation of environmental safeguards compliance/EMP implementation updates in the quarterly reports to PMU
(xx) Monitor required environmental parameters and prepare semi-annual environmental monitoring report per the requirement of ADB
(xxi) Identify training needs and implement capacity building activities on environmental safeguards for the PMU, PIU, contractors, and other stakeholders
(xxii) Assist PIU in establishing GRM for the Project
(xxiii) Assist PIU in grievance redress, advise the contractor on appropriate actions on grievances, ensure timely resolution and proper documentation
(xxiv) Support all other environmental safeguards-related activities and tasks of the PMU and PIUs as may be needed.

149. **Design, Build and Operate (DBO) contractor.** The approved draft IEEs and EMPs are to be included in bidding and contract documents and verified by the PIUs and PMU. The PMU and PIUs will ensure that bidding and contract documents include specific provisions requiring contractors to comply with: (i) all applicable laws and regulations relating to environment, health and safety; (ii) reinstate pathways, other local infrastructure, and agricultural land to at least to their pre-project condition upon the completion of construction; and (iii) all applicable labor laws and core labor standards on (a) prohibition of child labor as defined in national legislation, international treaties for construction and maintenance activities;(b) equal pay for equal work of equal value regardless of gender, ethnicity, or caste; (c) no discrimination in respect of employment and occupation; (d) allow freedom of association and effectively recognize the right to collective bargaining, and (e) 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.

150. The contractor 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 and PIU, for review and approval. a Site-specific EMP (SEMP) No works can commence until SEMP is approved by PMU/PIU. 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 PIU on a monthly basis. A copy of the EMP/approved SEMP will always be 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 supervisor are:

(i) Prepare SEMP and submit to PMU/PIU for approval prior to start of construction
(ii) Ensure implementation of SEMP and report to PIU/PDMSC on any new or unanticipated impacts; seek guidance from the PMU/PIU/PDMSC to address the new or unanticipated impact in accordance with the EARF, and ADB SPS
(iii) Ensure that necessary pre-construction and construction permits are obtained
(iv) Conduct orientation and daily briefing sessions to workers on environment, health and safety
(v) Ensure that appropriate worker facilities are provided at the workplace and labor camps as per the contractual provisions
(vi) Carry out site inspections on a regular basis and prepare site-inspection checklists/reports
(vii) Record EHS incidents and undertake remedial actions

(viii) Conduct environmental monitoring (air, noise, etc.,) as per the monitoring plan
(ix) Comply with labour legislations, and ensure that subcontractors also implement labor legislations requirements, through cascading of requirements to subcontractors—HR policy, labor management requirements, any worksite specific grievance redress mechanism.
(x) Prepare monthly EMP monitoring reports and submit to PIU
(xi) Work closely with PIU Safeguards Officer and PDMSC Environmental Engineer to ensure communities are aware of project-related impacts, mitigation measures, and GRM; and
(xii) Coordinate with the PIU and PDMSC on any grievances received and ensure that those are addressed in an effective and timely manner.

B. Institutional Capacity and Development

151. **Capacity Development**. Executing and implementing agencies need to have a sustained capacity to manage and monitor environmental safeguards. Although specialist consultants support will be available to PMU and PIUs, it is necessary to mainstream safeguards in day-to-day working. Therefore, PMU and PIUs require capacity building measures for (i) a better understanding of the project-related environmental issues; and (ii) to strengthen their role in preparation of IEE, implementation of mitigation measures, and subsequent monitoring. Trainings and awareness workshops are included in the project with the primary focus of enabling the PMU and PIU staff to understand impact assessments and carry out environmental monitoring and implement EMPs. After participating in such activities, the participants will be able to review environmental assessments, 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 documents and carry out necessary checks and balances during project implementation.

152. The PDMSC will facilitate the implementation of capacity building program for the PMU, PIU, and contractors, with specific topics on environmental safeguards such as but not limited to the list below. The contractors will be responsible for conducting site-specific/work-specific orientation on environmental safeguards for their workers prior to deployment to work sites. Typical modules would be as follows: (i) sensitization; (ii) introduction to environment and environmental considerations in water supply projects; (iii) review of IEEs and integration into the project detailed design; (iv) improved coordination within nodal departments; (v) monitoring and reporting system; and (vi) project GRM. The capacity building program will be participatory to the extent possible and will employ variety 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. Specific modules customized for the available skill set will be devised after assessing the capabilities of the target participants and the requirements of the project. The proposed training program along with the frequency of sessions, is presented in Table 11.

Table 11: Capacity Building Program on EMP Implementation

Sl. No.	Description	Suggested Training Method	Target Participants and Venue	Cost and Source of Funds
1	**Introduction and Sensitization to Environmental Issues (1 day)** - ADB Safeguards Policy Statement	Lecture and group activities	All staff and consultants involved in the project	PMU cost

Sl. No.	Description	Suggested Training Method	Target Participants and Venue	Cost and Source of Funds
	-EARF, subproject selection criteria, categorization etc., - Government of India and Government of Himachal Pradesh applicable environmental safeguard laws, regulations and policies including but not limited to core labor standards, OH and S, Covid -19 safety etc. - IEE preparation and EMP formulation -Source sustainability, impacts due to water abstraction and intake structures -Incorporation of EMP into the project design and contracts -Monitoring, reporting and corrective action planning		At PMU, Shimla	
2	P**reparing and implementing SEMP (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 (archeological) protocol - Traffic management plan - Waste management plan - Site clean-up & restoration	Lecture, group activities and case studies	All staff and consultants involved in the subproject All contractors immediately after mobilization of the contractor At four PIUs	PMU cost
3	**Contractors Orientation to Workers (1/2 day)** - Environment, health and safety in project construction (OHS, Covid-19 safety, core labor laws, spoils management, etc.)	Orientation via audio visual presentations, role play, and on-job training	Once before the start of work, and thereafter regular briefing every month once. Daily briefing on safety prior to start of work All workers (including unskilled laborers)	DBO Contractor s cost

Sl. No.	Description	Suggested Training Method	Target Participants and Venue	Cost and Source of Funds
4	Implementation and Monitoring of O&M phase EMP -Occupational health and safety -Pollution control -sludge management -Any others	Lecture, hands-on trainings	After completion of construction	PMU cost

C. Staffing and Budget

153. 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 and long-term surveys.

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

155. 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 JSV 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. Site specific assessment on biodiversity and heritage shall also be included in the IEEs where required.

156. The infrastructure involved in each scheme is generally straightforward and will take 2 years to build. 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 project officer (environment). The PDMSC environment safeguard specialist will also prepare, IEEs, DDRs or environmental reviews for new subprojects. The budget therefore includes the full cost of the environment specialist.

157. 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.

158. The operation phase mitigation measures are again of good operating practices, which will be the responsibility of the JSV. All monitoring during the operation and maintenance phase will be conducted by government regulatory agencies like HPSPCB as per their mandate therefore, there are no additional costs. The indicative costs of EARF implementation are shown in Table 12. An implementation period of 24 months is considered for the preparing following costs.

Table 12: 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 at PMU level	Responsible for environmental safeguards of the project	24 person months (spread over entire project implementation period)	300,000 per month	7,200,000	Remuneration and budget for travel covered in the PDMSC contract
PDMSC: Support Environmental Engineers – 4 nos (at four PIUs)	Responsible for day-to-day monitoring of EMP implementation, regulatory compliance, grievance redress, reporting etc.	48 person months for each Environmental Engineers (spread over entire project implementation period)	100,000 per month /person	19,200,000	Remuneration and budget for travel covered in the PDMSC contract
PMDSC – additional experts as needed (Heritage expert, Biodiversity expert etc)	Conduct baseline studies, assessment impacts and preparate management plans; guide PMU/PIU, consultants, and contractors on implementation and monitoring	12 person months	300,000 per month	3,600,000	Remuneration and budget for travel covered in the PDMSC contract
Contractor: with each contractor EHS supervisor – (Ten packages are proposed under HPDWSIP)	Responsible for implementation of EMP during civil works and operation and maintenance	24 person months for each EHS supervisor	50,000 per month/person	12,000,000	Remuneration and budget for travel covered Contractor's cost (included in project cost)
B. Administrative Costs					
Legislation, permits, and agreements, implementation of measures etc.,	Consent fee for WTPs, Septage Treatment Plants etc.	All subprojects	Lump sum	2,000,000	Included in the overall project cost
Forest clearance and compensatory afforestation	Fess for forest land diversion and compensatory afforestation	All subprojects	Lump sum	50,000,000	Included in the overall project cost
C. Environmental Management and Monitoring Costs					

Component	Description	Number	Cost Per Unit (INR)	Cost (INR)	Source of Funds
Ambient environmental monitoring	During preconstruction and construction	All subprojects	Lump sum	10,000,000	Contractor's cost (included in project cost)
Implementation of EMP measures	During preconstruction and construction	All subprojects	Lump sum	23,000,000	Contractor's cost (included in project cost)
E. 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	1,000,000	PIU costs – part of increment al administra tion
Capacity development in environmental safeguards	Awareness and training programs - venue and other arrangements	Training workshops to all program agencies	Lump sum	500,000	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	1,000,000 per year	PMU cost
				129,500,000	

VII. MONITORING AND REPORTING

159. 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 HPRDWILP. JSV 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, PIUs, and PDMSC will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome.

160. Prior to commencement of the work, the DBO contractor will submit a compliance report to PIU ensuring that all identified pre-construction environmental impact mitigation measures as detailed in the EMP will be undertaken. PIU with the assistance of the Safeguard/Environment Officer of Assistant Engineer rank AE (SEO)) and Environmental Safeguard Specialist (ESS) of PDMSC Consultant will review the report and thereafter PMU will allow commencement of works.

161. During construction, results from internal monitoring by the DBO contractor will be reflected in their monthly EMP implementation reports submitted to the PIU 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 AE (SEO) with the assistance of environmental specialist of PDMSC and submitted to PMU.

162. Quarterly report shall be prepared by PDMSC and PIU 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.

163. 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.

164. ADB will review project performance against the JSV's 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 JSV/PMU to ensure that adverse impacts and risks are mitigated, as planned and agreed with ADB;
(iv) work with JSV/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, taking into account the baseline conditions and the results of monitoring.

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

Appendix 1: Rapid Environmental Assessment Checklist– Water Supply

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

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

Country/Project Title:
Package No. and Description: _____

SN	Screening Question	Yes	No	Remarks
A	**Project Siting** **Is the project area**			
1	Densely populated?			
2	Heavy with development activities?			
3	Adjacent to or within any environmentally sensitive areas?			
4	Cultural heritage site			
5	Protected Area			
6	Wetland			
7	Mangrove			
8	Estuarine			
9	Buffer zone of protected area			
10	Special area for protecting biodiversity			
11	Bay			
B	**Potential Environmental Impacts** **With the project cause**			
1	Pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, soil erosion runoff?			
2	Impairment of historical/ cultural monuments/areas and loss/damage to these sites?			
3	Hazard of land subsidence caused by excessive ground water pumping?			
4	Social conflicts arising from displacement of communities?			
5	Conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?			
6	Unsatisfactory raw water supply (e.g., excessive pathogens or mineral constituents)?			
7	Delivery of unsafe water to distribution system?			
8	Inadequate protection of intake works or wells, leading to pollution of water supply?			
9	Over pumping of ground water, leading to salinization and ground subsidence?			
10	Excessive algal growth in storage reservoir?			
11	Increase in production of sewage beyond capabilities of community facilities?			

SN	Screening Question	Yes	No	Remarks
12	Inadequate disposal of sludge from water treatment plants?			
13	Inadequate buffer zone around pumping and treatment plants alleviates noise and other possible nuisances and protects facilities?			
14	Impairments associated with transmission lines and access roads?			
15	Health hazards arising from inadequate design of facilities for receiving, storing and handling of chlorine and other hazardous chemicals.			
16	Health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation?			
17	Dislocation or involuntary resettlement of people?			
18	Disproportionate impacts on the poor, women and children, indigenous Peoples or other vulnerable groups?			
19	Noise and dust from construction activities?			
20	Increased road traffic due to interference of construction activities?			
21	Continuing soil erosion/ silt runoff from construction operations?			
22	Delivery of unsafe water due to poor O&M treatment processes (especially MOWS accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?			
23	Delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?			
24	Accidental leakage of chlorine gas?			
25	Excessive abstraction of water affecting downstream water users?			
26	Competing uses of water?			
27	Increased sewage flow due to increased water supply			
28	increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant			
29	Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
30	Social conflicts if workers from other regions or countries are hired?			
31	Risks to community health and safety due to transport, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?			
32	Community safety risks due to both accidental and natural hazards, especially where structural elements or components of the project are accessible to the members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:
Sector: Urban Development
Subsector: Water Supply
Division/Department: SARD/SAUW

Screening Questions		Score	Remarks[35]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g., the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g., prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g., construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g., annual power production) of project output(s) (e.g., hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

providing a score of 1 in all responses) or a 2 in any single response will be categorized as high-risk project.

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

Appendix 2: Environmental Standards

Table 1: Drinking Water Standards

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

Parameter	Location[a]	NAAQS (µg/m^3)[b]	WHO Air Quality Guidelines (µg/m^3)		Applicable Per ADB SPS[e] (µg/m^3)
			Global Update [c] 2005	Second Edition 2000	
PM_{10}	Industrial Residential, Rural and Other Areas	60 (Annual) 100 (24-hr)	20 (Annual) 50 (24-hr)	-	20 (Annual) 50 (24-hr)
	Sensitive Area	60 (Annual) 100 (24-hr)	20 (Annual) 50 (24-hr)	-	20 (Annual) 50 (24-hr)
PM_{25}	Industrial Residential, Rural and Other Areas	40 (Annual) 60 (24-hr)	10 (Annual) 25 (24-hr)	-	10 (Annual) 25 (24-hr)
	Sensitive Area	40 (Annual) 60 (24-hr)	10 (Annual) 25 (24-hr)		10 (Annual) 25 (24-hr)
SO_2	Industrial Residential, Rural and Other Areas	50 (Annual) 80 (24-hr)	20 (24-hr) 500 (10-min)	-	50 (Annual) 20 (24-hr) 500 (10-min)
	Sensitive Area	20 (Annual) 80 (24-hr)	20 (24-hr) 500 (10-min)	-	20 (Annual) 20 (24-hr) 500 (10-min)
NO_2	Industrial Residential, Rural and Other Areas	40 (Annual) 80 (24-hr)	40 (Annual) 200 (1-hr)	-	40 (Annual) 80 (24-hr) 200 (1-hr)
	Sensitive Area	30 (Annual) 80 (24-hr)	40 (Annual) 200 (1-hr)	-	30 (Annual) 80 (24-hr) 200 (1-hr)
CO	Industrial Residential, Rural and Other Areas	2,000 (8-hr) 4,000 (1-hr)	-	10,000 (8-hr) 100,000 (15-min)	2,000 (8-hr) 4,000 (1-hr) 100,000 (15-min)
	Sensitive Area	2,000 (8-hr) 4,000 (1-hr)	-	10,000 (8-hr) 100,000 (15-min)	2,000 (8-hr) 4,000 (1-hr) 100,000 (15-min)
Ozone (O_3)	Industrial Residential, Rural and Other Areas	100 (8-hr) 180 (1-hr)	100 (8-hr)		100 (8-hr) 180 (1-hr)
	Sensitive Area	100 (8-hr) 180 (1-hr)	100 (8-hr)		100 (8-hr) 180 (1-hr)
Lead (Pb)	Industrial, Residential, Rural and Other Areas	0.5 (Annual) 1.0 (24-hr)		0.5 (Annual)	0.5 (Annual) 1.0 (24-hr)
	Sensitive Area	0.5 (Annual) 1.0 (24-hr)		0.5 (Annual)	0.5 (Annual) 1.0 (24-hr)
Ammonia (NH_3)	Industrial Residential,	100 (Annual) 400 (24-hr)			100 (Annual) 400 (24-hr)

Parameter	Location[a]	NAAQS (µg/m^3)[b]	WHO Air Quality Guidelines (µg/m^3)		Applicable Per ADB SPS[e] (µg/m^3)
			Global Update [c] 2005	Second Edition 2000	
	Rural and Other Areas				
	Sensitive Area	100 (Annual) 400 (24-hr)			100 (Annual) 400 (24-hr)
Benzene (C_6H_6)	Industrial Residential, Rural and Other Areas	5 (Annual)			5 (Annual)
	Sensitive Area	5 (Annual)			5 (Annual)
Benzo(o)pyrene (BaP) particulate phase only	Industrial Residential, Rural and Other Areas	0.001 (Annual)			0.001 (Annual)
	Sensitive Area	0.001 (Annual)			0.001 (Annual)
Arsenic (As)	Industrial Residential, Rural and Other Areas	0.006 (Annual)			0.006 (Annual)
	Sensitive Area	0.006 (Annual)			0.006 (Annual)
Nickel (Ni)	Industrial Residential, Rural and Other Areas	0.02 (Annual)			0.02 (Annual)
	Sensitive Area	0.02 (Annual)			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 Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide. *Global update 2005*. WHO. 2006
[d] Air Quality Guidelines for Europe Second Edition. WHO 2000.
[e] 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.

Table 3: 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	Night time
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.

Noise Limits for DG Set

Environment (Protection) Second Amendment Rules vide GSR 371(E), dated 17th May 2002 at serial no.94 and its amendments vide GSR No 520(E) dated 1st July 2003; GSR 448(E), dated 12th July 2004; GSR 315(E) dated 16th May 2005; GSR 464(E) dated 7th August 2006; GSR 566(E) dated 29th August 2007 and GSR 752(E) dated 24th October 2008; G.S.R. 215 (E), dated 15th March, 2011 under the Environment (Protection) Act, 1986)

Noise Limit for Generator Sets run with Diesel

1. Noise limit for diesel generator sets (upto 1000 KVA) manufactured on or after the 1st January, 2005

The maximum permissible sound pressure level for new diesel generator (DG) sets with rated capacity upto 1000 KVA, manufactured on or after the 1st January, 2005 shall be 75 dB(A) at 1 metre from the enclosure surface.

The diesel generator sets should be provided with integral acoustic enclosure at the manufacturing stage itself.

The implementation of noise limit for these diesel generator sets shall be regulated as given in paragraph 3 below.

2. Noise limit for DG sets not covered by paragraph 1.

Noise limits for diesel generator sets not covered by paragraph 1, shall be as follows:-

2.1 Noise from DG set shall be controlled by providing an acoustic enclosure or by treating the room acoustically, at the users end.

2.2 The acoustic enclosure or acoustic treatment of the room shall be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side (if the actual ambient noise is on the higher side, it may not be possible to check the performance of the acoustic enclosure/acoustic treatment. Under such circumstances the performance may be checked for noise reduction upto actual ambient noise level, preferably, in the night time). The measurement for Insertion Loss may be done at different points at 0.5 m from the acoustic enclosure/ room, then averaged.

2.3 The DG set shall be provided with proper exhaust muffler with insertion loss of minimum 25 dB (A).

2.4 These limits shall be regulated by the State Pollution Control Boards and the State Pollution Control Committees.

2.5 Guidelines for the manufacturers/ users of Diesel Generator sets shall be as under:-

01. The manufacturer shall offer to the user a standard acoustic enclosure of 25 dB (A) insertion loss and also a suitable exhaust muffler with insertion loss of 25 dB(A).
02. The user shall make efforts to bring down the noise levels due to the DG set, outside his premises, within the ambient noise requirements by proper citing and control measures.
03. Installation of DG set must be strictly in compliance with the recommendations of the DG set manufacturer.
04. A proper routine and preventive maintenance procedure for the DG set should be set and followed in consultation with the DG set manufacturer which would help prevent noise levels of the DG set from deteriorating with use.

3.0 Limits of Noise for DG Sets (upto 1000 KVA) Manufactured on or after the 1st January, 2005

3.1 Applicability

01. These rules apply to DG sets upto 1000 KVA rated output, manufactured or imported in India, on or after 1st January, 2005.

02. These rules shall not apply to –

a) DG sets manufactured or imported for the purpose of exports outside India; and

b) DG sets intended for the purpose of sample and not for sale in India.

3.2 Requirement of Certification

Every manufacturer or assembler or importer (hereinafter referred to as the "manufacturer") of DG set (hereinafter referred to as "product") to which these regulations apply must have valid certificates of Type Approval and also valid certificates of Conformity of Production for each year, for all the product models being manufactured or assembled or imported from 1st January, 2005 with the noise limit specified in paragraph 1.

3.3 Sale, import or use of DG sets not complying with the rules prohibited

No person shall sell, import or use of a product model, which is not having a valid Type Approval Certificate and Conformity of Production certificate.

Table 4: 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 Wildlife 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 5: 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 Monoxide; g/kmhr = grams per kilometer-hour; HC = Hydrocarbons; NOx = oxides of nitrogen; PM = particulates matter

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: 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 5: List of Centrally Protected and State Protected Monuments in Himachal Pradesh

A. List of Centrally Protected Monuments in Himachal Pradesh

Monuments of National Importance (ASI) in 7 districts of Himachal Pradesh

Sl. No.	Name of the Monument / Site	Location	District
1	Ganesh temple	Bharmaur	Chamba
2	Laxmi (Lakhana) Devi temple	Bharmaur	Chamba
3	Mani Mahesh temple	Bharmaur	Chamba
4	Nar Singh temple	Bharmaur	Chamba
5	Shri Bajreshwari temple, Badrinath	Chamba	Chamba
6	Shri Bansi Gopal temple	Chamba	Chamba
7	Shri Chamunda temple	Chamba	Chamba
8	Shri Hari Ram temple	Chamba	Chamba
9	Shri Laxmi Narian group of temple in Mohalla Hathnala	Chamba	Chamba
10	Rock sculptures depicting Sita Ram, Hanuman etc.	Chamba	Chamba
11	Shri Sita Ram temple in Mohalla Bangota	Chamba	Chamba
12	Shri Shakti Devi temple	Chhatrari	Chamba
13	Champavati Temple, Himachal Pradesh	Chamba	Chamba
14	Katoch Palace	Tira Sujanpur	Hamirpur
15	Narbadeshwar temple including the paintings therein as well as subsidiary shrines within the compound wall	Sujanpur	Hamirpur
16	Temple	Ashapur	Kangra
17	Temple of Baijnath	Baijnath	Kangra
18	Temple of Sidhnath	Baijnath	Kangra
19	Buddhist stupa known as Bhim-ka-Tila	Chaitru	Kangra
20	Ruined fort	Kangra	Kangra
21	Rock inscription	Khanyara	Kangra
22	Fort	Kotla	Kangra
23	Rock cut temple with sculptures	Masrur	Kangra
24	Ruined fort	Nurpur	Kangra
25	Rock inscription	Pathiar	Kangra
26	Lord Eligin's tomb	Dharamshala	Kangra
27	Temple of Basheshar Mahadev at Hat	Bajaura	Kullu
28	Temple of Gauri Shankar with sculptures	Dasa	Kullu
29	A Miniature stone shiva temple	Jagatsukh	Kullu
30	Temple of Gauri Shankar with sculptures	Naggar	Kullu
31	Hidamba Devi temple	Manali	Kullu
32	Barsela Monuments	Mandi	Mandi
33	Panchvaktra Temple	Mandi	Mandi
34	Trilokinath Temple	Mandi	Mandi
35	Ardhnareshwar Templef	Mandi	Mandi

Sl. No.	Name of the Monument / Site	Location	District
36	Shiva temple	Mangarh	Sirmaur
37	Vice Regal Lodge (Rashtrapati Niwas)	Shimla	Shimla

Source: website of the Archaeological Survey of India

B. List of State Protected Protected Monuments in Himachal Pradesh

Sl. No.	Name of monument(s)	District
1.	Chamunda Temple	Chamba
2.	Docha Mocha Temple	Kullu
3.	Gauri Shankar Temple	Mandi
4.	Surya Narayana Temple	Shimla

Source: website of the Archaeological Survey of India

Appendix 6: Himachal Pradesh State Water Policy-2013

HIMACHAL PRADESH STATE WATER POLICY-2013

1. PREAMBLE

1.1 Water is the elixir of life. Water, as a resource is one and indivisible: rainfall, river waters, surface ponds and lakes and ground water are all part of one system. It is part of a larger ecological system and vital to the essential environment for sustaining all life forms. It is a basic need for all life forms. Therefore, water must be managed in the most optimal manner so that consumption and development needs are met on a sustainable basis for ensuring its availability for our progeny.

1.2 In Himachal Pradesh availability of water is highly uneven in both space and time. Precipitation is confined to only about three or four months in a year and varies from about 600 mm in Lahaul & Spiti district to around 3200 mm in Dharamshala District Kangra. However, in spite of heavy rain and snow during the rainy season and winter the summer months are periods of water scarcity in many areas as the flow in the rivers and nallahs is quite low and traditional sources also dry up.

1.3 Therefore, the usage of water as a scarce and precious resource has to be planned, along with conservation and management measures, on an integrated, environmentally sound and sustainable basis, keeping in view the socio-economic needs of the community.

2. NEED FOR A WATER POLICY

2.1 Use of water has many socio-economic aspects and complex issues of equity and social justice as also environmental sustainability, public health concerns and development. Complex issues in regard to water usage and distribution have to be addressed systematically.

2.2 Expansion of economic activity inevitably leads to increasing demands for water for diverse purposes: **domestic, commercial, industrial, irrigation, hydro- power generation and recreation, etc.**

2.3 The domestic and industrial water demand in rural areas is expected to increase sharply as the development programmes improve economic conditions and **more industries come up there. Impounding of water for hydropower generation will also increase as** the potential in this sector is harnessed. Disputes in sharing of water between individuals and or communities hamper the utilization of water through scientific planning on basin/sub basin basis.

2.4 The development and exploitation of the groundwater resources in the State have raised concerns about the need for scientific management, conservation **& regulatory mechanisms.**

2.5 Water quality is impacted by untreated or inadequately treated industrial effluents and sewage flowing into nallahs and rivers or affecting the surface and ground water. Improvements in existing strategies, innovation of new techniques resting on a strong science and technology base are needed to eliminate the pollution of surface and ground water resources, to restore the pristine quality of former years.

2.6 All such factors underscore the need for the utmost efficiency in water utilization on sustainable basis and public awareness of the importance of conservation and maintenance of water quality. Common policies and strategies are necessary to address these issues.

3 PRIORITIES IN STATE WATER POLICY 2013

3.1 Water resources shall be held in public trust for the people & the State is obliged to protect the water sources as a trustee for benefit of all. However, overriding ownership rights over water sources rest with the State as a public trustee even if some of the functions of the state in relation to water are entrusted to any public or private agency.

3.2 Water resources available to the State need to be mapped & brought within the category of utilizable resources to the maximum possible extent.

3.3 Utilisation of available water resources to meet drinking water needs and irrigation requirements should also promote conservation and engender community participation including payment for use of water. Water scarce neighborhoods will enjoy priority entitlement to avail the water available in adjoining areas for meeting their drinking water needs.

3.4 Harnessing of water for commercial, industrial and hydro- power generation usage takes place in a sustainable manner with due regard to maintenance of water quality.

3.5 Water resources development and management will have to be planned for a hydrological unit such as drainage basin as a whole or for a sub-basin, multi-sectorally, taking into account surface and ground water for sustainable use incorporating quantity and quality aspects as well as environmental and sustainability considerations.

3.6 Promoting water shed management through extensive soil conservation, catchment-area treatment, preservation of forests and increasing the forest cover and the construction of check-dams and trenching along with efforts to conserve the precipitation in the catchment area itself.

3.7 Enhancing the capabilities of the community to adopt climate resilient technological options. Increasing water harvesting, storage and recycling and its reuse through climate resilient technological options such as dual plumbing. Similarly, industrial processes should be made more water efficient.

3.8 Integrating mandatorily, agricultural strategies, cropping patterns and improved water application methods with all irrigation schemes to enhance the water use efficiency, as also, the capability for dealing with variability because of climate change.

4 WATER ALLOCATION PRIORITIES

4.1 In the planning and operation of systems, water allocation priorities would be broadly as follows:

-Drinking water **& Sanitation**

-Irrigation

-Ecology/ aforestation/biodiversity/tourism

-Hydro-power

-Agro-industries

- Non-agro-based industries.

-Navigation and other uses.

However, this is subject to modification if warranted by special considerations in any area/region.

5 DRINKING WATER & SANITATION

5.1 The state recognizes that every individual has a right to a minimum quantity of potable water for essential health & hygiene & within easy reach of the household. Needs of human beings and domestic animals shall be the first charge on any available source of water.

5.2 Adequate, safe and sustainable drinking water facilities will be provided to the entire population both in urban and rural areas throughout the year as per relevant BIS Standards/CPHEEO Manual.

5.3 **There shall be endeavor to supply water on 24X7 basis subject to the community accepting metered payment for the same as per fixed tariffs.**

5.4 Use of Water ATMs at places of mass public congregation like temples, fairs etc. will be promoted so as to ensure availability of quality water. The government would endeavour to progressively convert all public water stand posts into automated 'water on demand' posts.

5.5 Implementation of a participatory demand driven approach will ensure that the public obtains the level of service they desire and can afford to pay for through the mechanism of a tariff policy.

5.6 Monitoring and surveillance of the quality of drinking water is of utmost importance. Efforts will be made to utilize IT tools to exercise remote oversight over the operation of water supply schemes as well as quality of water supplied.

5.7 A "Catchment Area Approach" shall be adopted by involving grass root level educational and technical institutions in utilizing existing resources and strengthening them by providing additional technical and financial support for their activities in this area.

5.8 Urban water supply and sewage treatment schemes would need to be integrated and executed simultaneously. Water supply bills should include sewerage charges.

5.9 Sewerage plans shall be drawn up for all urban and rural communities. The State aspires to mandatorily connect all households to sewerage networks. Safe disposal of sewage shall be promoted and establishment of STPs in rural areas and their O&M shall be suitably incentivized.

6 IRRIGATION

6.1 The major consumptive use of water in the State has been for irrigation. The gross irrigation potential of the State is estimated to be 3.35 lakh hectare, while the irrigation potential created has reached 2.56 lakh hectare by September 2013. Production of food grains in H.P. has increased from around 0.7 million tonnes in the year 1966-67 to about 1.45 million tonnes in the year 2012-13. This will have to be raised to around 2.4 million tonnes by the year 2025 AD to meet the needs of the projected population of 92.25 lakh. The production of fruits and vegetables has increased from 0.05 million tonnes (1966-67) each to 1.09 and 1.35 million tonnes (2012-13) respectively. We need to cover the balance area of 0.84 lakh hectare by irrigation schemes so that the productivity of the culturable land area of the State improves, food grain output increases and through diversion of the land to cultivation of vegetable, horticulture and cash crops the economic prosperity of the agriculturists is ensured and enhanced.

6.2 All irrigation schemes are to progressively move away from flood irrigation and open channel irrigation to micro irrigation **and piped supply** except in areas where this is not feasible technologically.

6.3 Formulation of proposals for irrigation schemes should be preceded by extensive engagement with the user community(s) to arrive at a common understanding about the operation & maintenance of the scheme(s), the obligations of all stakeholders, including apportionment of operational expenses. Formation of Krishak Vikas Sanghs (KVS) and the inputs to be provided by other line department such as agriculture, horticulture, fisheries and animal husbandry shall be an essential component of the scheme's DPR.

6.4 All schemes of the Irrigation department shall be progressively automated and powered by renewable sources of energy (eg Solar) to the extent possible. Operation of these schemes shall be progressively outsourced through the Krishak Vikas Sanghs (KVS's) with the latter being allowed to retain a portion of the user charges for operating & maintaining the scheme(s).

6.5 The age old method of determining abiana charges shall be replaced by a more scientific system of billing based on the irrigation potential created.

7 PROJECT PLANNING AND MANAGEMENT:

7.1 Water resource development projects should as far as possible be planned and developed as multipurpose projects but provision for drinking water shall be a primary consideration. There should be an integrated and multi-disciplinary approach to the planning, formulation, clearance and implementation of projects, including catchment area treatment and management, environmental and ecological aspects, the rehabilitation of affected people and command area development. Following points shall be considered while framing the project: -

a) Pre & post impact of project on human lives, occupations & environment etc.

b) Effect on ecological balance & compensatory measures if required.

c) Environment impact assessment preferably by an independent agency.

d) Economic Evaluation & Socio economic impact

e) Monitoring mechanism

f) Analysis of water Foot prints

g) Rain water harvesting & Reuse of Waste water

7.2 Besides, in projects for hydropower generation involving impounding of water, adequate water shall be released round the year to meet the needs of downstream users. The sustainability evaluation of the Project shall determine "Environmental Discharge" to be prescribed for the Project, which shall not be less than 15% of the available discharge at any given time. In forest areas the extraction of water shall be planned keeping in view the needs of the flora and fauna of the area. The involvement and participation of beneficiaries and other stakeholders will be encouraged at the project planning stage itself.

7.3 Rivers and other water bodies should be considered for development for navigation/Tourism as far as possible and all multipurpose projects over water bodies should keep navigation/Tourism in mind right from the planning stage.

7.4 Special efforts should be made to investigate and formulate projects either in or for the benefit of backward areas and areas inhabited specially disadvantaged groups such as the socially weak and persons belonging to the scheduled castes and scheduled tribes. In other areas also, project planning should pay special attention to the needs of the weaker sections of society.

7.5 Project financing should be structured to incentivize efficient & economic use of water & facilitate early completion of ongoing projects.

7.6 Industries should be encouraged for recovery of industrial pollutants and their recycling / reuse, which are otherwise capital intensive. Subsidies and/or incentives may be offered for the same.

8 GROUND WATER RECHARGE:

8.1 There shall be a periodical reassessment of the ground water potential taking into consideration the quality of that available and economic viability of its extraction.

8.2 Exploitation of ground water resources shall be so regulated as not to exceed the recharging possibilities, as also to ensure social equity.

8.3 Ground water recharge projects will be developed and implemented for improving both the quality and availability of ground water resources.

8.4 The hand pumps programme of the State shall be progressively re-oriented towards off road sites and to areas where ground water recharge schemes have been implemented.. All existing handpumps shall be GIS mapped and maintained/operated through the local PRI's.

9 WATER QUALITY:

9.1 **Water quality parameters for different uses such as drinking, other domestic uses, livestock, irrigation, industries etc. shall be specified/notified by the competent authority & shall continuously be reviewed with a view to effecting improvement in water quality. The quality of both surface & ground water shall be regularly monitored.**

9.2 The industrial units producing effluents/wastewater should have their own effluent systems & the effluent should not be discharged into the municipal sewer and/or disposed on land and/or water without meeting the appropriate effluent standards.

10 CONSERVATION OF WATER

10.1 Efficiency of utilization in all the diverse uses of water should be ensured and awareness of water as a scarce resource should be fostered. Consciousness about conservation should be promoted through education, regulation, incentives and disincentives.

10.2 Water resources should be conserved and the availability augmented by maximizing retention in the catchment area, minimizing pollution and avoiding wastage. For this, measures like selective lining of the conveyance systems, modernization and rehabilitation of existing water distribution systems roof top rain water harvesting, recycling, and re-use of treated effluent water, and new techniques like drip and sprinkler irrigation may be promoted, wherever feasible.

10.3 Reforms and progressive measures for innovations, efficient utilization of water resources, their conservation and rejuvenation would be proactively encouraged and appropriately incentivized.

11 WATER AUDIT & ACCOUNTABILITY:

11.1 Taking into account the fact that substantial losses of raw and treated water take place between the bulk storage, distribution and usage points thereby reducing availability to the ultimate users and financial losses to the supplying agencies as well as giving rise to deficiency in service and dissatisfaction with the public services, audit of the working of systems shall be carried out periodically in accordance with the guide lines for water audit and water conservation and rectification measures initiated where necessary.

11.2 The Citizen's Charter developed under the Public Services Guarantee Act with a view to guaranteeing efficiency, transparency and accountability in the delivery of drinking water and irrigation services will be administered proactively.

12 PARTICIPATORY APPROACH:

12.1 **Water is a common pool resource & shall be managed, protected & preserved as such by the community based institutions. Water resources projects and services should be managed** in a manner that promotes a participatory approach and involves local communities and stakeholders, including women, in the management of water resources, in an effective and decisive manner in various aspects of planning, design, development and management of the water related schemes including recovery of water user charges.

12.2 Necessary legal and institutional changes shall be made at various levels for the purpose, duly ensuring more meaningful decision making roles for women. Water Users' Associations and the local bodies such as municipalities and gram panchayats shall particularly be involved in the operation, maintenance and the management of water related infrastructure /facilities at appropriate levels, progressively, with a view to eventually transfer the management of such facilities to the user groups/local bodies.

13 CONFLICT RESOLUTION:

13.1 Guided by the traditional individual and community entitlements to water use enshrined in the Wazib-ul-arz (record of customary rights) 'Water Adalats' may be devised as a conflict resolution mechanism under the aegis of the local PRIs.

14 INSTITUTIONAL MECHANISMS:

14.1 All existing legislation governing the use of water shall be reviewed and appropriately modified for devolving necessary authority to the lower tiers of the Government to deal with the local water situation.

14.2 Such legislation would recognize water not only as a scarce resource but also a sustainer of life and ecology.

14.3 Age old regulations pertaining to the use of water would be replaced by modern principals of water use efficiency, conservation, micro irrigation and recycling.

14.4 **The State Water Management Board would be restructured as a forum at the state level to deliberate upon issues relating to water and evolve consensus, co-operation and reconciliation amongst stakeholders.**

15 PUBLIC PRIVATE PARTNERSHIPS

15.1**For improved service delivery on sustainable basis & optimum utilization of water supply capacity, the State Governments / urban local bodies may associate private sector in public private partnership (PPP) mode with penalties for failure, under regulatory control on prices charged and service standards with full accountability**

to democratically elected local bodies on a performance based management contract.

15.2 Once private sector participation in the delivery of services in the water sector becomes well entrenched in the State, a regulatory authority may need to be established to regulate use of water and pricing of services.

16 INFORMATION SYSTEMS:

16.1 A well developed information system, for water related data **including data about snow & glaciers, evaporation, erosion, sedimentation etc.** in its entirety, at the State level is a prime requisite for resource planning. A standardized state information system should be established with a network of data banks and data bases **for free exchange of information**, integrating the State and Central level agencies and improving the quality of data collection and analysis.

16.2 Apart from the data regarding water availability and actual usage the system may be equipped to provide reliable projections of demand of water for diverse purposes along with availability in different areas of the State.

16.3 A State Water Informatics Center should be established to collect, collate and process hydrologic data regularly from all over the state, conduct the preliminary processing, and maintain in open and transparent manner on a GIS platform.

17 RESETTLEMENT AND REHABILITATION:

17.1 Optimal use of water resources necessitates construction of storages and the consequent resettlement and rehabilitation of the displaced population. As far as possible, large storages shall be avoided and the State shall evolve its resettlement and rehabilitation policy taking into account the local conditions, so that displaced persons are also able to share the benefits of the projects. Careful planning shall be ensured so that the project construction and rehabilitation of affected families proceeds simultaneously and smoothly.

18 FINANCIAL AND PHYSICAL SUSTAINABILITY:

18.1 Tariff structures would need to be gradually restructured so as to cover operational expenses and also to provide for cross-subsidisation for poor and marginal farmers probably through a differential tariff scheme.

18.2 All linked inter-departmental financial resources available shall be pooled and the nodal department would facilitate further leveraging of resources for raising funds for capital investment. A revolving fund may be created to fund prioritized activities in select areas.

18.3 There is an urgent need of a shift from the emphasis on the development and expansion of water resource infrastructure, to improvement of the performance of the existing water resource facilities. Therefore, allocation of funds under the water resources sector would need to be re-prioritized to ensure that needs for development as well as operation and maintenance of the facilities are met in an equitable and sustainable manner.

19 FLOOD CONTROL & MANAGEMENT:

19.1 A master plan for flood control and **disaster management** for each flood prone basin shall be prepared.

19.2 Adequate flood cushion should be provided in water storage projects, wherever feasible, to facilitate better flood management. In highly flood prone areas, flood control may be given overriding consideration in reservoir regulation policy even at the cost of sacrificing some irrigation or power benefits.

19.3 While physical flood protection works **like channelisation of rivers/Khads is being done in the state** the construction of embankments, spurs and dykes will continue to be necessary. Increased emphasis should be laid on non-structural measures such as flood forecasting and warning, flood plain zoning and flood proofing for the minimization of losses and to reduce the recurring expenditure on flood relief measures.

19.4 The flood forecasting activities should be modernized, value added and extended to uncovered areas. Inflow forecasting to reservoirs should be instituted for their effective regulation.

19.5 While deciding the location of new structures or relocation of old structures, it shall be ensured that these are preferably located beyond the HFL/Flood zone, however in case it is not possible to do so adequate flood protection measures shall be provided for the safety of these structures.

20 LAND EROSION BY RIVERS AND TRIBUTARIES:

20.1 The erosion of land by rivers should be minimized by the suitable cost effective measures by construction of **revetments, spurs, embankments, etc. & also construction of rain water harvesting structures should be encouraged to check**

soil erosion and flash floods. The State shall undertake steps to ensure that indiscriminate occupation and exploitation of land near the river banks is discouraged. Economic activity on river banks and beds must be properly regulated.

21 DROUGHT PRONE AREA DEVELOPMENT:

21.1 **Although the state has made huge strides in mitigating the water problem in Drought-prone areas by constructing sustainable water supply & irrigation schemes however in any new identified drought prone area the Relief works undertaken for providing employment to drought affected populations should preferably be aimed at drought proofing of the affected area.**

22 MAINTENANCE AND MODERNIZATION:

22.1 Structures and systems created for water resource management should be properly maintained in good health. Appropriate annual budgetary provisions should be made for this purpose. Preventive maintenance shall be given due attention for reducing overall maintenance cost, optimizing water use and making projects sustainable. There should be a regular monitoring of structures and systems and necessary rehabilitation and modernization programs should be undertaken.

22.2 **Norms for maintenance of water supply and irrigation schemes especially regarding change of pipe lines, change of machinery etc. shall be prepared. In order to minimise the maintenance cost of lift schemes automation & use of solar energy pumps shall be encouraged.**

23 SCIENCE & TECHNOLOGY:

23.1 For effective and economical management of our water resources, the frontiers of knowledge need to be pushed forward in several directions by intensifying research efforts in various areas **such as hydrology, water harvesting/recycling & its conservation, water quality, design of structures, economical/efficient management of water in both water supply & irrigation, use of new eco friendly construction material/construction practices and IT enabled monitoring etc.**

23.2 **The State shall encourage continuing research and advancement in technology for efficient implementation of innovative technology under local conditions.**

23.3 **It is necessary to give adequate grants to the departments to update technology, design practices, planning and management practices, preparation of annual water balances and accounts for the site and basin, preparation of hydrologic balances for water systems, benchmarking and performance evaluation.**

24 HUMAN RESOURCES DEVELOPMENT (TRAINING)

24.1 A perspective plan for up gradation of human resources shall be an integral part of water resources development. This shall include training in information systems, sectoral planning, project planning and formulation, project management, operation of projects and their physical structures and systems and the management of the water distribution systems. The training should extend to all the categories of personnel involved in these activities as also the farmers and other user groups from time to time. Liberal use of the Skill Upgradation Scheme of the State should also be made towards achieving this objective.

24.2 Research in water policy should also be encouraged by the technical education institutions of the State to evaluate impacts of policy decisions and to evolve policy directives for changing scenario of water resources.

24.3 To meet the needs of the skilled manpower in the water sector, regular training and academic courses in water management should be promoted. These training and academic institutions should be regularly updated by developing infrastructure and promoting applied research, which would help to improve the current procedures of analysis and informed decision making in the line departments and by the community.

25 Conclusion:

25.1 In view of the vital importance of water for the sustenance of human and animal life, for maintaining ecological balance and for economic and developmental activities of all kinds, and considering its increasing scarcity, the planning and management of this resource and its optimal, economical and equitable use is a matter of utmost urgency. Concerns of the community need to be taken into account for water resources development and management. The success of the State water policy will depend on evolving and maintaining a consensus and commitment to its underlying principles and objectives.

Appendix 7: Salient Features of Major Labour Laws Applicable to Establishments Engaged in Construction of Civil Works

(i) Workmen Compensation Act, 1923 - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

(ii) Payment of Gratuity Act, 1972 - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

(iii) Employees' PF and Miscellaneous Provisions Act, 1952 - The Act provides for monthly contributions by the employer plus workers @10 % or 8.33 %. The benefits payable under the Act are: (a) Pension or family pension on retirement or death as the case may be;

(a) Deposit linked insurance on the death in harness of the worker;
(b) Payment of PF accumulation on retirement/death etc.

(iv) Maternity Benefit Act, 1951 - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(v) Contract Labor (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.

(vi) 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 and Runways are scheduled employment.

(vii) Payment of Wages Act, 1936 - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

(viii) 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.

(ix) Payment of Bonus Act, 1965 - The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33 % of wages and maximum of 20 % of wages to employees drawing Rs.3500/- per month or less. The bonus to be paid to employees getting Rs.2500/- per month or above up to Rs.3500/- per month shall be worked out by taking wages as Rs.2500/- per month only. The Act does not apply to certain establishments. The newly set up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of the Act.

(x) Industrial Disputes Act, 1947 - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and

what are the requirements for laying off or retrenching the employees or closing down the establishment.

(xi) Industrial Employment (Standing Orders) Act, 1946-It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the employer on matters provided in the Act and get the same certified by the designated Authority.

(xii) Trade Unions Act, 1926 - The Act lays down the procedure for registration of trade unions of workmen and employees. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities.

(xiii) Child Labor (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.

(xiv) Inter-State Migrant Workmen's (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.

(xv) Construction and Demolition Waste Management Rules 2016- This Rule stipulate that-

(a) Every waste generator shall segregate construction and demolition waste and deposit at collection center or handover it to the authorized processing facilities
(b) Shall ensure that there is no littering or deposition so as to prevent obstruction to the traffic or the public or drains.
(c) Large generators (who generate more than 20 tons or more in one day or 300 tons per project in a month) shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodeling work,
(d) Large generators shall have environment management plan to address the likely environmental issues from construction, demolition, storage, transportation process and disposal / reuse of C & D Waste.
(e) Large generators shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar,
(f) Large generators shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities;

(xvi) Solid Waste Management Rules 2016- As per this Rule responsibility of Solid Waste Generator is as below.

(a) segregate and store the waste generated in three separate streams namely bio- degradable, non-biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorized waste pickers

or waste collectors as per the direction or notification by the local authorities from time to time;

(b) store separately construction and demolition waste, as and when generated, in his own premises and shall dispose off as per the Construction and Demolition Waste Management Rules, 2016; and

(c) No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.

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. Salient features of this Act are given below.

Employer shall-

- Provide and maintain, at suitable point, sufficient quantity of wholesome drinking water, such point shall be at least 6 meters away from any washing areas, urinals or toilets
- Provide sufficient urinals and latrines at convenient place, easily accessible by workers
- Provide free of charge, temporary living accommodations near to work sites with separate cooking place, bathing and lavatory facilities and restore the site as pre conditions after completing the construction works
- Provide crèche with proper accommodation, ventilation, lighting, cleanliness and sanitation if more than fifty female workers are engaged
- Provide first aid facilities in all construction sites

For safety of workers employer shall provide-

- Safe access to site and work place
- Safety in demolition works
- Safety in use of explosives
- Safety in operation of transporting equipment and appoint competent person to drive or operate such vehicles and equipment
- Safety in lifting appliance, hoist and lifting gears
- Adequate and suitable lighting to every work place and approach
- Prevention of inhalation of dust, smoke, fumes, gases during construction works and provide adequate ventilation in work place and confined space
- Safety in material handling and stacking/un stacking
- Safeguarding the machinery with fly-wheel of moving parts
- Safe handling and use of plants operated by compressed air
- Fire safety
- Limit of weight to be lifted by workers individually
- Safety in electric wires, apparatus, tools and equipment
- Provide safety net, safety sheet, safety belts while working at height (more than1.6 mtrs as per OSHA)

- Providing scaffolding, ladders and stairs, lifting appliances, chains and accessories where required
- Safety in pile works, concrete works, hot asphalt, tar, insulation, demolition works, excavation, underground construction and handling materials
- Provide and maintain medical facilities for workers
- Any other matters for the safety and health of workers

Appendix 8: The Details of Wildlife Sanctuaries, National Parks and Conservation Reserves in Himachal Pradesh

A. The details of the National Parks in the State of Himachal Pradesh

Sr. No	National Park	Area (Km²)
1	Great Himalayan National Park	905.4
2	Pin Valley National Park	675
3	Khirganga	705
4	Inderkila	94
5	Simbalbara	27.88
Total Area		**2407.28**

B. The Details of Wildlife Sanctuaries in Himachal Pradesh

Sr. No	Sanctuaries	District	Area (Km²)
1	Bandli	Mandi	32.11
2	Chail	Solan	16
3	Churdhar	Sirmour	55.52
4	Daranghati I & II	Shimla	171.50
5	Dhauladhar	Kangra	982.86
6	Gamgul-Siyabehi	Chamba	108.40
7	Kais	Kullu	12.61
8	Kalatop-Khajjiar	Chamba	17.17
9	Kanawar	Kullu	107.29
10	Khokhan	Kullu	14.94
11	Kugti	Chamba	405.49
12	Majathal	Solan	30.86
13	Manali	Kullu	29
14	Nargu	Mandi	132.3731
15	Pong Dam Lake	Kangra	207.59
16	Renuka ji	Sirmour	3.87
17	Sechu-Tuan Nalla	Chamba	390.29
18	Shikari Devi	Mandi	29.94
19	Shimla Water Catchment	Shimla	10
20	Talra	Shimla	46.48
21	Tundah	Chamba	64
Total Area			**5964.9731**

C. Conservation Reserves in the State of H.P.

Sr. No	Conservation Reserve	District	Area (Km²)
1	Shilli Conservation Reserve	Solan	1.49
2	Shri Naina Devi Conservation Reserve	Bilaspur	17.01
3	Darlaghat Conservation Reserve	Solan	0.67
Total Area			**19.17**

Source: Forest Department, Government of Himachal Pradesh

Appendix 9: Information regarding Eco -Sensitive Zones (ESZ) around Wildlife Sanctuaries (WLS) and National Parks (NPs) in Himachal Pradesh

Information regarding Eco-Sensitive Zone (ESZ) around the Wildlife Sanctuaries (WLSs)/ National Parks (NPs) of Himachal Pradesh:

S. N	Circle	Name of Wildlife Sanctuaries/ National Parks	Latest Status
1	(Wildlife) Shimla	Rupi Bhaba WLS	Pending with Government of India
2		Rakchham Chitkul WLS	**Final Notification issued by GoI on dt. 26th July, 2017**
3		Daranghati WLS	**Final Notification issued by GoI on dt. 16th March, 2017**
4		Lippa Asrang WLS	Under Scrutiny and field verification
5		Renukaji WLS	Pending with Government of India
6		Shimla Water Catchment WLS	**Final Notification issued by GoI on dt. 7th June, 2017**
7		Majathal WLS	**Final Notification issued by GoI on dt. 7th June, 2017**
8		Tarla WLS	**Final Notification issued by GoI on dt. 29th September, 2017**
9		Sher Jung National Park Simbalbara	Under Scrutiny and field verification
10		Chail WLS	Under Scrutiny and field verification
11		Chandertal WLS	Pending with Government of India
12		Pin Valley National Park	Pending with Government of India
13		Kibber WLS	Pending with Government of India
14		Churdhar WLS	Pending with Government of India
15	(Wildlife) Dharamshala	Pong Dam WLS	Under Scrutiny and field verification
16		Dhauladhar WLS	Under Scrutiny and field verification
17		Sechu Tuan Nala WLS	**Final Notification issued by by GoI dt. 28th September, 2017**
18		Gamgul Siyabehi WLS	Pending with Government of India
19		Kalatop Khajjiar WLS	Pending with Government of India
20		Tundah WLS	Under Scrutiny and field verification
21		Kugti WLS	Under Scrutiny and field verification

22	Great Himalayan National Park Shamshi	Bandli WLS	Under Scrutiny and field verification
23		Manali WLS	Pending with Government of India
24		Kanawar WLS	Pending with Government of India
25		Kais WLS	Pending with Government of India
26		Khokhan WLS	Under Scrutiny and field verification
27		Nargu WLS	Under Scrutiny and field verification
28		Shikari Devi WLS	Pending with Government of India
29		Inder killa National Park	**Final Notification issued by by GoI dt. 17th January, 2018**
30		Great Himalayan National Park, Sainj Wildlife Sanctuary, Tirthan Wildlife Sanctuary alongwith Khirganga National Park	Pending with Government of India
	Total	**30 Nos**	

Total Wildlife Sanctuaries/National Parks

1. Wildlife Sanctuaries = 26
2. National Parks = 04

Total = 30

Final Notification/ Pending Notifications

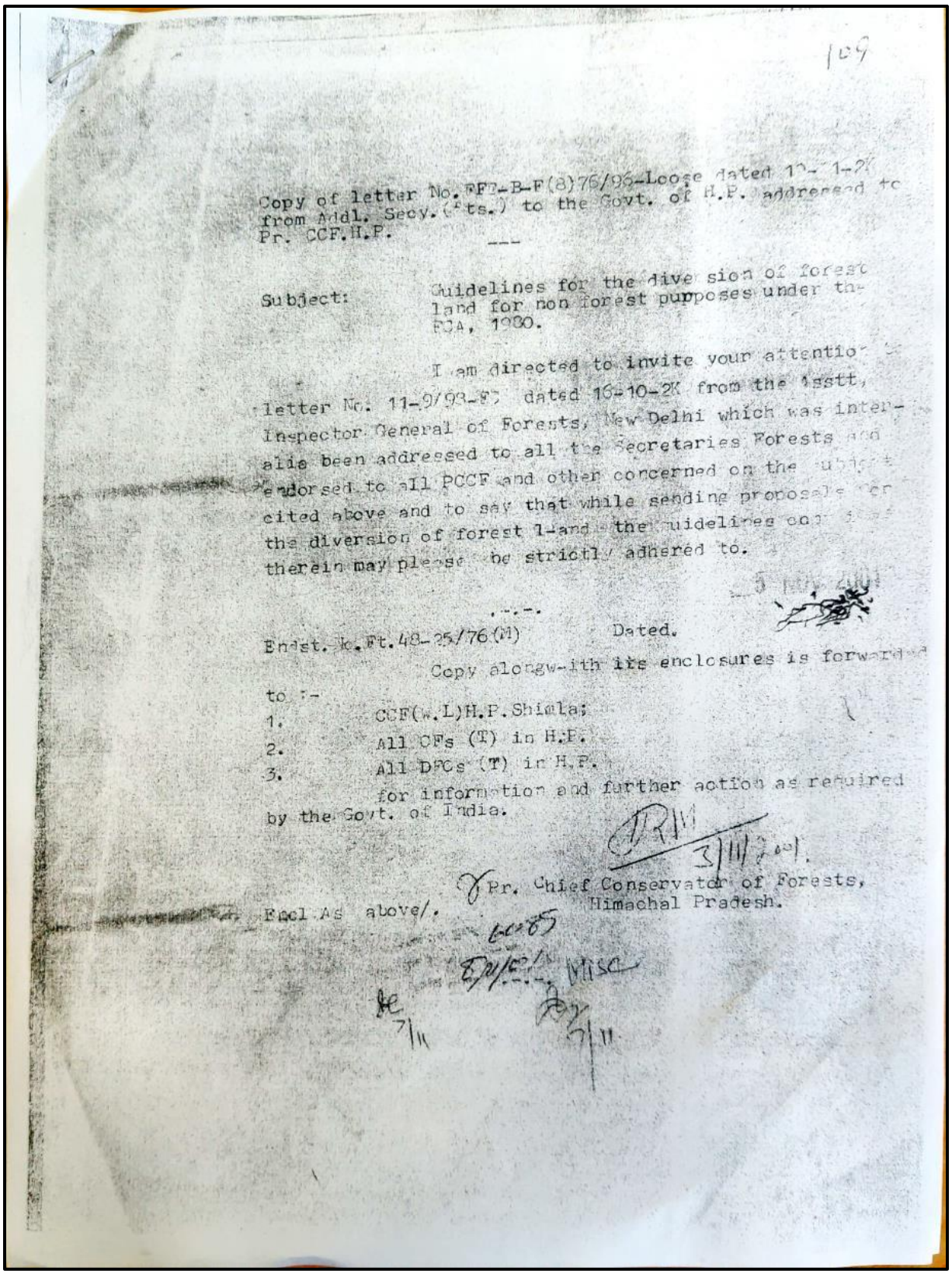
Final Notification issued = 7
Under Scrutiny and field verification = 10
Pending with Government of India = 13

Source: Forest Department, Government of Himachal Pradesh

Appendix 10: District wise Forest Cover in Himachal Pradesh

DISTRICT WISE FOREST COVER OF HIMACHAL PRADESH As Per FSI Report 2019 (Area in km^2)						
District	**Geographical Area**	**Very Dense Forest**	**Mod. Dense Forest**	**Open Forest**	**Total**	**% of GA**
Bilaspur	1167	21.70	190.72	168.28	380.70	32.62
Chamba	6522	767.89	1012.51	674.76	2455.16	37.64
Hamirpur	1118	38.91	102.84	213.15	354.90	31.74
Kangra	5739	298.76	1288.65	766.78	2354.19	41.02
Kullu	5503	586.08	879.25	510.96	1976.29	35.91
Mandi	3950	368.51	756.98	647.53	1773.02	44.89
Shimla	5131	745.74	1090.30	583.37	2419.41	44.14
Sirmaur	2825	130.22	689.96	570.69	1390.87	49.23
Solan	1936	41.44	444.54	404.31	890.29	45.99
Una	1540	18.65	310.03	303.67	632.35	41.06
Grand Total	**55673**	**3112.71**	**7125.93**	**5194.88**	**15433.52**	**27.72**

Appendix 11: Permission for Forest Land Utilization for laying of Water Supply Pipeline



109

Copy of letter No. FFT-B-F(8)76/96-Loose dated 1[illegible]-1-2K from Addl. Secy. (Frts.) to the Govt. of H.P. addressed to Pr. CCF.H.P.

Subject: Guidelines for the dive sion of forest land for non forest purposes under the FCA, 1980.

I am directed to invite your attentio[illegible] letter No. 11-9/98-F) dated 16-10-2K from the Asstt. Inspector General of Forests, New Delhi which was inter-alia been addressed to all the Secretaries Forests and endorsed to all PCCF and other concerned on the subject cited above and to say that while sending proposals for the diversion of forest land the guidelines con[illegible] therein may please be strictly adhered to.

-.-.-

Endst. No.Ft.48-25/76(M) Dated.

Copy alongwith its enclosures is forwarded to :-

1. CCF(W.L)H.P.Shimla;
2. All CFs (T) in H.P.
3. All DFOs (T) in H.P.

for information and further action as required by the Govt. of India.

Pr. Chief Conservator of Forests,
Himachal Pradesh.

Encl As above/.

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Copy of letter No.11-9-98-FC dated 16-10-2000 from Asstt. Inspector General of Forests, Govt. of India, MOEF, New Delhi addressed to Secretary (Forests) All States/UTs and copy thereof endorsed to All PCCF/Nodal Officer (All State/UTs) and others.

Subject: Guidelines for diversion of forest land for non forest purposes under the Forest (Conservation) Act, 1980.

Detailed guidelines for submission of proposals for diversion of forest land for non forestry purposes under the Forest (Conservation) Act, 1980 were finalised and circulated to all the State Government/Union Territories on 25-10-1992. A constant review of these guidelines has been done from time to time. After a recent the Ministry has observed that in certain proposals of public importance involving laying underground telephone lines/optical fiber cable and drinking water supply pipelines the land requirement is small, the land use is temporary and usually laid along the roads.

In view of the above, the Central Government hereby conveys its general approval under Section-2 of the Forest (Conservation) Act, 1980 for diversion of forest land for underground laying of optical fiber cables, underground laying of telephone lines and underground laying of drinking water supply pipelines which involve no trees felling or outside National Parks or Wildlife Sanctuary, are laid along the roads and within the existing right of way and the maximum size of the trench is 2.00 metre depth and 1.00 metre width. Any deviation from the above category/condition will require separate submission of proposal/permission under Forest (Conservation) Act, 1980

This approval will be subject to the following conditions :

1. The user agency will seek permission from the State Forest Deptt. under local rules/Rules etc.
2. The user agency agrees to make good the land after use/maintenance.
3. The user agency agrees to make good any loss to forest/environment.
4. The user agency seeks permission from local Forest Deptt. for carrying out any maintenance.

The State Government/Union Territories will submit a quarterly progress report on the extent of the forest land diverted for each purpose to the Ministry as well as the concerned Regional Offices. This approval under the Forest (Conservation) Act, 1980 is being conveyed initially for a period of two years subject to review thereafter.

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Copy of letter No.11-9/98-FC dated 31/10/2001 from Asstt. Inspector General of Forests, Govt. of India, Ministry of Environment and Forests, FC Division, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi, addressed to The Secretary(Forests)-(All States/U.Ts) and copy endorsed to All PCCF/Nodal Officers(All States/ UTs)/All Regional Offices and DIG(FC)/Director(FC)/ AIGs(FC)

...

Subject: Guidelines for diversion of forest land for non-forest purposes under the Forest (Conservation) Act, 1980.

Detailed guidelines for submission of proposals for diversion of forest land for non-forestry purpose under the Forest(Conservation) Act, 1980 were finalized and circulated to all the State Government/ Union Territories on 25.10.1992. A constant review of these guidelines has been done from time to time.

After a recent review the Ministry vide letter of even number dated 16/10/2000 had conveyed its general approval under Section-2 of the Forest (Conservation) Act, 1980 for diversion of forest land for underground laying of optical fiber cables, underground laying of telephone lines and underground laying of drinking water supply pipelines which involve no tree felling, are outside National Parks or Wild Life Sanctuary, are laid along the roads and within the existing right of way and the maximum size of the trench is 2.00 metre depth & 1.00 metre width. This permission has been granted subject to certain parameters/conditions.

In continuation of the above mentioned letter, it is clarified that this approval would also be applicable in case of laying of underground electricity cables, which shall be subject to all the stated parameters and conditions stipulated in the letter dated 16.10.2000. The State Government/user agency should ensure that the channels dug for underground laying are duly filled up and compacted so that these do not become source of constant soil erosion.

..

Endst.No.Ft.48-66/83(M) Dated Shimla-1, the 24 NOV 2001

Copy is forwarded for information, guidance and further action to:-

1. CCF.Wild Life, H.P.
2. All CFs/DFOs(T) in H.P.

incontinuation to this office Endst.No. Ft.48-20/76(M) dated 5/11/2001.

3. Conservator of Forests, Environmental Cell, HPSEB.Vidyut Bhawan, Shimla, alongwith a copy of GOI letter dated 16/10/2000.

For Pr.Chief Conservator of Forests, Himachal Pradesh, Shimla-1.

Appendix 12: Outline Contents of Initial Environmental Examination Report

1. Executive Summary

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

2. 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)

3. 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.

4. 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.

5. Description of the Environment (Baseline Data)

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

6. 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)

7. 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.

8. Grievance Redress Mechanism

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

9. 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

10. Conclusion and Recommendation

- Provide the conclusions drawn from the assessment and provide recommendations

Appendix 13: Treated Effluent Discharge Standards of STP Notified by MOEFCC, 2017

S. No	Parameter	Limit
1	pH	6 – 9
2	Biochemical Oxygen Demand (BOD) (mg/l)	<30 <20 (metro cities)
3	Chemical Oxygen Demand (COD) (mg/l)	-
4	Total Suspended Solids (TSS) (mg/l)	<100 and <50 (metro cities)
5	Total Nitrogen (mg/l)	-
6	Ammonical Nitrogen (mg/l)	-
7	Total Phosphorus (mg/l)	-
8	Fecal Coliform MPN/100 ml	<1000
9	Oil and grease, mg/l	-
10	Nematodes, number of eggs per litre	-

MOEFCC= Ministry of Environment, Forest and Climate Change.

Appendix 14: 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)

Himachal Pradesh Rural Drinking Water Improvement and Livelihood Project
Stakeholder Consultation Workshop

Subproject: _____ Date:_____Venue:_____

Organized by_____(PIU)

S. No	Name	Designation / Agency	Contact No.	Signature
1				
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Use additional sheets if required

Appendix 14a: COVID-19 Safety Guidelines for Field-Based Consultation Activities

A. Introduction

1. As an integral part of administering HPDWSIP project and to comply with ADB Safeguard Policy Statement, continuing meaningful consultations will be undertaken with stakeholders. This activity may be undertaken through a combination of online, virtual and in-face consultations. However, as COVID-19 still prevails, travel to sites for in-face consultations shall need to be undertaken with due regard to compliance with appropriate safety protocol as discussed in detail in this document.

B. About the Coronavirus Disease

2. Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. Precautions can be implemented to prevent and slow down the transmission of the virus.[36]

C. Common Symptoms of Coronavirus Disease[37]

3. COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization.

Most common symptoms:

- fever.
- dry cough.
- tiredness.

Less common symptoms:

- aches and pains.
- sore throat.
- diarrhea
- conjunctivitis.
- headache.
- loss of taste or smell.
- a rash on the skin, or discoloration of fingers or toes

Serious symptoms:

- difficulty breathing or shortness of breath
- chest pain or pressure.
- loss of speech or movement.

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[36] World Health Organization. https://www.who.int/health-topics/coronavirus#tab=tab_1
[37] World Health Organization. https://www.who.int/health-topics/coronavirus#tab=tab_3

D. Personal Protective Equipment that should be worn by field team

4. While in the field, all the members of the consultation team shall use or wear proper personal protective equipment (PPE) at all times. These PPEs may be removed on certain circumstances only, such as, but not limited to, eating, drinking, and any other task or activity that the PPE may inhibit the action. However, during these times, strict observance of social distancing is required.

5. The most common type of PPEs that should be worn by the field team are the following:

- Reusable mask or surgical mask. Reusable masks should be maintained clean per the manufacturer's instruction. Surgical masks should not be reused.
- Face shield. This PPE is especially useful for the field workers when talking to various people in a relatively confined space or indoors.
- Gloves. This is especially useful in situations in the field where items are being passed around from one hand to another, and no available hand sanitizers, or water and soap for hand washing after the activity.

E. Safety Protocol for Field Work

1. Field Team Composition

6. Strictly comply and observe with the condition that field team composition, including assistants, drivers, helpers, etc., should be pre-identified. These team members should only be the ones going to the field.

2. The field team should ensure the following:

7. Before undertaking the field visits, ensure that the local/district administration of a target site for consultation has been informed about the visit. Obtain necessary permits, if required.

8. Never carry out activities in areas under lockdown, if any, and undertake consultations in such areas after restrictions are lifted and necessary approvals are obtained for field activity.

9. Maintain adequate stock of face masks and hand sanitizer for field team; including single-use surgical masks for participants.

10. The team should have handheld contactless temperature scanner and pulse oximeter (minimum 2-sets).

- Test all members of the field team every morning before starting of field visit or activity to ensure no member is having a fever (above 100 F or 38 C) and ensure oxygen saturation level is normal (above 95).
- Once in the field or venue of consultations, the team should test the temperature of every participant.

    i. The temperature of a participant should likewise be below 100 F or 38
    ii. If the temperature is high, advise such participant to immediately go home, take a rest and consult a doctor.

11. Community consultation should be held only if allowed by local or district administration and if situation permits. Otherwise, avoid consultations.

a) If consultations are conducted, ensure it is held in the open and that participants are seated at least 1-meter apart (or as per local rules on social distancing).
b) Ensure there is no handshaking or any physical contact among the team members and participants.

12. Check daily the latest information on areas where COVID-19 is spreading and ensure no field activity is undertaken in any area declared under lockdown.

13. Ensure that no member of the field team belongs to the high-risk category, or those with medical conditions such as diabetes, heart disease, lung disease, etc.

14. Mobile phones of the field team, laptop, etc. need to be wiped with disinfectant daily on return from the field.

15. If a big group of participants or a wide venue is expected for a consultation activity, ensure to bring portable microphones and audio system to avoid shouting or avoid drawing participants close to the speaker or discussant.

3. Each field team member should strictly adhere to the following safety measures:

16. Use facemasks with reliable and known quality in every field consultation activity. At the end of each day of consultation activity and upon reaching home/place of stay, cut the mask into two pieces (to prevent recycling) and safely dispose following local or national guidelines. Wash hands with soap afterwards.

17. Use a shoulder bag for carrying hand sanitizer, single-use surgical masks, hand towel, identity card, water bottle, etc.

18. . Wear mask before setting out to the field location and the mask should be worn throughout the day until return to place of stay or residence, unless in special or unavoidable circumstances as discussed in the use of PPE above.

a) Before putting on the mask, clean hands with alcohol-based hand sanitize or soap and water.
b) Cover mouth and nose with mask and make sure there are no gaps between the face and the mask.
c) Avoid touching the mask while using it; if it is touched, clean hands with alcohol-based hand sanitize immediately after touching the mask.
d) To handle a reusable mask: remove it from behind (do not touch the front of the mask); clean hands with alcohol-based hand rub or soap and water; and wash the mask with washing soap and dry it in sunlight.

19. When multiple small group consultations are undertaken, ensure to clean hands thoroughly with an alcohol-based hand sanitizer at every end of each consultation.

a) Avoid touching eyes, mouth, and nose after using the hand sanitiser. Spare a few minutes for the hands to dry up. The hand sanitizer can cause irritation.
b) Store the hand sanitizers in safe places and out of reach of children. Hand

sanitizers can be poisonous when swallowed.

c) Recommended hand sanitizers are alcohol-based. Ensure to handle them with care as these can be flammable.

20. Carry a freshly washed hand towel every day to dry your hands after washing.

21. Maintain at least 1 meter distance (or as per local rules on social distancing) the participants and any others during the consultation activities.

a) If the place of consultation is deemed congested and may be difficult to maintain the minimum distance, ensure that the participants wear masks throughout the discussion.
b) Ensure that single-use surgical masks are available for participants who do not have their own.
c) Request participants to maintain distance and avoid congregating too close when the discussion is in progress.

22. . As much as possible, avoid touching eyes, nose, and mouth until reaching home. Once at home or place of stay, take a bath immediately and observe all necessary actions to protect members of the household from possible COVID-19 infection.

a) Use shampoo and wash hair thoroughly.
b) Wash clothes and dry them in sunlight.
c) All gadgets and materials used during field work should be disinfected, put in one bag and keep away from any family member.
d) Dispose of used face masks properly as described above. Face shields should be properly washed or disinfected as well.

23. Avoid public transport for local travel, if possible, and use dedicated vehicle/motorcycle (owned or rented by the project) to reach project sites.

a) Where possible, the team shall only use dedicated vehicles to and from the sites.
b) If motorcycle or taxi is used, ensure to abide by the passenger limit imposed by the local or national government on the use of these transportations.

24. When feeling or suffering from any minor symptoms such as cough, headache, mild fever, stay at home and do not participate in the consultation activity.

a) At home, be isolated from others.
b) Call the nearest government COVID-19 health care contact person and give details of symptoms. Provide any other relevant information as may be needed by the health care contact person

F. Important

25. The project will facilitate testing of the team members for COVID-19 prior to deployment. Only members with negative results will participate in consultation activities. If a team member is tested positive, then such team member should immediately contact the appropriate local authority and follow all local/national guidelines governing patients of COVID-19.

Appendix 15: Sample Grievance Registration Form

(To be available in Hindi and English)

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**	**Project Town** **Project:**			
Contact information/personal details					
Name		**Gender**	* Male * Female	**Age**	
Home address					
Place					
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 officials reviewing grievance)	
Action taken:	
Whether action taken disclosed:	Yes No
Means of disclosure:	

Appendix 16: Quarterly Progress Report Checklist
Environment Safeguards QPR checklist[38]

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?		

[38] 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.

Activity	Yes / No	Remarks (If Answer Is No)
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?		

Appendix 17: Semi-Annual Environmental Monitoring Report Template

INTRODUCTION

Overall project description and objectives
Environmental category as per ADB Safeguard Policy Statement, 2009

PROJECT SAFEGUARDS TEAM

Identify the role/s of Safeguards Team including schedule of on-site verification of reports submitted by consultants and contractors.

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

OVERALL PROJECT AND SUBPROJECT/PACKAGE PROGRESS AND STATUS

Indicate (i) status of design – preliminary design or final design, (ii) status of implementation - under bidding, contract awarded but no works yet, contract awarded with works, civil works completed, or O&M

Package Number	Components/List of Works	**Type of Contract** (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)[39]	**Contract Status** (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date

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

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

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

Package Name	IEE Cleared by ADB (provide date)	Contractor	HSE Nodal Person	Email Address	Contact Number

STATUS OF IEE PER SUBPROJECT/PACKAGE

Provide status of updated/final IEE[40] per package.

Package-wise Implementation Status

Package Number	Final IEE based on Detailed Design				Site-specific EMP (or Construction EMP) approved by Project Director?[41] (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)		

COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS[42]

Package No.	**Statutory Environmental Requirements**[43]	**Status of Compliance** *(Specify if obtained, submitted and awaiting approval, application not yet submitted)*	**Validity Date(s)** *(if already obtained)*	**Action Required**	**Specific Conditions that will require environmental monitoring**[44]

[40] IEE prepared based on preliminary design and cleared by ADB with condition that updated/Final IEE based on detailed design will be submitted.

[41] Works will not be allowed until SEMP/CEMP is approved by project implementation unit or project management unit.

[42] All statutory clearance/s, no-objection certificates, permit/s, etc. should be obtained prior to award of contract/s. Attach as appendix all clearance obtained during the reporting period. If already reported, specify in the "remarks" column.

[43] Specify statutory requirements: environmental clearance? Permit/consent to establish? Forest clearance? Workers/Labor permit, etc.

[44] *Example: Environmental Clearance requires ambient air quality monitoring, Forest Clearance/Tree-cutting Permit requires 2 trees for every tree, etc.*

COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

Schedule No. and Item *(see Project Loan Agreement and list provisions relevant to environmental safeguards, core labor standards and occupational health and safety)*	**Covenant**	**Status of Compliance**	**Action Required**

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

Confirm in IEE/s if contractors are required to submit site-specific EMP (SEMP)/construction EMPs (CEMP). If not, describe the methodology of monitoring each package under implementation.

Provide over-all compliance of the contractors with SEMP/CEMP. This should be supported by contractors' monthly monitoring reports to PIU(s) and/or verification reports of PIU(s) or project consultants. Include as appendix supporting documents such as **signed** monthly environmental site inspection reports prepared by consultants and/or contractors.

Overall Compliance with SEMP/CEMP

Package No.	**Status of SEMP/CEMP Implementation** *(Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)*	**Action Proposed and Additional Measures Required**

Provide description based on site observations and records:
Confirm if any dust was noted to escape the site boundaries and identify dust suppression techniques followed for site/s.
Identify muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads.
Identify type of erosion and sediment control measures installed on site/s, condition of erosion and sediment control measures including if these were intact following heavy rain;
Identify designated areas for concrete works, chemical storage, construction materials, and refueling. Attach photographs of each area.
Confirm spill kits on site and site procedure for handling emergencies.
Identify any chemical stored on site and provide information on storage condition. Attach photograph.
Describe management of stockpiles in each work site (construction materials, excavated soils, spoils, etc.). Provide photographs.
Describe management of solid and liquid wastes on-site (quantity generated, transport, storage and disposal). Provide photographs.
Provide information on barricades, signages, and on-site boards. Provide photographs.
Provide information on workers labor camp(s). Provide photographs.

Provide information on work-related accidents and incidents. Describe actions implemented. Provide information on if there are any activities being under taken out of working hours and how that is being managed.

Provide list of trainings on environmental safeguards, core labor standards, and OSH conducted during the reporting period. Include ADB-organized workshop, trainings, seminars, etc)

Trainings, Workshops and Seminars Conducted

Date	Topic	Conducted by	No. of Participants (Total)	No. of Participants (Female)	Remarks

Provide the monitoring results as per the parameters outlined in the approved EMP (or site-specific EMP/construction EMP when applicable).

Summary of Environmental Monitoring Activities (for the Reporting Period)[45]

Impacts *(List from SEMP/CEMP)*	**Mitigation Measures** *(List from SEMP/CEMP)*	**Parameters Monitored** *(As identified in the SEMP/CEMP)*	**Method of Monitoring** *(Visual, Actual Sampling, etc)*	**Location of Monitoring** *(Provide GPS Coordinates)*[46]	**Date of Monitoring Conducted**	**Person Who Conducted the Monitoring**
Design Phase						
Pre-Construction Phase						
Construction Phase						
Operational Phase						

MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS

- Confirm records of pre-work condition of roads, agricultural land or other infrastructure prior to starting to transport materials and construction.

[45] Attach Laboratory Results and Sampling Map/Locations
[46] If GPS coordinate is not available, provide landmark(s) and/or chainage.

Package No.	**Status of Pre-Work Conditions** *(Recorded / Not Recorded)*	**Baseline Environmental Conditions (air, water, noise) Documented** *(Yes / No)*	**Action Proposed and Additional Measures Required**

- Provide information on monitoring activities conducted during reporting period. If not conducted, provide justification. Compare results with baseline and internationally recognized standards.[47]

Air Quality Monitoring Results

Site No.	**Date of Testing**	**Site Location** *(Provide GPS Coordinates)*[48]	**Parameters** *(as required by statutory clearances or as mentioned in the IEE)*			**Remarks**
			PM10 µg/m3	**SO2 µg/m3**	**NO2 µg/m3**	

Water Quality Monitoring Results

Site No.	**Date of Sampling**	**Site Location**	**Parameters** *(as required by statutory clearances or as mentioned in the IEE)*						**Remarks**
			pH	**Conductivity µS/cm**	**BOD mg/L**	**TSS mg/L**	**TN mg/L**	**TP mg/L**	

Noise Quality Monitoring Results

Site No.	**Date of Testing**	**Site Location**	**LA_{eq} (dBA)** *(as required by statutory clearances or as mentioned in the IEE)*		**Remarks**
			Day Time	**Night Time**	

[47] ADB Safeguard Policy Statement (SPS) Appendix 1, para 33: During the design, construction, and operation of the project the borrower/client will 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. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When host country regulations differ from these levels and measures, the borrower/client will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower/client will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in the SPS.

[48] If GPS coordinate is not available, provide landmark(s) and/or chainage.

INFORMATION DISCLOSURE AND CONSULTATIONS

Confirm PMU/PIU/contractors provide project-related information to stakeholders, communities and/or affected people before and during construction works.[49]

Provide information on consultations conducted during reporting period such dates, topics discussed, type of consultation, issues/concerns raised, safeguards team member present. Attach minutes of meetings (ensure English translation is provided), attendance sheet, and photos.

Date of Consultation	**Location**	**Number of Participants** *(specify total, male and female)*	**Issues/Concerns Raised**	**Response to issues/concerns**

GRIEVANCE REDRESS MECHANISM

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 (package-wise if applicable).

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).

SUMMARY OF KEY ISSUES/CONCERNS IDENTIFIED DURING THE REPORTING PERIOD AND REMEDIAL ACTIONS

Provide corrective action plan which should include all issues/concerns, actions required to be implemented, responsible entities, and target dates.

STATUS OF CORRECTIVE ACTIONS FROM PREVIOUS SEMR(S)

Provide information on corrective actions to be implemented as reported in the previous SEMR(s). Include status of implementation of feedbacks/comments/suggestions as provided by ADB, if any.

Corrective Action Plan Status

Issues/Concerns	**Corrective Action**	**Status**	**Remarks**

[49] Check EMP requirement on information disclosure. At a minimum, PIU thru the contractor should notify communities/affected persons/sensitive receptors 7 days and again 1 day before start of works.

APPENDIXES

- Photos
- Records of consultations
- Copies of environmental clearances and permits (if not provided in the previous SEMR)
- Environmental site inspection report (if not provided in the previous SEMR)
- Other

Appendix 18: 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 19: Chance Find Protocol

1.1 Introduction

Project town being a heritage town, there are possibility of any chance finds (artefacts) recovery during excavations. Contractors working at heritage towns must take additional care not to destroy or damage historic features during excavations. There may be many buried historic features in heritage towns such as – idols, toys, wells, ancient drains, remains of buildings, other walls, grain pits, etc. Every care must be made not to destroy these during excavations.

Excavator drivers need to be instructed to be aware of hitting buried features and that they must be investigated before continuing work. When features are encountered during mechanical excavation, work should stop and the PIU/Consultants engineers must be informed immediately so that they can be inspected at the first opportunity.

When historic features such as walls, brick constructions and other features are encountered during excavation the excavation must be stopped immediately and the PIU/Consultants must be informed immediately.

1.2 Contractors' instruction: As soon as contractor recovers any chance find during any excavation works for pipe laying, they should immediately inform PIU/Consultant present in town about the chance find recovery. Immediately stop the excavation activity near point of recovery. After PIU/consultants engineers come at site, contractor should follow cleaning and photography in supervision of PIU/Consultant engineers.

1.3 Cleaning

When a feature/chance find is discovered it must be defined by careful cleaning. Roots must be removed and dirt must be carefully cleaned away. The section or trench base should also be cleaned back for a little distance around the feature.

1.4 Record photography

When the feature is clean good photography should be taken – vertical and face-on shots and a few general shots of the feature, also showing its position in relation to surrounding features, buildings, etc. The photographed should be catalogued (date, location, direction of shot)

1.5 Drawn record

When features/chance finds are revealed a drawn record should also be made.

a. General location record – measuring its position and orientation within the protected site / in relation to surrounding structures

b. Record drawings – detail drawings made in plan and section/profile. The extent (edges) of the feature should be drawn and the level of the existing ground surface and the top and base of the feature should be recorded. These levels should be marked on the drawings. The drawings should include detail of the construction of the feature. Perspective sketches could also be made if necessary. Explanatory notes can also be put on the drawings.

1.6 Reporting finds

When finds are made these should be reported to PIU/Consultants. Photographs and record drawings should be sent.

1.7 Discovery of historic objects

When clearance and excavation takes place artifacts and historic objects are sometimes found. These should be recovered and kept in a safe place. The place of discovery should be recorded and each find given a number and tag tied to the find with the same number on it. A list of the finds should be kept (with the find No. And place of discovery and date of discovery recorded).

1.8 PIU/Consultants responsibility- PIU/Consultants should inform in written to the State Archaeological Department at the earliest with photographs and request to Archaeology Department to visit the site and hand over the chance finds to them.

Appendix 20: Sample Construction Site Checklist for EMP Monitoring

Project Name: HPRDWILP **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	

Project Name: HPRDWILP **Name of the Subproject:** **Contractor:**	**Yes (√) No (x)**
Monitoring Details:	
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 21: WHO Interim Guidance on Water, Sanitation, Hygiene and Waste Management for the COVID-19 Virus

World Health Organization

unicef

Water, sanitation, hygiene, and waste management for the COVID-19 virus

Interim guidance
19 March 2020

Background

This interim guidance supplements the infection prevention and control (IPC) documents by summarizing WHO guidance on water, sanitation and health care waste relevant to viruses, including coronaviruses. It is intended for water and sanitation practitioners and providers and health care providers who want to know more about water, sanitation and hygiene (WASH) risks and practices.

The provision of safe water, sanitation, and hygienic conditions is essential to protecting human health during all infectious disease outbreaks, including the COVID-19 outbreak. Ensuring good and consistently applied WASH and waste management practices in communities, homes, schools, marketplaces, and health care facilities will help prevent human-to-human transmission of the COVID-19 virus.

The most important information concerning WASH and the COVID-19 virus is summarized here.

- Frequent and proper hand hygiene is one of the most important measures that can be used to prevent infection with the COVID-19 virus. WASH practitioners should work to enable more frequent and regular hand hygiene by improving facilities and using proven behavior-change techniques.
- WHO guidance on the safe management of drinking-water and sanitation services applies to the COVID-19 outbreak. Extra measures are not needed. Disinfection will facilitate more rapid die-off of the COVID-19 virus.
- Many co-benefits will be realized by safely managing water and sanitation services and applying good hygiene practices.

Currently, there is no evidence about the survival of the COVID-19 virus in drinking-water or sewage. The morphology and chemical structure of the COVID-19 virus are similar to those of other human coronaviruses for which there are data about both survival in the environment and effective inactivation measures. This document draws upon the evidence base and WHO guidance on how to protect against viruses in sewage and drinking-water. This document will be updated as new information becomes available.

1. COVID-19 transmission

There are two main routes of transmission of the COVID-19 virus: respiratory and contact. Respiratory droplets are generated when an infected person coughs or sneezes. Any person who is in close contact with someone who has respiratory symptoms (sneezing, coughing) is at risk of being exposed to potentially infective respiratory droplets.[1] Droplets may also land on surfaces where the virus could remain viable; thus, the immediate environment of an infected individual can serve as a source of transmission (contact transmission).

Approximately 2–10% of cases of confirmed COVID-19 disease present with diarrhoea,[2-4] and two studies detected COVID-19 viral RNA fragments in the faecal matter of COVID-19 patients.[5,6] However, only one study has cultured the COVID-19 virus from a single stool specimen.[7] There have been no reports of faecal–oral transmission of the COVID-19 virus.

2. Persistence of the COVID-19 virus in drinking-water, faeces and sewage and on surfaces.

Although persistence in drinking-water is possible, there is no evidence from surrogate human coronaviruses that they are present in surface or groundwater sources or transmitted through contaminated drinking water. The COVID-19 virus is an enveloped virus, with a fragile outer membrane. Generally, enveloped viruses are less stable in the environment and are more susceptible to oxidants, such as chlorine. While there is no evidence to date about survival of the COVID-19 virus in water or sewage, the virus is likely to become inactivated significantly faster than non-enveloped human enteric viruses with known waterborne transmission (such as adenoviruses, norovirus, rotavirus and hepatitis A). For example, one study found that a surrogate human coronavirus survived only 2 days in dechlorinated tap water and in hospital wastewater at 20°C.[8] Other studies concur, noting that the human coronaviruses transmissible gastroenteritis coronavirus and mouse hepatitis virus demonstrated a 99.9% die-off in from 2 days[9] at 23°C to 2 weeks[10] at 25°C. Heat, high or low pH, sunlight, and common disinfectants (such as chlorine) all facilitate die off.

It is not certain how long the virus that causes COVID-19 survives on surfaces, but it seems likely to behave like other coronaviruses. A recent review of the survival of human

coronaviruses on surfaces found large variability, ranging from 2 hours to 9 days.[11] The survival time depends on a number of factors, including the type of surface, temperature, relative humidity, and specific strain of the virus. The same review also found that effective inactivation could be achieved within 1 minute using common disinfectants, such as 70% ethanol or sodium hypochlorite (for details, see Cleaning practices).

3. Keeping water supplies safe

The COVID-19 virus has not been detected in drinking-water supplies, and based on current evidence, the risk to water supplies is low.[12] Laboratory studies of surrogate coronaviruses that took place in well-controlled environments indicated that the virus could remain infectious in water contaminated with faeces for days to weeks.[10] A number of measures can be taken to improve water safety, starting with protecting the source water; treating water at the point of distribution, collection, or consumption; and ensuring that treated water is safely stored at home in regularly cleaned and covered containers.

Conventional, centralized water treatment methods that use filtration and disinfection should inactivate the COVID-19 virus. Other human coronaviruses have been shown to be sensitive to chlorination and disinfection with ultraviolet (UV) light.[13] As enveloped viruses are surrounded by a lipid host cell membrane, which is not robust, the COVID-19 virus is likely to be more sensitive to chlorine and other oxidant disinfection processes than many other viruses, such as coxsackieviruses, which have a protein coat. For effective centralized disinfection, there should be a residual concentration of free chlorine of $\geq$0.5 mg/L after at least 30 minutes of contact time at pH <8.0.[12] A chlorine residual should be maintained throughout the distribution system.

In places where centralized water treatment and safe piped water supplies are not available, a number of household water treatment technologies are effective in removing or destroying viruses, including boiling or using high-performing ultrafiltration or nanomembrane filters, solar irradiation and, in non-turbid waters, UV irradiation and appropriately dosed free chlorine.

4. Safely managing wastewater and faecal waste

There is no evidence that the COVID-19 virus has been transmitted via sewerage systems with or without wastewater treatment. Further, there is no evidence that sewage or wastewater treatment workers contracted the severe acute respiratory syndrome (SARS), which is caused by another type of coronavirus that caused a large outbreak of acute respiratory illness in 2003. As part of an integrated public health policy, wastewater carried in sewerage systems should be treated in well-designed and well-managed centralized wastewater treatment works. Each stage of treatment (as well as retention time and dilution) results in a further reduction of the potential risk. A waste stabilization pond (an oxidation pond or lagoon) is generally considered a practical and simple wastewater treatment technology particularly well suited to destroying pathogens, as relatively long retention times (20 days or longer) combined with sunlight, elevated pH levels, biological activity, and other factors serve to accelerate pathogen destruction. A final disinfection step may be considered if existing wastewater treatment plants are not optimized to remove viruses. Best practices for protecting the health of workers at sanitation treatment facilities should be followed. Workers should wear appropriate personal protective equipment (PPE), which includes protective outerwear, gloves, boots, goggles or a face shield, and a mask; they should perform hand hygiene frequently; and they should avoid touching eyes, nose, and mouth with unwashed hands.

WASH in health care settings

Existing recommendations for water, sanitation and hygiene measures in health care settings are important for providing adequate care for patients and protecting patients, staff, and caregivers from infection risks.[14] The following actions are particularly important: (i) managing excreta (faeces and urine) safely, including ensuring that no one comes into contact with it and that it is treated and disposed of correctly; (ii) engaging in frequent hand hygiene using appropriate techniques; (iii) implementing regular cleaning and disinfection practices; and (iv) safely managing health care waste. Other important measures include providing sufficient safe drinking-water to staff, caregivers, and patients; ensuring that personal hygiene can be maintained, including hand hygiene, for patients, staff and caregivers; regularly laundering bedsheets and patients' clothing; providing adequate and accessible toilets (including separate facilities for confirmed and suspected cases of COVID-19 infection); and segregating and safely disposing of health care waste. For details on these recommendations, please refer to Essential environmental health standards in health care.[14]

1. Hand hygiene practices

Hand hygiene is extremely important. Cleaning hands with soap and water or an alcohol-based hand rub should be performed according to the instructions known as "My 5 moments for hand hygiene".[15] If hands are not visibly dirty, the preferred method is to perform hand hygiene with an alcohol-based hand rub for 20–30 seconds using the appropriate technique.[16] When hands are visibly dirty, they should be washed with soap and water for 40–60 seconds using the appropriate technique.[17] Hand hygiene should be performed at all five moments, including before putting on PPE and after removing it, when changing gloves, after any contact with a patient with suspected or confirmed COVID-19 infection or their waste, after contact with any respiratory secretions, before eating, and after using the toilet.[18] If an alcohol-based hand rub and soap are not available, then using chlorinated water (0.05%) for handwashing is an option, but it is not ideal because frequent use may lead to dermatitis, which could increase the risk of infection and asthma and because prepared dilutions might be inaccurate.[19] However, if other options are not available or feasible, using chlorinated water for handwashing is an option.

Functional hand hygiene facilities should be present for all health care workers at all points of care and in areas where PPE is put on or taken off. In addition, functional hand hygiene facilities should be available for all patients, family members, and visitors, and should be available within 5 m of toilets, as well as in waiting and dining rooms and other public areas.

2. Sanitation and plumbing

People with suspected or confirmed COVID-19 disease should be provided with their own flush toilet or latrine that has a door that closes to separate it from the patient's room. Flush toilets should operate properly and have functioning drain traps. When possible, the toilet should be flushed with the lid down to prevent droplet splatter and aerosol clouds. If it is not possible to provide separate toilets, the toilet should be cleaned and disinfected at least twice daily by a trained cleaner wearing PPE (gown, gloves, boots, mask, and a face shield or goggles). Further, and consistent with existing guidance, staff and health care workers should have toilet facilities that are separate from those used by all patients.

WHO recommends the use of standard, well-maintained plumbing, such as sealed bathroom drains, and backflow valves on sprayers and faucets to prevent aerosolized faecal matter from entering the plumbing or ventilation system,[20] together with standard wastewater treatment.[21] Faulty plumbing and a poorly designed air ventilation system were implicated as contributing factors to the spread of the aerosolized SARS coronavirus in a high-rise apartment building in Hong Kong in 2003.[22] Similar concerns have been raised about the spread of the COVID-19 virus from faulty toilets in high-rise apartment buildings.[23] If health care facilities are connected to sewers, a risk assessment should be conducted to confirm that wastewater is contained within the system (that is, the system does not leak) before its arrival at a functioning treatment or disposal site, or both. Risks pertaining to the adequacy of the collection system or to treatment and disposal methods should be assessed following a safety planning approach,[24] with critical control points prioritized for mitigation.

For smaller health care facilities in low-resource settings, if space and local conditions allow, pit latrines may be the preferred option. Standard precautions should be taken to prevent contamination of the environment by excreta. These precautions include ensuring that at least 1.5 m exists between the bottom of the pit and the groundwater table (more space should be allowed in coarse sands, gravels, and fissured formations) and that the latrines are located at least 30 m horizontally from any groundwater source (including both shallow wells and boreholes).[25] If there is a high groundwater table or a lack of space to dig pits, excreta should be retained in impermeable storage containers and left for as long as feasible to allow for a reduction in virus levels before moving it off-site for additional treatment or safe disposal, or both. A two-tank system with parallel tanks would help facilitate inactivation by maximizing retention times, as one tank could be used until full, then allowed to sit while the next tank is being filled. Particular care should be taken to avoid splashing and the release of droplets while cleaning or emptying tanks.

3. Toilets and the handling of faeces

It is critical to conduct hand hygiene when there is suspected or direct contact with faeces (if hands are dirty, then soap and water are preferred to the use of an alcohol-based hand rub). If the patient is unable to use a latrine, excreta should be collected in either a diaper or a clean bedpan and immediately and carefully disposed of into a separate toilet or latrine used only by suspected or confirmed cases of COVID-19. In all health care settings, including those with suspected or confirmed COVID-19 cases, faeces must be treated as a biohazard and handled as little as possible. Anyone handling faeces should follow WHO contact and droplet precautions[18] and use PPE to prevent exposure, including long-sleeved gowns, gloves, boots, masks, and goggles or a face shield. If diapers are used, they should be disposed of as infectious waste as they would be in all situations. Workers should be properly trained in how to put on, use, and remove PPE so that these protective barriers are not breached.[25] If PPE is not available or the supply is limited, hand hygiene should be regularly practiced, and workers should keep at least 1 m distance from any suspected or confirmed cases.

If a bedpan is used, after disposing of excreta from it, the bedpan should be cleaned with a neutral detergent and water, disinfected with a 0.5% chlorine solution, and then rinsed with clean water; the rinse water should be disposed of in a drain or a toilet or latrine. Other effective disinfectants include commercially available quaternary ammonium compounds, such as cetylpyridinium chloride, used according to manufacturer's instructions, and peracetic or peroxyacetic acid at concentrations of 500–2000 mg/L.[26]

Chlorine is ineffective for disinfecting media containing large amounts of solid and dissolved organic matter. Therefore, there is limited benefit to adding chlorine solution to fresh excreta and it is possible that this may introduce risks associated with splashing.

4. Emptying latrines and holding tanks, and transporting excreta off-site.

There is no reason to empty latrines and holding tanks of excreta from suspected or confirmed COVID-19 cases unless they are at capacity. In general, the best practices for safely managing excreta should be followed. Latrines or holding tanks should be designed to meet patient demand, considering potential sudden increases in cases, and there should be a regular schedule for emptying them based on the wastewater volumes generated. PPE (long-sleeved gown, gloves, boots, masks, and goggles or a face shield) should be worn at all times when handling or transporting excreta offsite, and great care should be taken to avoid splashing. For crews, this includes pumping out tanks or unloading pumper trucks. After handling the waste and once there is no risk of further exposure, individuals should safely remove their PPE and perform hand hygiene before entering the transport vehicle. Soiled PPE should be put in a sealed bag for later safe laundering (see Cleaning practices). Where there is no off-site treatment, in-situ treatment can be done using lime. Such treatment involves using a 10% lime slurry added at 1-part lime slurry per 10 parts of waste.

5. Cleaning practices

Recommended cleaning and disinfection procedures for health care facilities should be followed consistently and correctly.[19] Laundry should be done and surfaces in all environments in which COVID-19 patients receive care (treatment units, community care centres) should be cleaned at least once a day and when a patient is discharged.[27] Many disinfectants are active against enveloped viruses, such as the COVID-19 virus, including commonly used hospital disinfectants. Currently, WHO recommends using:

- 70% ethyl alcohol to disinfect small areas between uses, such as reusable dedicated equipment (for example, thermometers);
- sodium hypochlorite at 0.5% (equivalent to 5000 ppm) for disinfecting surfaces.

All individuals dealing with soiled bedding, towels, and clothes from patients with COVID-19 infection should wear appropriate PPE before touching soiled items, including heavy duty gloves, a mask, eye protection (goggles or a face shield), a long-sleeved gown, an apron if the gown is not fluid resistant, and boots or closed shoes. They should perform hand hygiene after exposure to blood or body fluids and after removing PPE. Soiled linen should be placed in clearly labelled, leak-proof bags or containers, after carefully removing any solid excrement and putting it in a covered bucket to be disposed of in a toilet or latrine. Machine washing with warm water at 60–90°C (140–194°F) with laundry detergent is recommended. The laundry can then be dried according to routine procedures. If machine washing is not possible, linens can be soaked in hot water and soap in a large drum using a stick to stir and being careful to avoid splashing. The drum should then be emptied, and the linens soaked in 0.05% chlorine for approximately 30 minutes. Finally, the laundry should be rinsed with clean water and the linens allowed to dry fully in sunlight.

If excreta are on surfaces (such as linens or the floor), the excreta should be carefully removed with towels and immediately safely disposed of in a toilet or latrine. If the towels are single use, they should be treated as infectious waste; if they are reusable, they should be treated as soiled linens. The area should then be cleaned and disinfected (with, for example, 0.5% free chlorine solution), following published guidance on cleaning and disinfection procedures for spilled body fluids.[27]

6. Safely disposing of greywater or water from washing PPE, surfaces and floors.

Current WHO recommendations are to clean utility gloves or heavy duty, reusable plastic aprons with soap and water and then decontaminate them with 0.5% sodium hypochlorite solution after each use. Single-use gloves (nitrile or latex) and gowns should be discarded after each use and not reused, hand hygiene should be performed after PPE is removed. If greywater includes disinfectant used in prior cleaning, it does not need to be chlorinated or treated again. However, it is important that such water is disposed of in drains connected to a septic system or sewer or in a soakaway pit. If greywater is disposed of in a soakaway pit, the pit should be fenced off within the health facility grounds to prevent tampering and to avoid possible exposure in the case of overflow.

7. Safe management of health care waste

Best practices for safely managing health care waste should be followed, including assigning responsibility and sufficient human and material resources to dispose of such waste safely. There is no evidence that direct, unprotected human contact during the handling of health care waste has resulted in the transmission of the COVID-19 virus. All health care waste produced during the care of COVID 19 patients should be collected safely in designated containers and bags, treated, and then safely disposed of or treated, or both, preferably on-site. If waste is moved off-site, it is critical to understand where and how it will be treated and destroyed. All who handle health care waste should wear appropriate PPE (boots, apron, long-sleeved gown, thick gloves, mask, and goggles or a face shield) and perform hand hygiene after removing it. For more information refer to the WHO guidance, Safe management of wastes from health-care activities.[28]

Considerations for WASH practices in homes and communities.

Upholding best WASH practices in the home and community is also important for preventing the spread of COVID-19 and when caring for patients at home. Regular and correct hand hygiene is of particular importance.

1. Hand hygiene

Hand hygiene in non–health care settings is one of the most important measures that can prevent COVID 19 infection. In homes, schools and crowded public spaces – such as markets, places of worship, and train or bus stations – regular handwashing should occur before preparing food, before and after eating, after using the toilet or changing a child's diaper, and after touching animals. Functioning handwashing facilities with water and soap should be available within 5 m of toilets.

2. Treatment and handling requirements for excreta.

Best WASH practices, particularly handwashing with soap and clean water, should be strictly applied and maintained because these provide an important additional barrier to COVID-19 transmission and to the transmission of infectious diseases in general.[17] Consideration should be given to safely managing human excreta throughout the entire sanitation chain, starting with ensuring access to regularly cleaned, accessible, and functioning toilets or latrines and to the safe containment, conveyance, treatment, and eventual disposal of sewage.

When there are suspected or confirmed cases of COVID-19 in the home setting, immediate action must be taken to protect caregivers and other family members from the risk of contact with respiratory secretions and excreta that may contain the COVID-19 virus. Frequently touched surfaces throughout the patient's care area should be cleaned regularly, such as beside tables, bed frames and other bedroom furniture. Bathrooms should be cleaned and disinfected at least once a day. Regular household soap or detergent should be used for cleaning first and then, after rinsing, regular household disinfectant containing 0.5% sodium hypochlorite (that is, equivalent to 5000 ppm or 1-part household bleach with 5% sodium hypochlorite to 9 parts water) should be applied. PPE should be worn while cleaning, including mask, goggles, a fluid-resistant apron, and gloves,[29] and hand hygiene with an alcohol-based hand rub or soap and water should be performed after removing PPE.

References

1. Coronavirus disease (COVID-19) advice for the public. Geneva: World Health Organization; 2020 (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public, accessed 3 March 2020).
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020;395:497–506. doi:10.1016/S0140-6736(20)30183-5.

3. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020;395:507–13. doi:10.1016/S0140-6736(20)30211-7.
4. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA. 2020. Feb 7. doi:10.1001/jama.2020.1585.
5. Xiao E, Tang M, Zheng Y, Li C, He J, Hong H, et al. Evidence for gastrointestinal infection of SARS-CoV. medRxiv. doi:10.1101/2020.02.17.20023721.
6. Holshue ML, DeBolt C, Lindquist S, Lofy KH, Wiesman J, Bruce H et al. for the Washington State 2019-nCoV Case Investigation Team. First case of 2019 novel coronavirus in the United States. N Engl J Med. 2020. Jan 31. doi:10.1056/NEJMoa2001191.
7. Zhang Y, Chen C, Zhu S et al. [Isolation of 2019-nCoV from a stool specimen of a laboratory-confirmed case of the coronavirus disease 2019 (COVID-19)]. China CDC Weekly. 2020;2(8):123-4. (In Chinese.)
8. Wang XW, Li JS, Zhen B, Kong QX, Song N, Xiao WJ et al. Study on the resistance of severe acute respiratory syndrome-associated coronavirus. J Virol Methods. 2005;126:171–7. doi:10.1016/j.jviromet.2005.02.005.
9. Gundy P, Gerba CP, Pepper IL. Survival of coronaviruses in water and wastewater. Food Environ Virol. 2009;1:10-14. doi:10.1007/s12560-008-9001-6.
10. Casanova L, Rutalal WA, Weber DJ, Sobsey MD. Survival of surrogate coronaviruses in water. Water Res. 2009;43(7):1893–8. doi:10.1016/j.watres.2009.02.002.
11. Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. J Hosp Infect. 2020;104(3):246–51. doi:10.1016/j.jhin.2020.01.022.
12. Guidelines for drinking-water quality, fourth edition, incorporating the first addendum. Geneva: World Health Organization; 2017 (http://apps.who.int/iris/bitstream/10665/254637/1/9789241549950-eng.pdf, accessed 3 March 2020).
13. SARS-CoV-2 – water and sanitation. Adelaide: Water Research Australia; 2020 (http://www.waterra.com.au/_r9544/media/system/attrib/file/2199/WaterRA_FS_Coronavirus_V10.pdf, accessed 3 March 2020).
14. Essential environmental health standards in health care. Geneva: World Health Organization; 2008 (https://apps.who.int/iris/bitstream/handle/10665/43767/9789241547239_eng.pdf?sequence=1&isAllowed=y, accessed 3 March 2020).
15. My 5 moments for hand hygiene. In: WHO/Infection prevention and control [website]. Geneva: World Health Organization; 2020 (https://www.who.int/infection-prevention/campaigns/clean-hands/5moments/en/, accessed 3 March 2020).
16. Siddharta A, Pfaender S, Vielle NJ, Dijkman R, Friesland M, Becker B, et al. Virucidal activity of World Health Organization-recommended formulations against enveloped viruses, including Zika, Ebola, and emerging coronaviruses. J Infect Dis. 2017;215(6):902–6. doi:10.1093/infdis/jix046.
17. WHO guidelines on hand hygiene in health care settings. Geneva: World Health Organization; 2009 (https://apps.who.int/iris/bitstream/handle/10665/44102/9789241597906_eng.pdf?sequence=1&isAllowed=y, accessed 3 March 2020).
18. Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected: interim guidance, 25 January 2020. Geneva: World Health Organization (https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125, accessed 3 March 2020).
19. Q&A on infection prevention and control for health care workers caring for patients with suspected or confirmed 2019-nCoV. In: WHO/Newsroom [website]. Geneva: World Health Organization; 2020 (https://www.who.int/news-room/q-a-detail/q-a-on-infection-prevention-and-control-for-health-care-workers-caring-for-patients-with-suspected-or-confirmed-2019-ncov, accessed 3 March 2020).
20. Health aspects of plumbing. Geneva: World Health Organization; 2006. (https://apps.who.int/iris/handle/10665/43423, accessed 3 March 2020).
21. Guidelines on sanitation and health. Geneva: World Health Organization; 2018(https://apps.who.int/iris/bitstream/handle/10665/274939/9789241514705-eng.pdf?ua=1, accessed 3 March 2020).
22. Yu ITS, Li Y, Wong TW, Tam W, Chan A, Lee JHW, et al. Evidence of airborne transmission of the severe acute respiratory syndrome virus. N Engl J Med. 2004;350(17): 1731-9. doi:10.1056/NEJMoa032867.
23. Regan H. How can the coronavirus spread through bathroom pipes? Experts are investigating in Hong Kong. CNN. 12 February 2020 (https://edition.cnn.com/2020/02/12/asia/hong-kong-coronavirus-pipes-intl-hnk/index.html).
24. Sanitation safety planning: manual for safe use and disposal of wastewater, greywater and excreta. Geneva: World Health Organization; 2015. (https://apps.who.int/iris/handle/10665/171753, accessed 3 March 2020).
25. How to put on and take off personal protective equipment. Geneva: World Health Organization; 2008 (https://apps.who.int/iris/handle/10665/70066, accessed 3 March 2020).
26. Chemical disinfectants: guideline for disinfection and sterilization in healthcare facilities (2008). In: CDC/Infection Control [website]. Atlanta: US Centers for Disease Control and Prevention; 2019. https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html, accessed 3 March 2020).

27. Best practices for environmental cleaning in healthcare facilities in resource-limited settings. Atlanta: US Centers for Disease Control and Prevention; 2019 (https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-508.pdf, accessed 3 March 2020).
28. Safe management of wastes from health-care activities: a summary. Geneva: World Health Organization; 2017 (https://apps.who.int/iris/handle/10665/259491, accessed 3 March 2020).
29. Home care for patients with suspected novel coronavirus (COVID-19) infection presenting with mild symptoms, and management of their contacts: interim guidance, 4 February 2020. (https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-(ncov)-infection-presenting-with-mild-symptoms-and-management-of-contacts, accessed 3 March 2020).

Contributors

This interim guidance was written by staff from WHO and UNICEF. In addition, a number of experts and WASH practitioners contributed. They include Matt Arduino, US Centers for Disease Control and Prevention, United States of America; David Berendes, US Centers for Disease Control and Prevention, United States of America; Lisa Casanova, Georgia State University, United States of America; David Cunliffe, SA Health, Australia; Rick Gelting, US Centers for Disease Control and Prevention, United States of America; Dr Thomas Handzel, US Centers for Disease Control and Prevention, United States of America; Paul Hunter, University of East Anglia, United Kingdom; Ana Maria de Roda Husman, National Institute for Public Health and the Environment, the Netherlands; Peter Maes, Médicins Sans Frontières, Belgium; Molly Patrick, US Centers for Disease Control and Prevention, United States of America; Mark Sobsey, University of North Carolina-Chapel Hill, United States of America.

WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this interim guidance document will expire 2 years after the date of publication.

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Appendix 22: ADB's Interim Advisory Note on Protecting the Safety and Well-Being of Workers and Communities from COVID-19 (2020)

INTERIM ADVISORY NOTE

Protecting the Safety and Well-Being of Workers and Communities from COVID-19

Health and safety risks from the coronavirus disease (COVID-19) pandemic can cause an additional burden on workers, local communities, and employers. To support its developing member countries in managing these risks, the Asian Development Bank (ADB) has prepared the following advisory note on publicly available international good practice. These preventive measures can be adapted for a variety of workplaces and country-specific contexts.[1]

Transmission, spread, and infection are the greatest health and safety risks to projects and local communities. If left unmanaged, rising infection rates can result in project delays and job losses as well as overwhelm health care systems.

What can governments and companies (including enterprises of all sizes) do to prevent and manage COVID-19 risks?

To protect the health and safety of workers, as well as surrounding communities, it is recommended to conduct a workplace review and risk assessment for exposure to COVID-19. The nature of works, stage of implementation, location of the project activities, and status of the project (whether it is ongoing or under development) must be taken into consideration. In addition, vulnerable groups such as migrant workers as well as women, older workers, at-risk workers including those with underlying health conditions, or those with combined vulnerability factors (e.g., migrant women workers with underlying health conditions) who will also be disproportionately impacted, should be taken into account.[2]

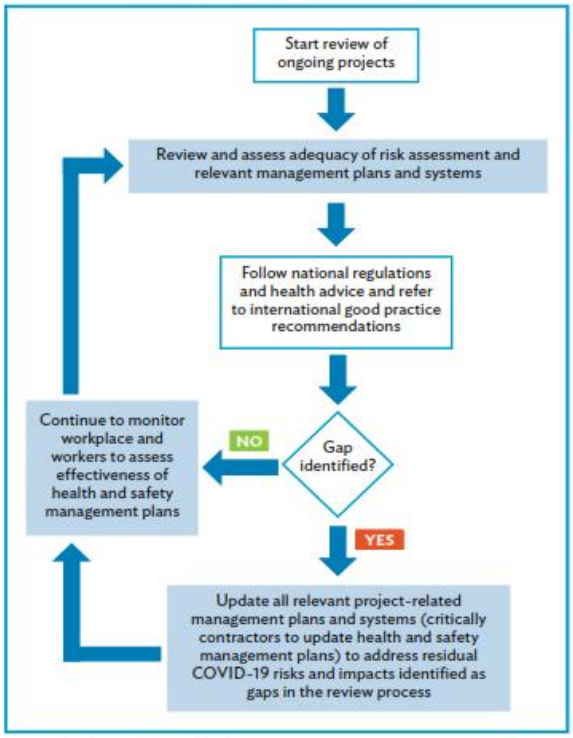
The decision tree (Figure 1) outlines how to review and assess the adequacy of management plans and systems to prevent the spread of COVID-19 in the workplace.

Which sectors are more at risk from COVID-19?

COVID-19 may be more easily transferred among workers or service users and local communities in the following sectors and associated workplace activities:[3]

- Projects and businesses where there are a **large number of workers in close proximity with one another**, particularly where remote work is not feasible.
- Projects that involve **worker accommodation camps**, where physical distancing and robust hygiene measures may be more difficult to implement.
- **Health care providers** including hospitals, laboratories, clinics, dentists, ambulances, and pharmacies.

Figure 1: COVID-19 Decision Tree



Source: Asian Development Bank.

[1] This advisory note may not cover all circumstances. It will remain a living document and will be updated regularly to reflect updates to international good practice in preventing and managing the COVID-19 pandemic at the workplace as listed in Annex.
[2] Migrant workers are faced with multiple impacts including the challenge of returning home, accessing food and medical assistance, and experiencing potential loss of income.
[3] The list represents a selection and is not exhaustive.

- **Food and agriculture** including food processing plants and those handling live animals and animal products.
- **Education**, after lockdowns are lifted and schools reopen in affected countries.
- Consumer-centric businesses where workers may come into **regular contact with customers** including **hotels, retail, and other tourism- related sectors**.
- **Logistics and transport**, where **workers come into contact with a large number of people** across potentially a large geographic region.
- Businesses where **workers come into contact with suppliers and supply chains** operating in affected areas.

How can governments and companies apply a risk-based approach to assess exposure risks to COVID-19 in the workplace?

1. DETERMINE LEVEL OF EXPOSURE RISK

The risk of work-related exposure to COVID-19 depends on the probability of coming into close or frequent contact with people who may be infected and through contact with contaminated surfaces and objects. According to guidance from the World Health Organization (WHO), the risk levels (Figure 2) may be useful in carrying out a workplace risk assessment for exposure risk to COVID-19 and planning for preventive measures in non-health care workplaces.[4]

Figure 2: COVID-19 Risk Categories

LOW EXPOSURE RISK

Jobs or work tasks **without frequent, close contact with the general public and other co-workers,** visitors, clients or customers, or contractors, and that do not require contact with people known to be or suspected of being infected with COVID-19.

MEDIUM EXPOSURE RISK

Jobs or work tasks **with close (less than 1 meter) frequent contact with the general public, or other co-workers**, visitors, clients or customers, or contractors, that do not require contact with people known to be or suspected of being infected with COVID-19.

HIGH EXPOSURE RISK

Jobs or work tasks with high potential for **close contact with people who are known or suspected of having COVID-19** as well as contact with objects and surfaces possibly contaminated with the virus.

Source: World Health Organization.

2. DETERMINE ADDITIONAL EXPOSURE RISK FACTORS

Work-related exposure can occur anytime in the workplace, during work-related travel to an area with local community transmission, as well as on the way to and from the workplace.

In the same work setting, there may be jobs with different levels of risk, and different jobs or work tasks may have similar levels of exposure. Therefore, risk assessment should be carried out for each specific work setting and for each job or group of jobs. For each risk assessment, it is important to consider the environment; the task; the threat, if any (e.g., for frontline staff); and resources available such as personal protective equipment.

Some workers may be at higher risk of developing severe COVID-19 illness because of age or pre-existing medical conditions; this should be considered in the risk assessment for individuals. Essential public services, such as security and police, food retail, accommodation, public transport, deliveries, water and sanitation, and frontline workers may be at an increased risk of exposure.

3. CONSULT WITH WORKERS

Employers and managers, in consultation with workers, are encouraged to carry out and regularly update the risk assessment for work-related exposure to COVID-19, preferably with support from occupational health services and local primary health care facilities.

4. UPDATE OR DEVELOP NEW HEALTH AND SAFETY MANAGEMENT PLANS

Following completion of the review and risk assessment process, health and safety plans in the workplace may require updates or may have to be developed for ongoing projects that did not require one previously. Relevant approvals of the health and safety plan should be obtained.

5. REVIEW INTERNATIONAL GOOD PRACTICES

ADB recommends that employers review WHO-issued key guidance to manage the spread of COVID-19 in the workplace (Table).

[4] WHO. 2020. Considerations in adjusting public health and social measures in the context of COVID-19: interim guidance. 15 April. https://www.who.int/publications/i/item/considerations-in-adjusting-public-health-and-social-measures-in-the-context-of-covid-19-interim-guidance.

Table: Guidelines on Preventive Measures at the Workplace

MEASURES FOR ALL WORKPLACES	
Hand hygiene	• Regular and thorough handwashing with soap and water or hand hygiene with alcohol-based hand-rub before starting work; before eating; frequently during the work shift, especially after contact with co-workers or customers; after using the bathroom; after contact with secretions, excretions, and body fluids; after contact with potentially contaminated objects (gloves, clothing, masks, used tissues, waste); and immediately after removing gloves and other protective equipment but before touching eyes, nose, or mouth. • Hand hygiene stations, such as handwashing and hand rub dispensers, should be put in prominent places around the workplace and be made accessible to all staff, contractors, clients or customers, and visitors along with communication materials to promote hand hygiene.
Respiratory hygiene	• Promote respiratory etiquette by all people at the workplace. Ensure that medical face masks and paper tissues are available, for those who develop a runny nose or cough at work, along with bins with lids for hygienic disposal. • Develop a policy on wearing a face mask or cover in line with national or local guidance. Masks may carry some risks if not used properly. If a worker is sick, they should not come to work. If a worker feels unwell while at work, provide a medical mask so that they may get home safely. Where masks are used, whether in line with government policy or by personal choice, it is very important to ensure safe and proper use, care, and disposal.
Physical distancing	• Introduce measures to keep a distance of at least 1 meter between people and avoid direct physical contact i.e., hugging, touching, shaking hands), strict control over external access, queue management (marking on the floor, barriers). • Reduce density of people in the building (no more than one person per 10 square meters), physical spacing at least 1 meter apart for workstations and common spaces, such as entrances/exits, lifts, pantries/canteens, stairs, and other areas congregation or queuing of employees or visitors/clients might occur. • Minimize the need for physical meetings, e.g., by using teleconferencing facilities. • Avoid crowding by staggering working hours to reduce congregation of employees at common spaces such as entrances or exits. • Implement or enhance shift or split-team arrangements, or teleworking. • Defer or suspend workplace events that involve close and prolonged contact among participants, including social gatherings.
Reduce and manage work-related travels	• Cancel or postpone non-essential travel to areas with community transmission of coronavirus disease (COVID-19), provide hand sanitizer to workers who must travel, advise workers to comply with instructions from local authorities where they are traveling as well as information on whom to contact if they feel ill while traveling. • Workers returning from an area where COVID-19 transmission is occurring should monitor themselves for symptoms for 14 days and take their temperature twice a day; if they are feeling unwell, they should stay at home, self-isolate, and contact a medical professional.

Source: World Health Organization.

Regular environmental cleaning and disinfection	• Clean surfaces by brushing or scrubbing thoroughly using soap or a neutral detergent to remove dirt, debris, and other materials.. After the cleaning process is completed, disinfection is used to kill pathogens and other microorganisms on surfaces. • Selection of disinfectants should align with the local authorities' requirements for market approval, including any regulations applicable to specific sectors. • Identify "high-touch" surfaces for priority disinfection (e.g., commonly used areas, door and window handles, light switches, kitchen and food preparation areas, bathroom surfaces, toilets and taps, touchscreen personal devices, personal computer keyboards, and work surfaces). • Prepare and use disinfectant solutions according to the manufacturer's instructions, including instructions on how to protect the safety and health of disinfection workers and how to use personal protective equipment (PPE); avoid mixing different chemical disinfectants. • In indoor workplaces, routine application of disinfectants to environmental surfaces via spraying or fogging is generally not recommended because it is ineffective at removing contaminants outside of direct spray zones and can cause eye, respiratory, and skin irritation and other toxic effects. • In outdoor workplaces, there is currently insufficient evidence to support recommendations for large-scale spraying or fumigation. • Spraying of people with disinfectants (such as in a tunnel, cabinet, or chamber) is not recommended under any circumstances.
Risk communication, training, and education	• Provide posters, videos, and electronic message boards to increase awareness of COVID-19 among workers, and promote safe individual practices at the workplace and engage workers in providing feedback on the preventive measures and their effectiveness. • Provide regular information about the risk of COVID-19 using official sources such as government agencies and the World Health Organization, and emphasize the effectiveness of adopting protective measures and counteracting rumors and misinformation. • Special attention should be given to reaching out to and engaging vulnerable and marginalized groups of workers, such as those in the informal economy as well as migrant workers, domestic workers, subcontracted and self-employed workers, and those working under digital labor platforms.
Management of people with suspected COVID-19 or their contacts	• Urge workers who are unwell or who develop symptoms consistent with COVID-19 to stay at home, self-isolate, and contact a medical professional or the local COVID-19 information line for advice on testing and referral. • Where local community transmission is high, and work continues, allow for a telemedicine consultation where available, or consider waiving the requirement for a medical note for workers who are sick so that they may stay home. • Urge all workers to self-monitor their health, possibly with the use of questionnaires, and take their body temperature regularly.

SPECIFIC MEASURES FOR WORKPLACES AND JOBS AT MEDIUM RISK	
In addition to the measures for all sites	• Enhance cleaning and disinfection of objects and surfaces that are touched regularly, including all shared rooms, surfaces, floors, bathrooms, and changing rooms. • Where the physical distancing of at least 1 meter cannot be implemented to a particular activity, workplaces should consider whether that activity needs to continue; if so, take all the mitigating actions possible to reduce the risk of transmission between workers, clients or customers, contractors, and visitors such as scheduling staggered activities, minimizing face-to-face and skin-to-skin contacts, placing workers side-by-side or facing away from each other rather than face-to-face, assigning staff to the same shift teams to limit social interaction, and installing plexiglass barriers at all points of regular interaction and cleaning them regularly. • Enhance hand hygiene—regular handwashing with soap and water or use of alcohol-based hand rub—before entering and after leaving enclosed machinery, vehicles, confined spaces, and before putting on and after taking off PPE.. • Provide PPE and training on its proper use—e.g., masks, disposable gowns, and disposable gloves or heavy-duty gloves that can be disinfected. Provide face or eye protection (medical mask) during cleaning procedures that generate splashes (e.g., washing surfaces). • Increase ventilation rate, through natural aeration or artificial ventilation, preferably without re-circulation of the air.
SPECIFIC MEASURES FOR WORKPLACES AND JOBS AT HIGH RISK	
In addition to the measures for all sites	• Assess the possibility of suspending the activity. • Adhere to hygiene before and after contact with any known or suspected case of COVID-19, before and after using PPE. • Require use of medical mask, disposable gown, gloves, and eye protection for workers who must work in the homes of people who are suspected or known to have COVID-19. Use the protective equipment when in contact with the sick person, or respiratory secretions, body fluids, and potentially contaminated waste. • Train workers on infection prevention and control practices and use of PPE. • Avoid assigning tasks with high risk to workers who have pre-existing medical conditions, are pregnant, or older than 60 years of age.

Source: World Health Organization.

The application of the international good practice within job-specific method statements/schedules and environments should be informed by a job-specific risk assessment.

How do governments and companies ensure effective implementation?

Cooperation between workplace managers, workers and their representatives, surrounding communities, and primary health care facilities is an essential element of workplace-related preventive measures in line with international good practice. To assess the effectiveness of implementation of the workplace health and safety management plan, regular monitoring of site conditions and those of surrounding communities is recommended. It is also important for management of workplaces to keep abreast with the latest updates to the international good practice guidance referenced in this advisory note including government issued health advice in relation to COVID-19 to ensure effective implementation. A select list is provided in Annex.

Risks communication, training, awareness campaigns, and the development of an emergency action plan are also recommended to address suspected cases of COVID-19 in the workplace.

The decision to close or reopen workplaces, and suspend or downscale individual work activities at the workplace should be made in light of the risk assessment, the capacity of contractors to implement proposed preventive measures within the Health and Safety Management Plan, and also the recommendations of national authorities for adjusting public health and social measures at the workplace in the context of COVID-19.

Further Assistance

ADB may be able to provide assistance to our developing member countries in emergency planning, emergency assistance, and continuous sharing of international best practice. Please contact ADB resident missions and offices to request assistance.

The Pandemic Sub-National Reference Laboratory at the Jose B. Lingad Memorial Regional Hospital in San Fernando City, Pampanga on 9 May 2020. The laboratory financed by the $3 million grant from the Asia Pacific Disaster Response Fund, can perform up to 3,000 COVID-19 tests daily, significantly increasing the country's testing capacity (photo by Eric Sales/ADB).

Annex: Publicly Available Sources and Useful Links

Asian Development Bank

Managing Infectious Medical Waste during the COVID-19 Pandemic, April 2020. An outline of key considerations for governments to understand their country's capacity to manage an anticipated surge in infectious medical waste. Also includes practical recommendations to improve disposal of household and hospital waste—as well as municipal solid waste—with the aim of reducing the further spread of the coronavirus disease (COVID-19) and other diseases. Links to important technical resources and guidance materials are also provided.

Belgian Investment Company for Developing Countries

COVID-19: ESG Guidance Note for Employers, March 2020. General Environmental, Social and Governance guidance to employers on how to minimize business disruptions and take the most adequate actions.

Canadian Construction Association

Standardized Protocols for All Canadian Construction Sites

Centre for Disease Control

Centre for Disease Control (CDC) Group COVID-19 Guidance for Employers, March 2020. Summary of publicly available guidance and examples of practice adopted by some CDC Group investees and fund managers. Aims to provide a framework that can be applied to many companies and situations, but guidance is not able to cover all circumstances and not every company will be able to benefit from all of the guidance, in particular if employees are not able to work from home or practice social distancing.

European Bank for Reconstruction and Development Workers Accommodation

Worker accommodation and COVID-19, April 2020. Note on key issues relating to workers living in accommodation camps and considerations on how to address certain risks. In alignment with good international industry practice and international lenders' standards. Developed by Mott MacDonald's social, labor, and health specialists based on their experience, drawing on the guidance of the World Health Organization (WHO).

Her Majesty's Government, United Kingdom

Her Majesty's Government. Working safely during COVID-19 in construction and other outdoor work, 2020. Guidance for employers, employees, and the self-employed.

Inter-American Development Bank

Corporate Governance: COVID-19 and the board of directors, March 2020. Indicative guidance for the Board of Directors in identifying, prioritizing, and implementing a governance framework to deal with the strategy and oversight challenges that COVID-19 may present, and a list of questions that can be asked by investors and that Board of Directors should consider to build an effective response to the COVID-19 crisis.

COVID-19 Guidance for Infrastructure Projects, March 2020. Guidance for clients to identify project performance and capacity gaps, along with context and project-related risks, that could contribute to COVID-19 transmission.

International Federation of Consulting Engineers

COVID-19 guidance memorandum for users of International Federation of Consulting Engineers (FIDIC) standard forms of works contract. An outline of the provisions in FIDIC's various general conditions of contract for works which may be relevant with regard to likely scenarios that are arising as a consequence of COVID-19. Guidance memorandum to help parties to a FIDIC contract to consider mutually satisfactory solutions and avoid disputes arising between them.

Coronavirus (COVID-19): FIDIC Guidance for Global Consulting Engineering Businesses, March 2020.

International Finance Corporation

Interim Advice for International Finance Corporation (IFC) Clients on Preventing and Managing Health Risks of COVID-19 in the Workplace, April 2020. A selection of publicly available advice from internationally recognized sources to help IFC clients rapidly identify measures for preventing and managing outbreaks of COVID-19 in the workplace, and for responding to community COVID-19 infection. Not exhaustive, and provides generic rather than sector-specific advice. Companies in high-risk sectors should refer to sector-specific procedures and standards.

Interim Advice for IFC Clients on Supporting Workers in the Context of COVID-19, April 2020. Tip sheet of useful information to support decision making in response to the impacts of COVID-19 on workers and employment. Focus areas include:

(i) Health and safety, including actions to prevent transmission.

(ii) Job protection, including supporting workers through difficult times and building resilience for businesses to operate during and after the immediate crisis.

(iii) Responsible retrenchment as an option only if there is no other alternative, and how to re-employ those workers, when possible, once the situation has improved.

Corporate Governance Tip-Sheet for Company Leadership on Crisis Response, Facing the COVID-19 Pandemic, April 2020. Generally applicable to any type of business, some tips may not be relevant based on the nature or size of business, shareholding structure, or other factors.

International Labour Organization

International Labour Organization (ILO) Standards and COVID-19 FAQ, March 2020. A compilation of answers to most frequently asked questions related to international labor standards and COVID-19.

Family-Friendly Policies and other Good Workplace Practices in the Context of COVID-19: Key steps employers can take, March 2020. General recommendations to help employers strengthen support for workers and their families. In collaboration with UNICEF.

International Organization for Migration

COVID-19: Guidance for employers and business to enhance migrant worker protection during the current health crisis, April 2020.

KfW

KfW DEG COVID-19 Guidance for employers, March 2020. Guidance specifically from the perspective of international guidance on social topics and occupational health and safety.

Occupational Health and Safety Organization

Guidance on Preparing Workplaces for COVID-19. Recommendations and descriptions of mandatory safety and health standards (based on the United States' Occupational Safety and Health Act of 1970). Advisory only. Identifies four categories of risk (low, medium, high, very high) depending on proximity to the people infected with the virus and recommends taking different level of precautions in the areas of engineering control, administrative control, and personal protective equipment (PPE).

Pan American Health Organization, World Health Organization, and United Nations Office for Project Services

COVID 19 Prevention Measures at Construction Sites

The United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)

Guidance for Action: Addressing the Emerging Impact of the COVID-19 Pandemic on Migrant Women in Asia and the Pacific for a Gender-Responsive Recovery. Note on the emerging impacts of the COVID-19 pandemic on women migrant workers and recommendations to support governments, donors, civil society organizations, employers, and the private sector in addressing those impacts.

World Health Organization

Considerations in adjusting public health and social measures in the context of COVID-19 (Interim Guidance) (WHO 2020).

Considerations in adjusting public health and social measures in the context of COVID-19 (Interim Guidance, April 2020) (WHO 2020).

Coronavirus disease (COVID-19) advice for the public, March 2020. Web page providing advice for the public, including on social distancing, respiratory hygiene, self-quarantine, and those seeking medical advice.

Getting your workplace ready for COVID-19, March 2020. Summary of general considerations for getting businesses ready for work in the context of COVID-19. Does not provide technical detail but useful starting point to develop further awareness. Also provides some specific guidance on meetings and travel.

Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response, March 2020. Advice on communicating effectively with the public, engaging with communities, local partners, and other stakeholders to prepare and protect public health relating to COVID-19.

Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19), March 2020. Guidance to member states on quarantine measures for individuals in the context of COVID-19. Intended for those responsible for establishing local or national policy for quarantine of individuals, and adherence to infection prevention and control measures.

Operational considerations for case management of COVID-19 in health facility and community, March 2020. Intended for health ministers, health system administrators, and other decision makers. Guidance for the care of COVID-19 patients as the response capacity of health systems is challenged; aims to ensure that COVID-19 patients can access lifesaving treatment, without compromising public health objectives and safety of health workers.

Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19), February 2020. Summary of WHO's recommendations for the rational use of PPE in health care and community settings, as well as during the handling of cargo. Intended for those who are involved in distributing and managing PPE as well as public health authorities and individuals in health care and community settings. Provides information about when PPE use is most appropriate.

Water, sanitation, hygiene and waste management for COVID-19, March 2020. Technical brief that supplements existing infection prevention and control (IPC) documents by referring to and summarizing WHO guidance on water, sanitation, and health care waste which is relevant for viruses (including coronaviruses). Written for water and sanitation practitioners and providers.

Safe management of wastes from health care activities, 2014. Handbook of practical guidance on the management of healthcare waste in local facilities. Provides guidelines for national and local administrators.

Advice on the use of masks in the community, during home care and in health care settings in the context of the novel coronavirus (COVID-19) outbreak, March 2020. Intended for individuals in the community, public health and IPC professionals, health care managers, health care workers, and community health workers. Updated version also includes advice to decision makers on the use of masks for healthy people in community settings.

Laboratory biosafety guidance related to coronavirus disease 2019 (COVID-19), March 2020. Interim guidance on laboratory biosafety related to the testing of clinical specimens of COVID-19 patients.

Infection prevention and control during health care when novel coronavirus infection is suspected, March 2020. Guidance for healthcare workers, health care managers, and IPC teams at the facility level, also relevant for national and district/provincial level.

Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, March 2020. Outline of rights and responsibilities of health workers, including the specific measures needed to protect occupational safety and health.

Disability Considerations during the COVID-19 outbreak, March 2020. Mitigation actions and protective measures that can reduce the impacts of COVID-19 on advice on vulnerable groups, focusing on those with disabilities.

This advisory note does not constitute medical or legal advice and is not a substitute for professional advice from international public health organizations such as the World Health Organization, national public health authorities, and national governments. We strongly encourage our borrowers and clients to seek guidance and monitor regular updates as the COVID-19 pandemic evolves. ADB is not responsible for the content of any external references within this document.

Cover photo. Tokyo, Japan—Elementary students wearing masks sit with distance to each other during graduation in Tokyo, 25 March 2020. Japanese Prime Minister Shinzo Abe has called for all schools in the country to close until the end of the spring holidays to reduce the risk of spreading the virus (photo by Richard Atrero de Guzman/ADB).

Annex 1 photo. San Fernando, Pampanga—Medical technicians test the equipment inside a sterile lab during the inauguration and turnover of the Pandemic Sub-National Reference Laboratory at the Jose B. Lingad Memorial Hospital in San Fernando, Pampanga on 9 May 2020. The laboratory financed by the $3 million grant from the Asia Pacific Disaster Response Fund, can perform up to 3,000 COVID-19 tests daily, significantly increasing the country's testing capacity (photo by Veejay Villafranca/ADB).

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Appendix 23: 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[50] or child labor;[51]
- 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,[52] pesticides, and herbicides,[53] (b) ozone-depleting substances,[54] (c) polychlorinated biphenyls[55] and other hazardous chemicals,[56] (d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora,[57] and (e) transboundary trade in waste or waste products;[58]
- production of or trade in weapons and munitions, including paramilitary materials;
- production of or trade in alcoholic beverages, excluding beer and wine;[59]
- production of or trade in tobacco;
- gambling, casinos, and equivalent enterprises;
- production of or trade in radioactive materials,[60] including nuclear reactors and components thereof.
- production of, trade in, or use of unbonded asbestos fibers;[61]
- 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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[50] Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty.

[51] 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).

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

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

[54] 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.

[55] 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.

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

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

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

[59] 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.

[60] 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.

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