# Environmental Assessment and Review Framework

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# NEP: Urban Water Supply and Sanitation (Sector) Project

Prepared by Ministry of Water Supply, Government of Nepal for the Asian Development Bank.

## CURRENCY EQUIVALENTS

(as of 2 July 2018)

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|---|---|---|
| Currency unit | - | Nepalese rupee (NRe) |
| $1.00 | = | NRs109.821 |
| NRe1.00 | = | $0.009 |

## ABBREVIATIONS

| | |
|---|---|
| ADB | Asian Development Bank |
| CSA | concerned sector agency |
| DSC | design and supervision consultant |
| DWSS | Department of Water Supply and Sewerage |
| EARF | environmental assessment and review framework |
| EIA | environmental impact assessment |
| EMP | environmental management plan |
| EMR | environmental monitoring report |
| EPA | Environment Protection Act |
| EPR | Environmental Protection Rules |
| IEE | initial environmental examination |
| GRC | grievance redress committee |
| GRM | grievance redress mechanism |
| MOSTE | Ministry of Science, Technology and Environment |
| MOWS | Ministry of Water Supply |
| NDWQS | National Drinking Water Quality Standards |
| O&M | operation and maintenance |
| PMO | project management office |
| PMQAC | project management and quality assurance consultant |
| RDSMC | regional design, supervision and management consultant |
| REA | rapid environmental assessment |
| RPMO | Regional Project Management Office |
| SEMP | site-specific environmental management plan |
| SPS | Safeguard Policy Statement |
| TDF | Town Development Fund |
| TOR | terms of reference |
| UWSSP | Urban Water Supply and Sanitation (Sector) Project |
| WHO | World Health Organization |
| WUA | Water Users Association |
| WUSC | Water Users and Sanitation Committee |
| WTP | water treatment plant |
| WWTP | wastewater treatment plant |

## NOTE

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

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# I. INTRODUCTION

## A. The Urban Water Supply and Sanitation (Sector) Project

1. The Urban Water Supply and Sanitation (Sector) Project (UWSSP) will support the Government of Nepal expand access to community managed water supply and sanitation (WSS) in 20 project municipalities by drawing on experiences and lessons from three earlier projects funded by the Asian Development Bank (ADB).[1] The project will fund climate-resilient and inclusive WSS infrastructure in project municipalities and strengthen institutional and community capacity, sustainable service delivery, and project development. Subprojects will be demand driven by Water Users Associations (WUAs) and project municipalities and selected based on transparent criteria[2] including population growth, poverty index, existing WSS infrastructure, community willingness for cost sharing, and long-term operation and maintenance (O&M) contract.[3]

2. The project will build upon the on-going efforts of the Government of Nepal in providing water supply and sanitation (WSS) services in urban areas of Nepal. It will help the country to meet Sustainable Development Goal (SDG)-6 to ensure availability and sustainable management of water and sanitation for all by 2030 and it is aligned with sector objectives laid out by the government's Fourteenth Plan, National Urban Development Strategy, and updated 15-year Development Plan for WSS in Small Towns, which is to improve water supply and sanitation service delivery in urban areas across Nepal.

3. The project will have the following impact: quality of life for urban population, including the poor and marginalized, through provision of improved sustainable WSS services.[4] The project will have the following outcome: Inclusive and sustainable access to water supply and sanitation services in project municipalities improved. The project will have two outputs: (i) water supply and sanitation infrastructure in project municipalities improved; and (ii) institutional and community capacities strengthened.

4. The Ministry of Water Supply (MOWS) is responsible for planning, implementation, regulation, and monitoring of WSS. The Department of Water Supply and Sewerage (DWSS) under the MOWS supports the provision of WSS facilities in municipalities where large utilities do not exist, and these are operated by WUSCs[5] or municipalities.[6] Shortage of investment funds, skilled personnel, and inadequate O&M budgets, hinders municipalities from providing adequate, cost-effective services. The Local Governance Operation Act, 2017, established municipalities as autonomous government institution with responsibility for WSS services. While municipalities' capacity is being built, the government and residents have been receptive to the decentralized, participatory, and cost-sharing service provision model by Water Users Associations (WUAs). Development support for municipal WSS has been channeled through a combination of (i)

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[1] ADB. Nepal: Small Towns Water Supply and Sanitation Sector Project (2000); Nepal: Second Small Towns Water Supply and Sanitation Sector Project (2009); and Nepal: Third Small Towns Water Supply and Sanitation Sector Project (2014).

[2] Subproject selection criteria are detailed in the PAM (footnote 24). Selection of future investments to be designed under the project will follow same criteria, with preference for investments located in Kathmandu Valley, provincial headquarters, and strategic border municipalities.

[3] Procurement can only commence after DWSS and municipality sign management agreement with WUSC for 20 years O&M service. The municipality will own the system and the WUSC will be the operator.

[4] Government of Nepal. 2009. *Urban Water Supply and Sanitation Policy*. Kathmandu.

[5] The WUSCs, formed under the Nepal Water Resource Act, 1992, are the elected executive bodies of the Water Users Association.

[6] The DWSS assists in preparation of investment plans, project design, and establishing sustainable service delivery.

government grants through DWSS, (ii) loans by the Town Development Fund (TDF),[7] and (iii) contributions from municipalities and beneficiaries.[8] The TDF also supports WUAs in institutional and financial management including the introduction of tariffs.

5. The project will be implemented over a five-year period (indicative implementation period is 2018 to 2023) and will be supported through ADB financing using a sector lending approach. The MOWS is the executing agency and DWSS the implementing agency. The project management office (PMO) established under ongoing Third Small Towns Water Supply and Sanitation Sector Project (footnote 1) will be responsible for the overall management, implementation and monitoring of the project. There will be regional PMOs (RPMOs) to manage day-to-day project implementation at the subproject/municipality level. After construction including a one-year O&M period by the contractor, subprojects will be operated. by the WUSC or municipality.

6. The indicative list of subprojects is summarized in Appendix 1. Subprojects will be demand-driven by WUAs or municipalities, and selected based on transparent criteria, including population growth, poverty index, existing WSS infrastructure, formed WUA, community willingness for cost sharing and long-term operation and maintenance (O&M) contract.[9] Before subproject tendering/implementation, the PMO will submit to ADB for concurrence and disclosure: (i) a summary sheet showing that the criteria have been met; (ii) salient features of each subproject; (iii) preliminary design of each subproject; (iv) environmental and social safeguards assessment screening results; (v) financial and economic analysis of the subproject, (vi) resettlement plans/indigenous people plans if subproject involves involuntary resettlement and/or land acquisition or causing adverse impacts to indigenous people communities based on the detail design; (vii) feasibility studies and/or detailed design reports; and (viii) as no environment Category A subproject per ADB Safeguard Policy Statement (SPS) 2009 will be considered under UWSSP, initial environmental examinations (IEEs) or environmental due diligence report, as applicable.

7. Environmental assessment has been conducted for five sample subprojects selected based on project towns or municipalities with (i) the most available information, and (ii) most likely environmentally sensitive components as determined during the initial stage of ADB loan processing. The sample subprojects consist of: (i) Package No. W01: Charikot (Dolakha) Water Supply and Sanitation Improvement (ii) Package No. W03: Siddhanath Baijanath Water Supply and Sanitation Improvement; (iii) Package No. W05: Ilam Water Supply and Sanitation Improvement; (iv) Package No. W19: Charikot Decentralized Wastewater Treatment System (DEWATS); and (v) Package No. W22: Katahariya Drainage. The environmental assessment used ADB's rapid environmental assessment (REA) checklists (Appendixes 2 and 3) and a "no mitigation measures scenario" checklist developed for UWSSP (Appendix 4). The environmental assessments of the sample subprojects show that UWSSP is not likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. Potential impacts are unlikely to affect areas larger than the sites or facilities subject to physical works. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed with uncomplicated measures commonly used at construction sites and known to

[7] The TDF is a government-owned entity established under the Town Development Fund Act, 1997. Loans from the government to WUAs or municipalities are generally on-lent by TDF under a subproject financing agreement.

[8] WUAs contribute 30% of project costs for water supply subprojects (25% from TDF loan and 5% from users' upfront cash contribution) and 15% for sanitation subprojects (subsidy from municipalities).

[9] Subproject selection criteria are defined in the Project Administration Manual (PAM). Procurement of services can only commence after the DWSS and municipality sign a management agreement with the WUSC for O&M of services for 20 years. The municipality will own the system, while WUSC will be the operator.

civil works contractors. 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.

8. The project is classified as Category B for environment per ADB SPS. Any subproject that will reclassify the project to environment Category A[10] per ADB SPS will not be considered as indicated in the subproject selection criteria in this environmental assessment and review framework (EARF) and the agreed subproject selection criteria in the project administration manual (PAM).[11]

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

9. This EARF has been prepared in accordance with ADB SPS and Government of Nepal Environment Protection Act (EPA) 1997 and Environment Protection Rules (EPR) 1997, as amended in 1999 and 2007. This EARF will provide guidance on subproject selection, screening and categorization, information disclosure and consultation, assessment, planning, institutional arrangement, and processes to be followed in the formulation and implementation of subprojects during project implementation.

10. This EARF:

(i) describes UWSSP and its subprojects and/or components;
(ii) explains the general anticipated environmental impacts of the components or subprojects to be financed under UWSSP;
(iii) specifies the requirements that will be followed in relation to subproject screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements and, where applicable, safeguard criteria that are to be used in selecting subprojects and/or components;
(iv) assesses the adequacy of the borrower's/client's capacity to implement national laws and ADB's requirements and identify needs for capacity building;
(v) specifies implementation procedures, including the budget, institutional arrangements, and capacity development requirements;
(vi) specifies monitoring and reporting requirements; and
(vii) describes the responsibilities of the borrower/client and of ADB in relation to the preparation, implementation, and progress review of safeguard documents of subprojects.

[10] 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 if it involves investment of ADB funds to or through a financial intermediary.

[11] The subproject selection criteria in Appendix 1 of the Project Administration Manual dated May 2018 is the overall selection criteria for all subprojects under the loan, which includes compliance of future proposed subprojects with this EARF.

## II. THE PROJECT AND ITS SUBPROJECTS AND/OR COMPONENTS

11. UWSSP will have the following outputs: (i) water supply and sanitation infrastructure in project municipalities improved; and (ii) institutional and community capacities strengthened. The indicative list of subprojects is summarized in Appendix 1.

12. Subprojects/components under Output 1 (water supply and sanitation infrastructure in project municipalities improved) include:

(i) 1,600 kilometers (km) of water supply pipes installed or rehabilitated;
(ii) 15 water treatment plants with an estimated capacity of 0.6 MLD constructed;
(iii) 66,000 households connected to piped water supply with subsidized connections for 8,000 poor and 2,000 vulnerable (including 100% poor women-headed) households;
(iv) 8,000 toilets constructed through output-based aid for poor and vulnerable households;
(v) 20 public toilets with septic tanks, which are gender- and disabled-friendly constructed;
(vi) two decentralized wastewater treatment plants constructed and operational;
(vii) 30 km storm water drainage constructed; and
(viii) climate and disaster risks considered in designing subprojects and incorporated, if necessary.

13. Subprojects/components under Output 2 (institutional and community capacities strengthened) include:

(i) Water, sanitation and hygiene (WASH) plans including priority investments for 20 project municipalities prepared and approved by municipality;
(ii) 20 WUAs registered and Water Users and Sanitation Committees (WUSCs) formed with at least 33% women and at least one woman in a key post;
(iii) business plans and tariff guidelines prepared for project WUSCs and municipalities with Institutional Support and Service Advisory Unit (ISSAU) and Town Development Fund (TDF) support;
(iv) at least 15 climate-resilient WSS subprojects for future investments prepared; (v) at least 200 staff (including 66 female staff) of DWSS, TDF, project WUSCs and municipalities, reported improved knowledge in smart utility management and leadership; and
(v) (vi) at least 100,000 people (at least 50% women) covered under awareness campaign on water conservation and sustainable hygiene behavior practices and 80% report increased awareness.

14. **Subproject Selection.** Table 1 summarizes UWSSP subprojects and the subproject selection criteria. Subprojects will be demand driven by WUAs or municipalities, and selected based on transparent criteria, including population growth, poverty index, existing WSS infrastructure, formed WUA, community willingness for cost sharing and long-term O&M contract.[12] Existing DWSS design guidelines for urban WSS will apply for all subprojects. If found necessary, DWSS will update the guidelines to ensure that designs are responsive to climate and disaster risks. Selection of future WSS investments to be designed under UWSSP will follow the same criteria, and preference may be given to subprojects located in Kathmandu Valley,

[12] Subproject selection criteria are defined in the PAM. Procurement of services can only commence after the DWSS and municipality sign a management agreement with the WUSC for O&M of services for 20 years. The municipality will own the system, while WUSC will be the operator.

provincial headquarter, and strategic border municipalities, ensuring that people's demand for improved WSS services can be timely addressed.

**Table 1: UWSSP Components and Subproject Selection Criteria**

| Component/ Subproject | Subcomponent | Project Administration Manual Subproject Selection Criteria Related to Environment Safeguards |
|---|---|---|
| Water Supply | Raw water extraction | • Necessary agreement and approval have been obtained in accordance with relevant laws and regulations |
| | | • Detailed investigations (e.g. hydrogeological surveys, bore tests, etc.) are carried out to confirm adequate and sustainable yield is available from the proposed source for supply of minimum 100 lpcd. |
| | | • Water quality test of the proposed source is carried out to ensure and confirm it meets National Drinking Water Quality Guidelines (NDWQG). Water source with arsenic levels above the national standards will not be selected. If small traces of arsenic (below the national standards) have been detected, testing for arsenic will be conducted once a month for the duration of 3 months. Arsenic test results will be submitted to ADB for review before the water source is developed for drinking purposes. |
| | Intake<br>- deep tube wells<br>- borehole well<br>- surface water intake structure | • Located at least 30m upstream of any sanitation facilities. Where this cannot be maintained, the design and implementation will ensure that (i) septic tanks will be sealed to make them water tight and emptied as per the design requirements |
| | | • Intake of the source is; (ii) appropriate borehole case and screen are installed; and (iii) a test pit is established, and water quality monitoring is conducted regularly (at least once every quarter) |
| | Water reservoirs such as overhead tanks (OHT), ground level service reservoirs (GLSR), etc. | • Infrastructure, such as OHT, GLSR, etc. will be located considering high flood level in floodplains |
| | Water pipes | • All pipes are designed to be constructed underground. |
| | Water treatment plant (WTP) | • No WTP is established in floodplains |
| Sanitation | Household sanitation | • Septic tanks will be designed as per national standards and DWSS's design guidelines to allow for maximum retention of septage (minimum 3 years) and water sealing. |
| | | • Toilets will be established at least 30m downstream of the drinking water source. Where this cannot be maintained, the design and implementation will ensure that (i) septic tanks of the toilets will be sealed to make them water tight and emptied as per the design requirements; (ii) appropriate borehole case and screen are installed; and (iii) a test pit is established, and water quality monitoring is conducted regularly (at least once every quarter). |
| | | • Toilets will not be established in floodplains or flood prone areas. |
| | | • An operation and maintenance (O&M) plan to be developed will provide details on the frequency and responsibility for collection and disposal of septage at |

| Component/ Subproject | Subcomponent | Project Administration Manual Subproject Selection Criteria Related to Environment Safeguards |
|---|---|---|
| | | approved site, and identity roles and responsibilities for each of the tasks. |
| | | • Hygiene promotion campaign and educational program is developed, and the Water Users Association (WUA) or municipality commits to implementing the same. |
| | Public Toilets | • located in, or adjacent to, a frequently used public area on the WUA or municipality land with no or minimum involuntary resettlement/ social impacts |
| | | • If the municipality doesn't have adequate capacity, the WUA has agreed to manage the public toilet on behalf of the municipality until the municipality has adequate capacity |
| | | • Septic tanks will be designed as per national standards and codes to allow for maximum retention of septage (minimum 3 years) and water sealing. |
| | | • Toilets will be established at least 30m downstream of the drinking water source, and not in floodplains or flood prone areas. Where this cannot be maintained, the design and implementation will ensure that (i) septic tanks of the toilets will be sealed to make them water tight and emptied as per the design requirements; (ii) appropriate borehole case and screen are installed; and (iii) a test pit is established, and water quality monitoring is conducted regularly (at least once every quarter). |
| | | • An O&M plan is developed providing details on the frequency and responsibility for collection and disposal of septage at approved site, and commitment to provide minimum operational staff and operate the facilities sustainably is given by WUAs or municipalities. |
| | | • Hygiene promotion campaign and educational program is developed to promote open defecation free (ODF) in the towns, and WUA or municipality commits to implementing it. |
| | Septage Management | • If the municipality does not have adequate capacity, then the WUA has agreed to manage the septage facility on behalf of the municipality until the municipality has adequate capacity. |
| | | • Public or WUA land with no or minimum involuntary resettlement impacts is available for construction. |
| | | • The site selected to establish the facility is at least 300m away from the nearest dwelling, 30m downstream from any drinking water source, not in a protected or religious area, and in relatively flat land with no more than 8% slope. |
| | | • Site is not where food crops are grown. Septage facility can be established in a community forest or woodland that is not declared as a protected area. |
| | | • Facility is designed in accordance with appropriate standards. In the absence of national standards, international standards, such as those prescribed by the Environmental Protection Agency of the United States of America, may be used. |

| Component/ Subproject | Subcomponent | Project Administration Manual Subproject Selection Criteria Related to Environment Safeguards |
|---|---|---|
| | Wastewater Treatment /Decentralized Wastewater Treatment | • Located in the core area of the municipality (most densely populated) area and with an existing or proposed water supply that provides sufficient flow to achieve self-cleansing velocities in the sewers. In case of the latter, water supply subproject will have been completed before the Waste Water/DEWATs is commissioned. |
| | | • Public or WUA land with no or minimum involuntary resettlement impacts is available for construction. |
| Stormwater Drainage | Drainage system | • The municipal core area experiences severe disabilities during heavy rainstorms, such as flooding of roads and buildings, severe water logging, disruption of traffic and general unsanitary conditions |
| | | • Prior to design - a storm water master plan has been prepared and approved for the municipality that shows a feasible drainage solution. |
| | | • Municipality is able to develop the means and resources to maintain the proposed drains in a serviceable manner. |
| | | • use the existing road and drainage right-of-way (ROW) with no or minimum involuntary resettlement impacts. Drainage construction using or crossing private lands shall be avoided. If involuntary resettlement impacts are identified for the street vendors/shops/stalls, regardless of their legal status, located in the proposed subproject an appropriate due diligence report and or resettlement plan will be prepared in accordance to the agreed Resettlement Framework. |
| | | • Drainage capacities to be designed are based on one in a fifty-year flood event. |
| | | • No drainage shall be established in protected areas, near sensitive receptors and within the setback distance of a historical or cultural heritage site. |

15. **Specific Environment Safeguards Criteria.** In addition to the above general criteria, subproject will be selected based on the following specific environment safeguards criteria (Table 2). Any subproject, which does not meet the general criteria above and specific criteria listed below may be rejected.

**Table 2: UWSSP Specific Environment Safeguards Criteria for Subproject Selection**

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
|---|---|---|---|
| General | All subprojects | not directly affect environmentally protected areas, core zones of biosphere reserves, highly valued cultural property | |
| | | not be located in the following ecologically sensitive areas: wildlife/bird sanctuaries, national parks, tiger reserves, elephant reserves, conservation reserves, core zone of biosphere reserves, centrally protected monuments or critical habitat (as defined in ADB | |

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
|---|---|---|---|
| | | Safeguard Policy Statement or SPS); | |
| | | not be deemed highly complex and sensitive in accordance with ADB SPS | |
| | | not cause damage/destruction, removal, alteration or defacement of adjacent or nearby structures/monuments and sites of international, national and local significance. Subprojects with component activities near (within 50 m from) such sites shall have prior coordination with the Department of Archaeology | If location is within 300 m of Nepal protected monuments/ sites and there is no alternative, permissions from the Department of Archaeology to be obtained prior to finalization of detailed engineering design |
| | | Only involve activities that follow all applicable government laws, rules and regulations | Permits/clearances to be obtained prior to award of contract |
| | | Not include and/or involve any activities listed in ADB's Prohibited Investment Activities List (Appendix 5 of ADB SPS). These activities do not qualify for ADB's financing | |
| | | Reflect inputs from public consultations | Consultations shall be in accordance with ADB SPS requirement for meaningful consultations |
| | | Corresponding initial environmental examinations (IEEs) prepared in accordance with this environmental assessment and review framework (EARF) and Safeguard Requirements 1 of ADB SPS; identified all the key potential environmental and social impacts and risks; and incorporated effective measures to avoid, minimize, mitigate of compensate for the adverse impacts into an environmental management plan (EMP) and project design. | IEE to be submitted to ADB for review and approval. |
| Water Supply | Water supply system | Construct, operate and maintain the water treatment facility in accordance with national requirements and internationally accepted standards[a] to meet national water quality standards or, in their absence, World Health Organization (WHO) Guidelines for Drinking Water Quality;[b] | |
| | | Ensure road access to water treatment plant, pumping stations, | |

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
|---|---|---|---|
| | | and reservoirs/tanks for operations and maintenance activities | |
| | Raw water extraction | Extract raw water from source that can sustain the: (i) quantity needed to meet demand during the planned service period even during climate change-induced drought events without adversely affecting other beneficial uses of the resource and downstream users | Evaluate potential adverse effects of surface water withdrawal on the downstream ecosystems and use appropriate environmental flow assessment to determine acceptable withdrawal rates.[c] Avoid water-use conflicts by not abstracting water that is used for other purposes (e.g., irrigation) unless no objection letter (NOL) is obtained from regulatory authority |
| | Intake<br>- deep tube wells<br>- borehole well<br>- surface water intake structure | Tube well sites and/or surface water intake locations will be fenced or have security provided to them | Augmentation of water supply from an existing groundwater source or development of new source shall be supported by groundwater studies establishing water availability, sustainability, and quality. |
| | | For any tree to be cut, consider replacement of 1:10 | |
| | Water reservoirs such as overhead tanks (OHT), ground level service reservoirs (GLSR), etc. | For any tree to be cut, consider replacement of 1:10 | |
| | Water pipes | For any tree to be cut, consider replacement of 1:10 | |
| | | Will not involve use or installation of asbestos cement pipes | Existing asbestos cement pipes, if any, shall be left untouched in the ground |
| | Water treatment plant (WTP) | Include sludge management plan | |
| | | Locations will be fenced or have security provided to them | |
| | | Include in the operation and maintenance manual the allowable maximum quantity of chlorine that can be stored on-site at water treatment plants and/or chlorinator facilities. | The distance to nearest property needs to be determined and if people would be at risk in event of incident. If they would be at risk, then they need to be involved in emergency response planning per ADB SPS requirement on |

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
|---|---|---|---|
| | | | community health and safety impacts. |
| | | Avoid noise impact due to pump and diesel generators operations by locating minimum of 50 m away from any premises used by people (house, shops). | In case of no alternative options, the following mitigation measures shall be incorporated in the design and EMP: (i) procure good quality latest technology high pressure pumps that guarantee controlled noise at a level of around 70 dB(A) at a distance of 1 m; (ii) use appropriate building materials and construction techniques for pump houses which can absorb sound rather than reflect noise; (iii) use acoustic enclosures – manufacturer specified, for all DG sets, pumps, motors and other noise-producing equipment; (iv) provide to workers sound mufflers and ear plugs designated for noise reduction |
| | | Store chemicals and fuel in appropriate tanks or containers, and regularly inspect them for wear or damage. Store chemical waste and used chemical products in a secure location, away from the well and dispose any product in an environmentally-friendly manner. | |
| Sanitation | Household sanitation | Ensure to (i) promote and facilitate correct septic tank design and improvement of septic tank maintenance. Septic tank design shall balance effluent quality and maintenance needs;[d] (ii) consider provision of systematic, regular collection of fecal sludge and septic waste; (iii) use appropriate collection vehicles. | A combination of vacuum tanker trucks and smaller hand-pushed vacuum tugs may be needed to service all households; and (iv) facilitate discharge of fecal sludge and septage at storage and treatment facilities so that untreated septage is not discharged to the environment |
| | Decentralized Wastewater Treatment (DEWAT) | Design, construct, operate, and maintain wastewater treatment facilities and achieve effluent water quality consistent with applicable national requirements or internationally accepted standards[e] and consistent with effluent water quality goals based on the assimilative capacity and the | |

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
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| | | most sensitive end use of the receiving water;[f] | |
| | | Equip pumping stations with a backup power supply, such as a diesel generator, to ensure uninterrupted operation during power outages, and conduct regular maintenance to minimize service interruptions. Consider redundant pump capacity in critical areas | |
| | | Consider the receiving water body use (e.g. navigation, recreation, irrigation, or drinking) together with its assimilative capacity to establish a site-specific discharge quality that is consistent with the most sensitive use | |
| | | Treated wastewater (liquid effluents) may be reused for irrigation or other purposes or disposed subject to regulatory oversight | Treated wastewater quality for land application or other uses shall be consistent with the relevant public health-based guidance from WHO[g] and applicable national requirements |
| | | Land application or other beneficial re-use of wastewater treatment plant residuals shall be considered but only based on an assessment of risks to human health and the environment. | Quality of residuals for land application shall be consistent with the relevant public health-based guidance from WHO[h] and applicable national requirements |
| | | Select appropriate sludge treatment technologies, considering, for example, the quantity and sources of sludge; available resources for capital expenditures, training, operations and maintenance; availability of skilled operators, maintenance personnel, etc.; and the desired disposal methods or end uses of the treated solids. | Sludge treatment technologies are discussed in Annex A of the Environmental, Health and Safety (EHS) Guidelines on Water and Sanitation;[i] |
| | | Cover emission points (e.g., aeration basins, clarifiers, sludge thickeners, tanks, and channels), and vent emissions to control systems (e.g., compost beds, biofilters, chemical scrubbers, etc.) as needed to reduce odors and otherwise meet applicable national requirements and internationally accepted guidelines. Where necessary, consider alternate aeration technologies or process | |

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
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| | | configurations to reduce volatilization | |
| | | Locate sewage pumping stations at least 50 m from houses, sensitive buildings like schools, hospitals, religious places etc. | In case of non-availability of suitable sites due to land and technical design constraints in already developed areas, where 50 m buffer is not available, following procedures shall be adopted and documented in order to finalize sites for implementation of project: (i) conduct alternate site analysis, justify the selected site; (ii) develop odor mitigation measures to prevent and control odor/air emissions – design measures, and operational practices that are feasible and practical in local conditions and include in DPR; (iii) develop layout plan with maximum buffer to nearby houses; (iv) provide a peripheral green buffer (at least 3 rows of trees within the pumping station compound); and (v) public information – consult local community, inform about the need, process adopted to select sites, its suitability, and measures adopted for odor prevention and control |
| Stormwater Drainage | Drainage system | Discharge storm water runoff to an adequate receiving body without causing adverse on- or off-site environmental impacts | |
| | | All the drainage works shall be designed to blend in with the environment | |
| | | Under certain circumstances, storm water runoff may be contaminated by different pollution sources including sewage through expedient connections and hence giving rise to odor nuisance. Siltation and odor problems shall therefore be considered at planning, design, construction and operation stages of stormwater drainage system, in particular | |

| Component/ Subproject | Subcomponent | Specific Criteria Related to Environment Safeguards | Remarks |
|---|---|---|---|
| | | where significant pollution, such as discharge of livestock's waste into watercourses, channels, nullahs etc., is identified | |
| | | Ensure requirements for drainage maintenance measures are incorporated into the operations and maintenance manual and suitable budget allowed for to ensure ongoing performance of measures | |
| | | For projects that may affect natural streams or rivers, the PIU shall ensure that comments and advice received from regional project management office (RPMO), design engineers, and appropriate departments are incorporated into the planning, design and construction of the subprojects as far as practicable. If there is vegetation or landscaping features forming part of the mitigation requirements, the RPMO and design engineers shall also identify the maintenance party during the design stage | |
| | | In addition to the air, noise, dust and water aspects which are usually considered for most civil engineering works, issues such as dredging and disposal of contaminated mud and the impact of large-scale drainage works on the ecology of the surrounding areas shall also require detailed assessment. | |

[a] See, for example, American Water Works Association Standard G100-05: Water Treatment Plant Operation and Management.

[b] Refer to the WHO website at http://www.who.int for the most recent version of the Drinking Water Guidelines.

[c] World Bank Water Resources and Environment Technical Note C.1 – Environmental Flow Assessment: Concepts and Materials.

[d] Examples of key septic system design considerations are presented in the General EHS Guidelines. More complicated septic tank designs (e.g., three chambers, added sand filters, etc.) can improve effluent quality, but are usually more susceptible to clogging and other failures, especially if regular maintenance is not performed.

[e] See, for example, U.S. EPA regulations at 40 CFR Part 133 regarding Secondary Treatment, and Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Waste-Water Treatment.

[f] See World Health Organization, Linking Technology Choice with Operation and Maintenance in the Context of Community Water Supply and Sanitation: A Reference Document for Planners and Project Staff, 1993. Refer to the section on "Discharge to Surface Water" of the General EHS Guidelines.

[g] WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater (2006).

[h] WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater (2006).

[i] IFC World Bank Group. 2007. *Environmental, Health, and Safety Guidelines for Water and Sanitation*.

## III. GENERAL ANTICIPATED ENVIRONMENTAL IMPACTS

16. In UWSSP, potential impacts are expected due to that civil works. The nature of the subprojects and scope of the civil works will generate impacts, issues and concerns prior to construction, during construction and during operation. The potential impacts, issues and concerns from assessed sample subprojects and future subprojects using ADB REA Checklists and "no mitigation measures scenario" checklist developed for UWSSP are presented in Tables 3 to 5 below.

**Table 3: Water Supply Subproject Potential Environmental Impacts, Issues and Concerns (No Mitigation Measures Scenario)**

| Design | Construction | O&M |
|---|---|---|
| • pollution of raw water supply from upstream wastewater discharge<br>• hazard of land subsidence caused by excessive groundwater pumping<br>• excessive abstraction of water affecting downstream water users<br>• competing uses of water<br>• social conflicts arising from displacement of communities<br>• conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters<br>• inadequate protection of intake works or wells, leading to pollution of water supply<br>• over pumping of ground water, leading to salinization and ground subsidence<br>• increase in production of sewage beyond capabilities of community facilities<br>• inadequate buffer zone around pumping and treatment plants<br>• health hazards arising from inadequate design of facilities for receiving, storing and handling of chlorine and other hazardous chemicals<br>• increased sewage flow due to increased water supply<br>• dislocation or involuntary resettlement of people<br>• disproportionate impacts on the poor, women and | • noise<br>• dust<br>• traffic<br>• impairments associated with transmission lines and access roads<br>• health and safety hazards to workers<br>• continuing soil erosion/ silt runoff<br>• population influx that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)<br>• social conflicts if workers from other regions or countries are hired<br>• risks to community health and safety due to transport, and use and/or disposal of materials such as explosives, fuel and other chemicals<br>• 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 failure could result in injury to the community<br>• clearance of existing land, vegetation or building<br>• pre-construction investigations (boreholes, soil testing, etc.)<br>• construction works<br>• demolition works | • unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)<br>• delivery of unsafe water to distribution system<br>• excessive algal growth in storage reservoir<br>• increase in production of sewage beyond capabilities of community facilities inadequate disposal of sludge from water treatment plants<br>• health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards<br>• delivery of unsafe water due to poor O&M treatment processes (especially MOWS accumulations in filters)<br>• inadequate chlorination due to lack of adequate monitoring of chlorine supply<br>• delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals<br>• accidental leakage/spillage of chlorine<br>• increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant<br>• population influx that causes increased burden on social |

| Design | Construction | O&M |
|---|---|---|
| children, indigenous peoples or other vulnerable groups<br>• permanent or temporary change in land use or topography including increases in intensity of land use | • temporary sites used for construction works or housing of construction workers<br>• cut and fill or excavations<br>• working in stream crossings<br>• use of resources (materials, water, energy, etc.)<br>• changes in occurrence of disease or affect disease vectors (e.g. insect or water-borne disease) due to worker's camp<br>• solid wastes such as spoils, overburden, etc.<br>• solid wastes from worker's camp<br>• emission from burning of waste in open air (e.g. worker's camp, slash materials, construction debris) | infrastructure and services (such as water supply and sanitation systems)<br>• social conflicts if workers from other regions or countries are hired<br>• risks to community health and safety due to transport, and use and/or disposal of materials such as explosives, fuel and other chemicals<br>• 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 failure could result in injury to the community<br>• use of resources (materials, water, energy, etc.)<br>• WTP sludge<br>• positive impacts - employment to local people; safe and easy access to improved water supply which will enhance people's health, and boost economic conditions of municipalities |

**Table 4: Sanitation Subproject Potential Environmental Impacts, Issues and Concerns (No Mitigation Measures Scenario)**

| Design | Construction | O&M |
|---|---|---|
| • nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.<br>• disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups<br>• impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage<br>• overflows and flooding of neighboring properties with raw sewage | • interference with other utilities and blocking of access to buildings<br>• dislocation or involuntary resettlement of people<br>• disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups<br>• noise and vibration due to blasting and other civil works<br>• risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards<br>• road blocking and temporary flooding due to land | • nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.<br>• impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage<br>• overflows and flooding of neighboring properties with raw sewage<br>• environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers |

| Design | Construction | O&M |
|---|---|---|
| • environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers<br>• discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers<br>• inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities<br>• permanent or temporary change in land use or topography including increases in intensity of land use | excavation during the rainy season<br>• noise and dust<br>• traffic disturbances due to construction material transport and wastes<br>• temporary silt runoff<br>• population increase that causes increased burden on social infrastructure (such as sanitation system)<br>• social conflicts between construction workers from other areas and community workers<br>• risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals<br>• community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community<br>• clearance of existing land, vegetation or building<br>• pre-construction investigations (boreholes, soil testing, etc.)<br>• construction works<br>• demolition works<br>• temporary sites used for construction works or housing of construction workers<br>• cut and fill or excavations<br>• working in stream crossings<br>• use of resources (materials, water, energy, etc.)<br>• changes in occurrence of disease or affect disease vectors (e.g. insect or water-borne disease) due to worker's camp<br>• solid wastes such as spoils, overburden, etc. | • risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards<br>• discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers<br>• noise<br>• hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system<br>• deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water<br>• contamination of surface and ground waters due to sludge disposal on land<br>• health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unstabilized sludge<br>• population increase that causes increased burden on social infrastructure (such as sanitation system)<br>• risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals<br>• community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community<br>• use of resources (materials, water, energy, etc.)<br>• Water Treatment Plant sludge |

| Design | Construction | O&M |
|---|---|---|
| | • solid wastes from worker's camp<br>• emission from burning of waste in open air (e.g. worker's camp, slash materials, construction debris) | • positive impacts - employment to local people; safe and easy access to improved sanitation which will enhance people's health, and boost economic conditions of municipalities |

**Table 5: Storm Water Drainage Subproject Potential Environmental Impacts, Issues and Concerns (No Mitigation Measures Scenario)**

| Design | Construction | O&M |
|---|---|---|
| • disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups<br>• environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in drainage system<br>• discharge of hazardous materials into the drains<br>• permanent or temporary change in land use or topography including increases in intensity of land use | • interference with other utilities and blocking of access to buildings<br>• dislocation or involuntary resettlement of people<br>• disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups<br>• noise and vibration due to blasting and other civil works<br>• risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards<br>• road blocking and temporary flooding due to land excavation during the rainy season<br>• noise and dust<br>• traffic disturbances due to construction material transport and wastes<br>• temporary silt runoff<br>• population increase that causes increased burden on social infrastructure (such as sanitation system)<br>• social conflicts between construction workers from other areas and community workers<br>• risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals<br>• community safety risks due to both accidental and natural hazards, especially where the structural | • risks and vulnerabilities related to occupational health and safety due to physical, chemical, and biological hazards<br>• discharge of hazardous materials into drains<br>• positive impacts - employment to local people; improved flooding conditions which will enhance people's well-being, and boost economic conditions of municipalities |

| Design | Construction | O&M |
|---|---|---|
| | elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community<br>• clearance of existing land, vegetation or building<br>• pre-construction investigations (boreholes, soil testing, etc.)<br>• construction works<br>• demolition works<br>• temporary sites used for construction works or housing of construction workers<br>• cut and fill or excavations<br>• working in stream crossings<br>• use of resources (materials, water, energy, etc.)<br>• changes in occurrence of disease or affect disease vectors (e.g. insect or water-borne disease) due to worker's camp<br>• solid wastes such as spoils, overburden, etc.<br>• solid wastes from worker's camp<br>• emission from burning of waste in open air (e.g. worker's camp, slash materials, construction debris) | |

17. As subproject locations/sites are screened during selection process, environmental impacts due to location are not anticipated in UWSSP. The environmental assessments of the sample subprojects show that UWSSP is not likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. Potential impacts are unlikely to affect areas larger than the sites or facilities subject to physical works. These impacts are site-specific and few if any of them are irreversible. Planning principles, subproject selection criteria, and design considerations have been reviewed and incorporated into the site planning and design process wherever possible; thus, environmental impacts as being due to the project design or location were not significant. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. These were discussed with specialists responsible for the engineering aspects, and as a result significant measures have already been included in the subproject designs.[13] In most cases mitigation measures can be designed with uncomplicated

[13] For the water supply subprojects, various design-related measures suggested for: providing safe water following WHO Guideline values, uninterrupted power supply provision; standard operating procedures for operation and maintenance; and imparting necessary training for WUCs and Municipality staff, personal protection equipment for workers and water treatment plant (WTP) sludge handling, and development of green buffer zone around the WTP,

measures commonly used at construction sites and known to civil works contractors. Once the subprojects are operating, the facilities will operate with routine maintenance, which shall not affect the environment. Improved system operation will comply with the operation and maintenance manual and standard operating procedures to be developed for all the subprojects.

18. The IEEs of the sample subprojects included environmental management plans (EMPs) which describe and address the potential impacts and risks identified by the environmental assessment. The EMPs included proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. 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,[14] and (ii) to submit a site-specific environmental management plan (SEMP), including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SEMP; and (iv) budget for SEMP implementation.

## IV. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

### A. ADB Safeguard Policy Statement

19. ADB SPS requires borrowers to meet a set of requirements (Safeguards Requirements 1) when delivering environmental safeguards for projects supported by ADB. The objectives are to ensure the environmental soundness and sustainability of projects, and to support the integration of environmental considerations into the project decision-making process. Hence, UWSSP is required to comply with these requirements. Summary of the step by step process is discussed below in this section. Detailed discussions are provided in the ADB SPS. [15]

20. **Screening and Categorization.** Subprojects are to be screened for their expected environmental impacts, and are assigned to a specific category (Footnote 10). Categorization is to be based on the most environmental sensitive component. However, for subproject(s) with component(s) that can trigger Category A or with potentially significant adverse impacts that are diverse, irreversible, or unprecedented, PMO shall examine alternatives to the subproject's location, design, technology, and components that would avoid, and, if avoidance is not possible, minimize adverse environmental impacts and risks, and to meet Category B categorization. The rationale for selecting the subproject location, design, technology, and components will be properly documented, including, cost-benefit analysis, taking environmental costs and benefits of the various alternatives considered into account. The "no action" alternative will be also considered. In general, criteria that can trigger subproject's 'Category A' are in Section V below.

OHTs and GLSRs. For the sanitation subprojects, various design-related measures suggested for: providing safe disposal of treated wastewater; efficient treatment to meet disposal standards, odor control at facilities, uninterrupted power supply provision; standard operating procedures for operation and maintenance; and imparting necessary training for WUCs and municipality staff; providing necessary safety no manual cleaning of sewers, and personal protection equipment for workers (protection against oxygen deficiency, harmful gaseous emissions) and sludge handling, and development of green buffer zone around the DEWAT plant.

[14] 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.

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

21. **Environmental Assessment.** Environmental assessment shall include description of environmental and social baseline to provide an understanding of current conditions forming the benchmark against which subproject impacts are assessed. Environmental impacts and risks will be analyzed for all relevant stages of the project cycle, including design and planning stage, construction, operations, decommissioning, and post-closure activities such as rehabilitation or restoration. The structure and composition of the typical IEE report is provided in Appendix 6. The IEEs of sample subprojects prepared during the ADB loan processing stage[16] may be used as model documents for UWSSP subprojects.

22. **Environmental Planning and Management.** The PMO and RPMOs shall prepare environmental management plan (EMP) to be included in the IEE report. The EMP shall describe and address the potential impacts and risks identified by the environmental assessment. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the subproject's impact and risks. The EMP shall include the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators.

23. **Public Disclosure**. MOWS, through PMO, shall submit to ADB for disclosure on ADB website so affected people, other stakeholders, and the public can provide meaningful inputs into the subproject design and implementation: [17]

(i) final IEE upon receipt;
(ii) a new or updated environmental impact assessment (EIA)/IEE and corrective action plan prepared during subproject implementation, if any; and
(iii) environmental monitoring reports submitted during subproject implementation upon receipt.

24. **Consultation and Participation.** PMO and RPMOs shall carry out meaningful consultation[18] 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.

25. **Grievance Redress Mechanism.** MOWS, through PMO, shall establish a mechanism to receive and facilitate resolution of affected peoples' 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. As of the ADB loan processing for UWSSP, a grievance redress mechanism (GRM) has been established and discussed in detail in Section VI below.

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[16] Subprojects with IEEs prepared during project processing include (i) Charikot Water Supply and Sanitation (WSS), (ii) Ilam WSS, (iii) Siddhanath Baijanath WSS, (iv) Charikot DEWATS, and (v) Katahariya Storm Drain.

[17] Per ADB SPS, 2009, prior to disclosure on ADB website, ADB reviews the "borrower's/client's social and environmental assessment and plans to ensure that safeguard measures are in place to avoid, wherever possible, and minimize, mitigate, and compensate for adverse social and environmental impacts in compliance with ADB's safeguard policy principles and Safeguard Requirements 1-4."

[18] 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;1 (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.

26. **Monitoring and Reporting.** PMO shall monitor, measure and document the progress of implementation of the EMP. If necessary, PMO will identify the necessary corrective actions, and reflect them in a corrective action plan. PMO will prepare and submit to ADB semi-annual environmental monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any. For subprojects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis until ADB issues a project completion report.

27. **Unanticipated Environmental Impacts.** Where unanticipated environmental impacts become apparent during subproject implementation, PMO shall update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, evaluate the alternatives, and outline mitigation measures and resources to address those impacts.

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

29. **Occupational Health and Safety.** PMO[19] shall ensure that workers[20] are provided with a safe and healthy working environment, considering risks inherent to the sector and specific classes of hazards in the subproject work areas, including physical, chemical, biological, and radiological hazards. PMO 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) documenting and reporting occupational accidents, diseases, and incidents; and (vi) having emergency prevention, preparedness, and response arrangements in place.

30. PMO 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.[21]

31. **Community Health and Safety.** PMO shall ensure to identify and assess the risks to, and potential impacts on, the safety of affected communities during the design, construction,

[19] In case where responsibility is delegated to subproject contractors during construction phase, PMO shall ensure that the responsibilities on occupational health and safety as described herein are included in the contract documents.
[20] Including nonemployee workers engaged by the borrower/client through contractors or other intermediaries to work on project sites or perform work directly related to the project's core functions.
[21] World Bank Group, 2007. *Environmental, Health, and Safety General Guidelines.* Washington, DC.

operation, and decommissioning of the subproject, and will establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts.

32. **Physical Cultural Resources**. PMO is responsible for siting and designing the subproject to avoid significant damage to physical cultural resources. Such resources likely to be affected by the subproject will be identified, and qualified and experienced experts will assess the subproject's potential impacts on these resources using field-based surveys as an integral part of the environmental assessment process. When the proposed location of a subproject component is in areas where physical cultural resources are expected to be found as determined during the environmental assessment process, chance finds procedures shall be included in the EMP.

33. **Environmental Audit.** When the subproject involves existing activities or facilities, PMO is responsible to ensure that relevant external experts will perform environmental audits to determine the existence of any areas where the subproject may cause or is causing environmental risks or impacts. If the subproject does not foresee any new major expansion, the audit constitutes the environmental assessment for the subproject.

34. **Bidding and Contract Documents.** IEEs and EMPs are to be included in bidding and contract documents and verified by the RPMOs. The PMO and RPMOs shall also ensure that bidding and contract documents include specific provisions requiring contractors to (i) comply with all other conditions required by ADB,[22] and (ii) to submit to RPMO, for review and approval, a site-specific environmental management plan (SEMP), including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SEMP; and (iv) budget for SEMP implementation. No works can commence prior to approval of SEMP. A copy of the EMP 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 or SEMP constitutes a failure in compliance and shall require corrective actions.

35. **Conditions for Award of Contract and Commencement of Work.** PMO shall not award any Works contract for a subproject until (i) relevant provisions from the EMP are incorporated into the Works contract; and (ii) the IEE is updated to reflect subproject's detailed design and PMO has obtained ADB's clearance of such IEE. For "design, build, and operate" type contracts, PMO shall ensure no works for a subproject which involves environmental impacts shall commence until (i) relevant provisions from the EMP are incorporated into the Works contract; and (ii) the IEE is updated to reflect subproject's detailed design and PMO has obtained ADB's clearance of such IEE.

## B. Government Environmental Impact Assessment Law

36. **Environmental Protection Act (EPA), 1997.** This Act requires a proponent to undertake IEE or EIA of the proposed project and have the IEE or EIA Report approved by the concerned

[22] 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.

sector agency (CSA)[23] or Ministry of Science, Technology and Environment (MOSTE)[24], respectively, prior to implementation.

37. **Environmental Protection Rules (EPR), 1997, and its amendments in 1999 and 2007**. The Rules defines implementing rule and regulations of the IEE or EIA process, elaborating the provisions in the EPA. The preparation, review and approval of IEE and EIA Reports are dealt with in Rules 3 to 7 and 10 to 14. Schedules 1 and 2 list down the projects of activities that require IEE and EIA respectively, as amended in 2007. Table 6 presents the required environmental assessment for activities/works under the water supply and sanitation sector and their applicability to UWSSP subprojects.

**Table 6: Required Environment Assessment for Water Supply and Sanitation under Government of Nepal Environmental Protection Rules**

| S.N. | Schedule 1: Activities Requiring Initial Environmental Examination Only | Schedule 2: Activities Requiring Environmental Impact Assessment | Applicability to UWSSP Subprojects |
|---|---|---|---|
| **Drinking Water Supply** | | | |
| 1 | Collection of rain-water in an area of not more than 200 hectares (ha) and use of water sources (spring/wet-lands) located within the same area. | Collection of rain-water in an area of more than 200 ha and use of water sources (springs/wetlands) located within the same area. | Not Applicable. |
| 2 | Surface water source with not more than 1 cu. sec safe yield and supply of not more than 50% of the water during the dry season. | Surface water sources with more than 1 cu. sec safe yield, and the use of its entire part during the dry season. | Initial environmental examination (IEE) only |
| 3 | Processing of water at the rate of more than 25 liters per second (lps). | | IEE |
| 4 | Recharging of up to 50% of the total aquifer for the development of underground water sources. | Recharging of more than 100% of the total aquifer for the development of underground water sources. | IEE only |
| 5 | Construction of tunnel for carrying water. | | Not Applicable. |
| 6 | Displacement of 25 to 100 persons for operating a water supply scheme. | Displacement of more than 100 persons for the operating a water supply scheme. | IEE only. |
| 7 | Settlement of up to 500 persons on the upper reaches of water sources. | Settlement of more than 500 persons on the upper reaches of water sources. | IEE only. |
| 8 | Supply of drinking water to a population ranging between 5,000 to 50,000. | Supply of drinking water to a population of more than 50,000. | IEE or EIA (depending on subproject detailed design for each municipality) |

[23] The CSAs are responsible for the: (i) review of applications for EIA scoping and approval of IEE schedules of work and TORs; review of submitted IEE or EIA Reports; (iii) approval of IEE Reports; (iv) forward of reviewed EIA Reports together with its review opinions and suggestions to MOSTE; and (v) monitoring and evaluation of project implementation impacts.

[24] MOSTE is responsible for the: (i) approval of EIA schedules of work and TORs; (ii) approval of EIA Reports; and (iii) conduct of environmental audit of completed project after two years of operation.

| | | | |
|---|---|---|---|
| 9 | Supply of drinking water to a population ranging between 10,000 and 100,000 upon connecting new sources. | Supply of drinking water to a population of more than 100,000 upon connecting new sources. | IEE or EIA (depending on subproject detailed design for each municipality) |
| 10 | River training and diversion activities over an area of more than one kilometer. | Extraction of groundwater from sources located at point and non-point sources of biological and chemical pollution and/or their influence areas. | Not Applicable |
| 11 | Water supply project having sewerage system with waste water treatment facilities. | Operation of multi-purpose projects relating to sources of drinking water which consumes the sources at the rate of more than 25 liters per second. | Not Applicable. |
| **Sewerage and Sanitation (Including Drainage)** | | | |
| 1 | Operation of sewerage scheme providing services to population between 5,000 and 400,000 | Operation of sewerage scheme providing services to population of more than 400,000 | IEE or EIA (depending on subproject detailed design for each municipality) |

## C. Other Relevant National Laws, Policies and Guidelines

38. Table 7 below summarizes all other relevant national laws, policies and guidelines that will be complied with under UWSSP. As UWSSP will avoid projects with potential triggers for Category A classification per ADB SPS, all laws, policies and guidelines governing these types of projects are already excluded in the table.

**Table 7: Other Relevant National Laws, Policies, and Guidelines of Nepal**

| Policy/Law/ Guideline | Year * | Relevant Provisions | Remarks |
|---|---|---|---|
| Aquatic Animal Protection Act | 1960 (1997) | The Act (i) prohibits the closure or demolition of fish ladders and other structures that are placed in streams, rivers, lakes and other surface water bodies, and (ii) requires water supply projects to build fish ladders or nursery for artificial breeding of aquatic animals if such projects affect movement of these aquatic animals. | All water supply subprojects with intake components will comply with the Act. |
| Water Resources Act | 1992 | The Act aims to minimize damage or pollution to water bodies in the country. In order to fulfil this objective, the implementing rules and regulations of the Act (Water Resources Regulation of 1993) requires the need of license for any proposed use of these water resources. Application of license requires the conduct of environmental impact assessment (EIA) and preparation of EIA report. It is also through this Act that the Drinking Water Regulation of 1998 was promulgated to regulate the quality of drinking water and control pollution of water resources. | Relevant to all subprojects. Initial environmental examination (IEE) required for grant of use of water resources. Compliance with National Drinking Water Quality Standards (NDWQS). |
| Labor Act | 1992 | The Act stipulates the need to provide workers with safe and clean environment at work places, including safety measures in place for workers | The Environmental Management Plans (EMPs) of subprojects will provide measures |

| Policy/Law/ Guideline | Year * | Relevant Provisions | Remarks |
|---|---|---|---|
| | | and procedures established for emergency situations. | to mitigate workers' health and safety hazards. |
| National Environmental Policy and Action Plan (NEPAP) | 1993 | The action plan aims to: (i) mitigate adverse environmental impacts of projects; and (ii) safeguard national and cultural heritage and preserve biodiversity, within and outside protected areas. | The subprojects will help achieve the action plan with the exclusion of triggers for Category A subproject classification. |
| National Water Supply and Sanitation Policy | 1998 | The Policy requires the monitoring of water quality supplied by completed WSS projects. | All water supply subprojects will include water quality monitoring during O&M phase. |
| Drinking Water Rules | 1998 | The Rules: (i) gives the procedure for the settlement of dispute on use of water sources; (ii) requires water supplier to maintain the water quality as prescribed in the Water Resources Act; (iii) prohibits water supplier to construct structures and conduct activities that would pollute the water source and cause significant adverse effect on the environment. | Subprojects to ensure adequate consideration of other water uses of same source during design to avoid disputes; to implement the EMP (both mitigation and monitoring) during construction and operation. |
| Local Self-Governance Act | 1999 | The Act gives the Local Government the functions, duties and powers to, among others: (i) conserve and protect their local environment and natural resources; (ii) plan, implement and/or operate and maintain local water supply projects; (iii) implement or arrange for implementation local sanitation/sewerage and drainage projects; (iv) protect cultural heritage and religious sites; and/or (v) monitor project activities within their jurisdictions. | All subprojects will help local governments fulfil their functions and duties under the Act. |
| National Urban Policy | 2007 | The Policy gives importance to environment conservation while carrying out urban development works and natural resource use. | All subprojects will implement the objectives of the Policy. |
| National Urban Water Supply and Sanitation Sector Policy | 2008 | The Policy requires the IEE or EIA of proposed WSS projects in accordance with the Environmental Protection Act (EPA) and Environmental Protection Rules (EPR). | All subprojects will require either IEE or EIA. |
| Implementation Directives for the National Drinking Water Quality Standards | 2005 | The directives set out the water sampling, testing, analysis, monitoring and surveillance procedures to certify that the quality of supplied drinking water conforms to the NDWQS. | All water supply subprojects will comply with the NDWQS. |
| Solid Waste Management Act | 2011 | The Act stipulates the responsibility of generators of hazardous, medical, chemical or industrial wastes in the management of such wastes. The Act also requires individuals and entities to | All subprojects will implement the EMPs to ensure generated solid wastes are managed accordingly. |

| Policy/Law/ Guideline | Year * | Relevant Provisions | Remarks |
|---|---|---|---|
| | | reduce the amount of solid waste generated while carrying out their work or business. | |

* (Year) - Year last amended.

## D. International Environmental Agreements.

39. Table 8 below lists the relevant international environmental agreements that Nepal is party to, and their relevance to various subprojects under UWSSP.

**Table 8: International Environmental Agreements Relevant to UWSSP**

| International Environmental Agreement | Year * | Relevant Provisions | Remarks |
|---|---|---|---|
| World Heritage Convention | 1978 | Parties to ensure the protection and conservation of the cultural and natural heritage situated on territory of, and primarily belonging to, the State | Urban Water Supply and Sanitation (Sector) Project (UWSSP) will help the Government of Nepal comply with this agreement. UWSSP will not support subprojects that negatively impact cultural and natural heritage of the country. |
| Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention) | 1987 | Parties to conserve and wisely use wetlands (i.e., maintaining their ecological character) as a contribution towards achieving sustainable development locally and throughout the world | UWSSP will help the Government of Nepal comply with this agreement. UWSSP will not support subprojects that will locate in wetlands and other protected areas of the country. |
| Convention on Biodiversity | 1992 | Parties to require the environmental assessment of projects that are likely to have significant adverse effects on biological diversity with a view of avoiding or minimizing such effects | UWSSP will help the Government of Nepal comply with this agreement. UWSSP will not support subprojects that impact biodiversity in the country. |
| UN Framework Convention on Climate Change | 1992 | Parties to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. | UWSSP will help the Government of Nepal comply with this agreement. UWSSP will ensure implementation of EMPs as measure to minimize the causes of climate change. |
| Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal | 1996 | Parties to, among others, minimize the amount and toxicity of hazardous waste generated, manage the hazardous and other wastes they generate in an environmentally sound manner and as close as possible to the source of generation. | UWSSP will help the Government of Nepal comply with this agreement. UWSSP will ensure implementation of EMPs as measure to avoid or minimize the generation and disposal of hazardous wastes. |

* (Year) - Year last amended.

# V. ENVIRONMENTAL ASSESSMENT FOR SUBSEQUENT SUBPROJECTS

## A. Environmental Assessment Processes for Subprojects

40. Environmental assessment for UWSSP subprojects must follow both the ADB SPS and Government EIA processes. Table 9 below shows the steps of complying with these processes in relation to the subproject processing stages.

**Table 9: Environmental Assessment Processes for Subprojects**

| Project Stage | ADB Safeguard Policy Statement | Government of Nepal Environmental Protection Rules |
|---|---|---|
| Subproject Identification/ Categorization | Subproject selection in line with the environmental assessment and review framework (EARF) subproject selection criteria.<br><br>Project Management Office (PMO) to complete rapid environmental assessment (REA) checklist and Project Categorization carried out at the earliest stage of project preparation when sufficient information is available for this purpose. REA checklists applicable to this project are attached in Appendixes 2 and 3. | Categorization of subprojects is based on categories in Schedule 1 and Schedule 2 of Environmental Protection Rules (EPR),1997 (as amended in 1999 and 2007).<br><br>For subprojects falling under Schedule 1, only initial environmental examination (IEE) is required.<br><br>For subprojects falling under Schedule 2, environmental impact assessment (EIA) is required. |
| Detailed Design | Draft IEE with environmental management plan (EMP) is in line with the EARF. | <u>For subprojects requiring IEE</u>, PMO to:<br><br>1. Prepare draft IEE scope of work and terms of reference (TOR) following format in Schedule 3 of EPR;<br>2. Submit draft IEE scope or work and TOR to concerned sector agency (CSA) for review and approval.<br>3. Carry out IEE according to the approved work schedule.<br>4. Prepare IEE Report using the format prescribed in Schedule 5 of the EPR, incorporating the opinions and suggestions of stakeholders.<br><br><u>For subprojects requiring EIA</u>, PMO to:<br><br>1. Submit to CSA an application for EIA scope determination together with the opinions and suggestions gathered from the consultation activities.<br>2. Prepare an EIA schedule of work and TOR using the format prescribed in Schedule 4 of the EPR on the basis of the determined EIA scope and submit to the Ministry of Science, Technology and Environment (MOSTE) for approval.<br>3. Carry out EIA according to approved work schedule;<br>4. Prepare EIA report using the format prescribed in Schedule 6 of the EPR, |

| Project Stage | ADB Safeguard Policy Statement | Government of Nepal Environmental Protection Rules |
|---|---|---|
| | | incorporating the opinions and suggestions of stakeholders. |
| | **Public Consultation**: Consultation will be carried out in a manner commensurate with the impacts on affected communities. The consultation process and its results are to be documented and reflected in the environmental assessment report.<br><br>ADB requires meaningful consultation, which 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) undertaken in an atmosphere free of intimidation or coercion; (iv) 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. This is required of all projects. | For subprojects requiring IEEs, PMO to conduct consultations through:<br>(i) posting of notices in the concerned Village Development Committee (VDC) or Municipality, Office of the District Development committee, school, hospital, and health post requesting them to offer their written opinions and suggestions about the subprojects within 15 days from the date of posting; and<br>(ii) simultaneous with the notice as described in (i) above, publication of the same notice in a national level daily newspaper.<br><br>For subprojects requiring EIA, PMO to conduct consultations through:<br>(i) conduct of public hearings at the area of VDC or Municipality where the subprojects are to be implemented and collect opinions and suggestions; and<br>(ii) publication of a notice in a national daily newspaper requesting concerned Rural Municipality(s)/ or Urban Municipality(s)[a], institutions and individuals to send in, within 15 days from date of publication, their opinions and suggestions on the potential impacts of proposed project's implementation on the environment. |
| | **Disclosure:**<br>Disclosure by ADB on its website the following: (i) EARF before project appraisal, and (ii) final IEE reports after securing government endorsement of the reports.<br><br>Disclosure by government on its website or any accessible place all environmental information and documents such as IEE reports in a form or language understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used. | The EPR does not require to disclosure of IEE or EIA reports. |
| | Mitigation measures specified in the IEE study incorporated in project design. | The IEE or EIA reports required under the EPR shall follow formats that include mitigation measures for environmental impacts identified.<br><br>For IEE reports, PMO to use format in Schedule 5 of the EPR. |

| Project Stage | ADB Safeguard Policy Statement | Government of Nepal Environmental Protection Rules |
|---|---|---|
| | | For EIA reports, PMO to use format in Schedule 6 of the EPR. |
| | EMP implementation and monitoring responsibilities incorporated in the bid and contract documents. | The EPR does not provide requirement for incorporating EMP implementation and monitoring in the bid and contract documents. |
| Approval | The executing agency after review of IEE will forward to ADB for review. Cleared IEE is sent back to executing agency for endorsement. Cleared and endorsed IEE is required prior to approval and issuance of tender documents and shall form part of the said tender documents. | For IEE reports, CSAs will provide approval/decisions to PMO within 21 days from receipt of the reports. Provided that no substantial negative environmental impact is found in the proposal.<br><br>For EIA reports, CSAs will submit the reports to MOSTE within 21 days from receipt of the report from PMO. MOSTE will provide approval/decision within 60 days from its receipt of the report. In case under any special circumstances that MOSTE could not provide approval/decision within this 60-day period, MOSTE shall provide approval/decision within another 30 days from the lapse of the 60-day period. |
| Procurement/ Contract Award | No contract award until:<br>(i) Environmental clearances required by the Government have been obtained;<br>(ii) IEE has been finalized, cleared by ADB, and disclosed to public;<br>(iii) IEE and other safeguard requirements are included in bidding documents and civil works contracts; and<br>(iv) EMP implementation is reflected in PAM. | There is no reference to procurement and contract in the EPR. |
| Implementation | ADB supervision missions shall review effective EMP implementation.<br><br>EA will submit to ADB the following documents for disclosure on ADB's website:<br>(i) updated/final IEE (if updated/finalized due to change in scope and/or detailed design);<br>(ii) corrective action plan prepared during project implementation, if any; and<br>(iii) semi-annual environmental monitoring reports. | For IEEs, CSAs to monitor the implementation of the EMP measures. If findings suggest that the impacts are higher than what was determined in the reports, PMO to adopt new measures to reduce these impacts.<br><br>For EIAs, MOSTE shall carry out environmental assessment of the project/subproject after every 2 years to assess the environmental impact of the EMP measures implemented based on the EIA, and update records accordingly. |

[a] After the provincial states and rural/urban municipality were officially in place in Nepal as per the new constitution of the country, the political reform and country's political and administrative boundary were also restructured and reformed. According to the new restructure, the formation of Rural/Urban municipality were formed which automatically replaced the existing municipalities and Village Development Committees.

# VI. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

## A. Consultation

41. ADB SPS requires meaningful consultation with affected people 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.

42. Also, EPR 1997 (and its amendments in 1999 and 2007) specifies that the opinion and suggestions on the potential environmental impacts of the proposed subproject shall be sought from the public by the proponent during the conduct of environmental assessment.

43. To comply with the requirements of both the ADB and the Government of Nepal, therefore, PMO and RPMO will:

(i) conduct consultation at least once, following the procedure of the Government of Nepal described in EPR 1997;
(ii) send notice to the concerned stakeholders requesting for their written opinions and suggestions within 15 days regarding their perceived impacts of the subproject's implementation; and
(iii) publish a 15-day notice in a national daily newspaper, requesting the same from the public. Opinions and suggestions received will be taken into account in the subproject preparation and environmental assessment and included in the IEE report.

44. The consultation shall be conducted, and its handouts shall be written, in the national language. The consultation process shall be well documented. All relevant views and concerns raised during the consultation shall be:

(i) incorporated in the IEE reports; and
(ii) considered in the design of the proposed activity. Attendance sheets and notes of informal and formal consultations for shall be included in the IEE reports as proofs that consultation/s had been held. Template of attendance sheet is in Appendix 7.

45. The PMO and RPMO shall be open to contact for consultation by the public on environmental assessment matters, including review of environmental implications, from the project preparation stage and throughout UWSSP implementation phases.

## B. Information Disclosure

46. PMO and RPMOs will be responsible for ensuring that all IEEs, environmental due diligence reports, environmental monitoring reports and grievance redress documents are properly kept as part of UWSSP records. PMO and the RPMOs will:

(i) ensure that hard copies of these documents are made available at locations accessible to all stakeholders such as the offices of PMO, RPMOs and WUSCs;
(ii) ensure that the summary of a subproject IEE is translated in the local language and made available to all stakeholders and posted on bulletin boards or similar accessible locations at the offices of PMO, RPMOs and WUSCs; and
(iii) all environmental documents including IEE reports and environmental monitoring reports are disclosed on project website.

47. The PMO will submit to ADB the following documents for disclosure on ADB's website (Footnote 17):

(i) environmental assessment and review framework before project appraisal, where applicable;
(ii) the final IEE reports for all subprojects;
(iii) new or updated IEE reports and corrective action plan prepared during project implementation, if any; and
(iv) semi-annual environmental monitoring reports.

## C. Grievance Redress Mechanism

48. A project-specific GRM will be established to receive, evaluate and facilitate resolution of affected persons' concerns, complaints, and grievances related to social, environmental and other concerns on the project. The GRM will aim to provide a time-bound and transparent mechanism to resolve such concerns. Grievances may be channelled through letters, emails, text messages (SMS), verbal narration, grievance boxes and registers. Suggested template for grievance redress form is in Appendix 8.

49. A common GRM will be in place for social, environmental or any other grievances related to the project. The GRM will provide an accessible forum for receiving and facilitating resolution of affected persons' grievances related to the project. Project will publish the sample grievance registration form on its website and publish it in local language and/or indigenous people dialect, at the hoarding board of each of the participating WUA or municipalities' office. Every grievance shall be registered with careful documentation of process adopted for each of the grievance handled, as explained below. The environmental and social safeguards officer (ESO/SSO) at the project management office (PMO) will have the overall responsibility for timely grievance redress on environmental and social safeguards issues. The Social Safeguards Officer at the Regional Project Management Office (RPMO) will be the focal person for facilitating the grievance redress at the local level.

50. A municipal-level public awareness campaign will be conducted on a regular basis as per the communication strategy of the project to ensure awareness on the project and its GRM. The social and environmental safeguards experts of the project management and quality assurance consultant (PMQAC) and regional design, supervision and management consultants (RDSMCs) will support the WUA or municipalities in conducting municipality-wide awareness campaigns, which will ensure that all stakeholders including poor and vulnerable are aware of the GRM and project's entitlements.

51. A grievance redress committee (GRC) will be formed at the Municipality level, comprising the Mayor as Chairperson of GRC, and Regional Project Manager RPMO as Secretary. The GRC members will comprise of (1) WUSC Secretary; (2) RPMO Engineer; (3) RPMO social /environmental (as relevant) officer, (4) representative of affected persons, (5) RDSMC's safeguards specialist (social/environment as relevant), (6) a representative of reputable and

relevant CBO/SHG/organization working in the project area as invitee,[25] and (7) contractor's representative. The secretary of the GRC will be responsible for convening timely meetings and maintaining minutes of meetings. The concerned social safeguards expert of RDSMC will support the RPMO safeguard's officer and Project Manager of RPMO to ensure that grievances, including those of the poor and vulnerable are addressed. All GRCs shall have at least two women committee members. Along with representatives of the affected persons, civil society and eminent citizens can be invited as observers in GRC meetings.

52. The functions of the local GRC are as follows: (i) provide support to affected persons on problems arising from environmental or social disruption; asset acquisition (if necessary); and eligibility for entitlements, compensation and assistance; (ii) record grievances of affected persons, categorize and prioritize them and provide solutions within 15 days of receipt of complaint by WUA or local bodies; and (iii) ensure feedback to the aggrieved parties about developments regarding their grievances and decisions of the GRC. The GRM procedure is depicted in Figure 1, and is outlined below in detail, with each step having time-bound schedules and responsible persons to address grievances and indicating appropriate persons whose advice is to be sought at each stage, as required. If affected persons are not satisfied with the response they can elevate it to the next level:

(i) **First Level of GRM** (WUA level): The first-level, which is also the most accessible and immediate venue for quick resolution of grievances will be the contractors, RDSMC field engineers and RPMO supervision personnel, who will immediately inform the WUA. Any person with a grievance related to the project works can contact UWSSP to file a complaint. The municipal-level field office of the RPMO, in WUA's building, will document the complaint within 24 hours of receipt of complaint in the field, and WUA or local bodies will immediately address and resolve the issue at field-level with the contractor, supervision personnel of RPMO and RDSMC field engineers within 5 days of receipt of a complaint/grievance. The assigned RDSMC's Social Mobilizer will be responsible to fully document: (i) name of the person, (ii) date of complaint received, (iii) nature of complaint, (iv) location and (v) how the complaint was resolved as well as to provide feedback to the complainant. If the complaint remains unresolved at the local level within 5 days, the WUA will forward the complaint to the municipality level GRM.

(ii) **Second Level of GRM** (Municipality level): The complainant will be notified by the WUA that the grievance is forwarded to the Municipality-level GRC. The Municipality-level GRC will be called for a meeting, called and chaired by the Mayor. The GRC will recommend corrective measures at the field level and assign clear responsibilities for implementing its decision within 10 days of receipt of complaint by WUA. If the grievance remains unresolved within 10 days of receipt of complaint by WUA, the matter will be referred to the third level. The RPMO Engineer will be responsible for processing and placing all papers before the GRC, recording decisions, issuing minutes of the meetings, providing feedback to complainants and taking follow up actions so that formal orders are issued and decisions are carried out.

(iii) **Third Level of GRM** (PMO Level)**:** Any unresolved or major issues at Municipality level will be referred to the PMO for final solution. A representative of the Nepal Foudnation for Indigenous Nationalities (NEFIN) will be invited to attend any meetings related to resolution of Indigenous Peoples grievances. Decision has to be made within 15 days of receipt of complaint from the Municipality-level GRC.

[25] If the complaints are related with IP/Dalits/other vulnerable groups, specific NGO/CBO that actively involved in development of these communities shall be involved.

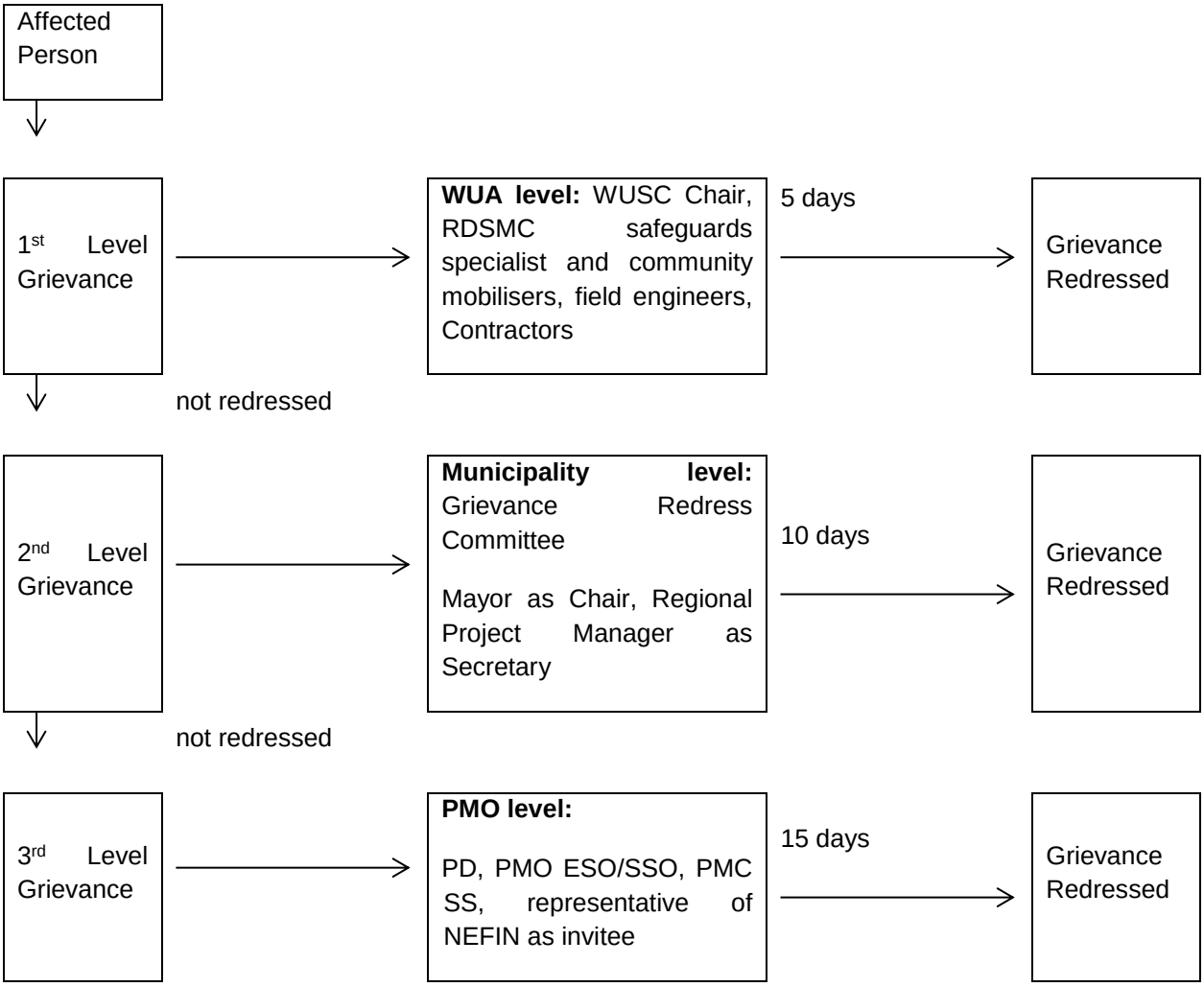
The Project Director will sign off on all grievances received by the PMO. The concerned Deputy Project Director (DPD) and environmental and social safeguards officers (ESO and SSO) of PMO will be involved with support from the PMQAC's social/environment safeguards experts. The SSO will be responsible to convey the final decision to the complainant.

53. All paperwork (details of grievances) needs to be completed by the WUA member secretary assisted by RDSMC and circulated to the WUA Chairperson and members. At Municipality level, the RPMO Engineer will be responsible for circulation of grievances to the Regional Project Manager, DWSS, Mayor and other GRC members, prior to the scheduled meetings. The RPMO's Engineer will be responsible for follow-through of all escalated grievances. All decisions taken by the GRC will be communicated to the affected persons by the RPMO's SSO.

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

55. In the event that the established GRM is not in a position to resolve the issue, the affected person also can use ADB's Accountability Mechanism through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters or the ADB Nepal Resident Mission. The complaint can be submitted in any of the official languages of ADB's developing member countries (DMCs). The ADB's Accountability Mechanism information will be included in UWSSP Information Datasheet (PID), to be published in web and distributed to the affected communities, as part of the project GRM.

**Figure 1: Grievance Redress Process**




RDSMC=regional design, supervision, and management consultant; ESO=environmental safeguards officer, SDO=social development officer, SSO=social safeguards officer, GRC = grievance redress committee, NEFIN = Nepal Federation of Indigenous Nationalities, PD = project director; PMC = project management consultant, PMO = project management office, WUA = Water Users Association, WUSC = Water Users and Sanitation Committee.

## VII. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

### A. Institutions and Responsibilities

56. The Ministry of Water Supply (MOWS) will be the executing agency, working through the Department Water Supply and Sewerage (DWSS), which will establish a Project Management Office (PMO) for the project headed by a Project Director.[26] The DWSS will also establish two Regional PMOs (RPMOs).

[26] DWSS will continue the existing PMO established and operational for the Third Small Towns Water Supply and Sanitation Sector project.

57. The PMO will be responsible for overall project planning, management, implementation, monitoring and reporting for the project. The PMO will also be responsible for screening the proposed subprojects in accordance with the subproject selection criteria for the project,[27] assisting the municipalities in conducting feasibility studies,[28] reporting to and being point of liaison with ADB on the project; quality control of detailed design and construction supervision; procurement of civil works contractors; support for capacity building; and overseeing safeguard compliance. The PMO will liaise with WUSCs or municipalities to sign the management agreement prior to the award of contract for each subproject. The PMO will also engage all consultants under the project.

58. The RPMOs will be established using the existing infrastructure in (i) Itahari, Sunsari, for the eastern region, (ii) in Nepalgunj, Banke, for the western region, and (iii) PMO (Kathmandu) will act as RPMO for central region projects. The RPMOs will report to the PMO and be supported and monitored by PMO to implement the projects in the field and manage contractors and consultants. The RPMOs will manage the detailed design and construction supervision with support from DSMC that PMO would engage (DSMCs for eastern, western, and central region each). Each of the DSMCs will be based at the respective RPMO. For each subproject, a dedicated implementation core group will be established in the field, at each WUA's office,[29] headed by a qualified engineer from the RPMO to conduct day-to-day project management, planning and construction supervision. The TDF will coordinate with RPMOs, WUSCs and municipalities at least on monthly basis.

59. The WUSC, on behalf of the WUA[30] or the municipality[31] will be responsible for operation and maintenance (O&M) of the water supply and sanitation facilities constructed, operating under a management agreement with DWSS. WUSCs consist of nine executive members,[32] at least three of whom are women. The project will fund the WUA's minimum prescribed staffing and other resource requirement, as outlined in the management agreement with DWSS for sustainable operations of the system during the project period.

[27] Subproject selection criteria (covering all aspects of a proposed subproject other than the specific subproject selection criteria for environment as discussed in this EARF) is attached as Appendix 1 of the PAM.

[28] Town Development Fund (TDF) will assist the municipalities in conducting financial appraisal of the subprojects and advice DWSS on its outcomes prior to the start of detailed design process.

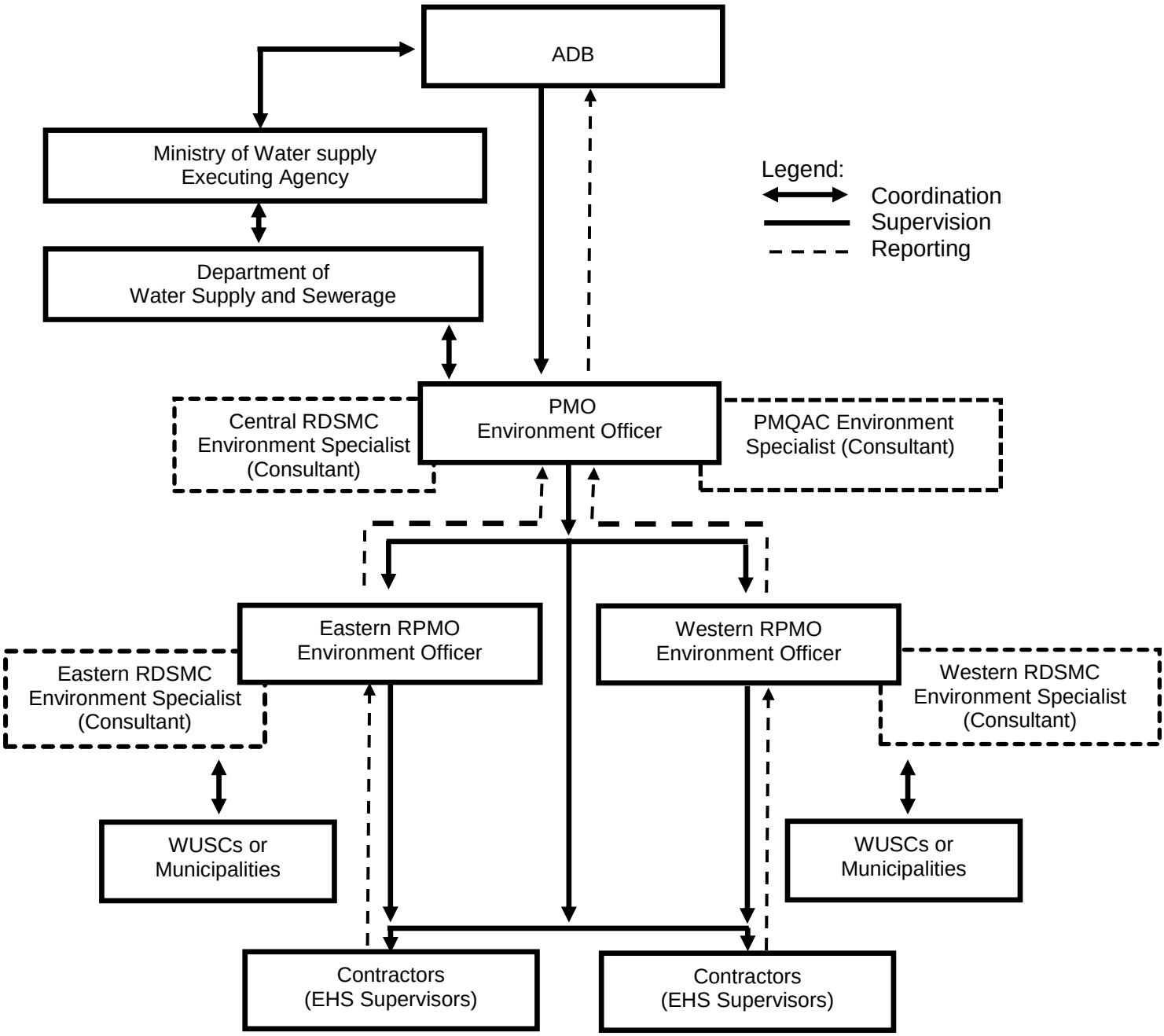
[29] The implementation core group, as a minimum, comprises of (i) an Engineer, a Social mobilizer, and an EMP monitor, RPMO; (ii) an Administration Staff, a Finance Staff, and an Engineer or Junior Engineer, WUSC.

[30] WUAs are registered with the district water resources committee as a user association under the Water Resources Act (1992).

[31] As the project is a demand based open access project, the WUAs or the municipalities can apply for funding a proposed subproject that meets the subproject selection criteria.

[32] WUSCs will be formulated by ensuring proportional representation of gender, caste and ethnic groups. It shall include at least 33% representation of women.

**Figure 2: Safeguard Implementation Arrangement**




ADB = Asian Development Bank, EHS = Environmental, Health and Safety, PMO – project management office, PMQAC = Project Management and Quality Assurance Consultant, RDSMC = regional design, supervision and management consultant, RPMO = regional project management office, WUSC = Water Users and Sanitation Committee.

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60. **Project Management Office.** A project officer (Environment) will be engaged in PMO to ensure implementation of environmental safeguards. He/ she will be provided with necessary consultant support, and capacity development and training. The responsibilities of the Environment Officer are:

(i) review and confirm existing IEEs and EMPs are updated based on detailed designs, that new IEEs/EMPs prepared by DSMCs comply to exclusion criteria and project selection guidelines as stipulated in the EARF and government rules; and recommend for approval to PMO;
(ii) approve subproject environmental category;
(iii) ensure that EMPs are included in bidding documents and civil works contracts;
(iv) provide oversight on environmental management aspects of subprojects and ensure EMPs are implemented by RPMOs and contractors;
(v) establish a system to monitor environmental safeguards of the project including monitoring the indicators set out in the monitoring plan of the EMP;
(vi) facilitate and confirm overall compliance with all Government rules and regulations regarding site and environmental clearances as well as any other environmental requirements as relevant;
(vii) supervise and provide guidance to the RPMOs to properly carry out the environmental monitoring and assessments as per the EARF;
(viii) review, monitor and evaluate effectiveness with which the EMPs are implemented, and recommend necessary corrective actions to be taken;
(ix) consolidate monthly environmental monitoring reports from RPMOs and submit semi-annual monitoring reports to ADB;
(x) ensure timely disclosure of final IEEs/EMPs in project locations and in a form accessible to the public;
(xi) assist with ongoing meaningful consultation and assist in setting up of GRM in respect of environment concerns;
(xii) address any grievances brought about through the grievance redress mechanism (GRM) in a timely manner as per the IEEs;
(xiii) undertake regular review of safeguards-related loan covenants, and the compliance during program implementation; and
(xiv) organize periodic capacity building and training programs on safeguards for project stakeholders, PMO, RPMOs, and WUAs.

61. **Regional Project Management Offices.** The environmental officer assigned by DWSS to the RPMOs will receive support from (i) the PMO environmental officer, (ii) environmental specialist from PMQAC; and (iii) the environmental specialist and EMP monitors of the regional DSMCs to carry out the following:

(i) prepare new IEEs and EMPs in accordance with the EARF and government rules;
(ii) include EMPs in bidding documents and civil works contracts;
(iii) comply with all government rules and regulations;
(iv) take necessary action for obtaining rights of way;
(v) oversee implementation of EMPs including environmental monitoring by contractors;
(vi) take corrective actions when necessary to ensure no environmental impacts;
(vii) submit monthly environmental monitoring reports to PMO;
(viii) assist with ongoing meaningful consultation and assist in setting up of GRM in respect of environment concerns; and
(ix) address any grievances brought about through the Grievance Redress Mechanism in a timely manner as per the IEEs.

62. **Project Management and Quality Assurance Consultant.** The Project Management and Quality Assurance Consultants (PMQACs) will provide support to the PMO in the following areas. The detailed TORs are in the PAM:

(i) ensure that the quality of the designs and construction of all water supply and sanitation components implemented under the project are to the required standards; and
(ii) assist the PMO with the overall planning, implementation and monitoring of the project during all stages of implementation including adherence to all environmental and social safeguards' requirements.

63. **Regional Design and Supervision Management Consultants.** The Regional Design and Supervision Management Consultants (RDSMCs) will provide support to the RPMOs in the following areas. The detailed TORs are in the PAM:

(i) prepare quality feasibility studies, detailed engineering designs, safeguards documents and bid documents
(ii) provide effective construction supervision and contract management of all water supply and sanitation components implemented under the project in its region
(iii) assist the RPMOs with the overall planning, implementation and monitoring of each subproject during all stages of implementation including adherence to all environmental and social safeguards requirements
(iv) work closely with the Water User and Sanitation Committees (WUSCs), respective project municipalities and communities to ensure that the citizens are aware of project benefits and their responsibilities
(v) ensure that poor and vulnerable groups will benefit equally from the project.

64. **Civil Works Contracts and Contractors.** The contractor will be required to designate an Environment, Health and Safety (EHS) supervisor to ensure implementation of EMP during civil works. Contractors are to carry out all environmental mitigation and monitoring measures outlined in their contract. The contractor will be required to submit to RPMO, for review and approval, a site-specific environmental management plan (SEMP) including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SEMP; and (iv) budget for SEMP implementation. No works can commence prior to approval of SEMP. The contractor will be required to undertake day to day monitoring and report to the respective RPMO and DSMC.

65. A copy of the EMP 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 or SEMP constitutes a failure in compliance and will require corrective actions. The EARF and IEEs specify responsibilities in EMP implementation during design, construction and O&M phases.

66. The PMO and RPMOs will ensure that bidding and contract documents include specific provisions requiring 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.

## B. Staffing Requirement

67. Staffing requirement will include the: (i) deputizing a DWSS or PMO staff as the PMO environmental safeguards officer; (ii) deputizing Water Supply and Sanitation Divisional Office (WSSDO) staff as RPMOS environmental engineers in each subproject town; (iii) engagement of a PMO-environmental safeguards specialist to provide technical assistance and guidance to the PMO and partly to the RPMOS and capacity development/training; and (iv) a design and supervision consultant (DSC) environmental safeguards specialist to conduct the IEEs and prepare the IEE reports according to the provisions of this EARF.

## C. Capacity Development

68. The PMQAC safeguards experts (environmental and social) will be responsible for training the (i) PMO's safeguards officers (environmental and social); (ii) RPMOs' engineers and social development officers; and (iii) WUSCs. Training modules will need to cover safeguards awareness and management in accordance with both ADB and government requirements as specified below:

(i) Environmental Safeguards
- (a) sensitization on ADB's policies and guidelines on environment;
- (b) introduction to environment and environmental considerations in water supply and wastewater projects;
- (c) review of IEEs and integration into the project detailed design;
- (d) improved coordination within nodal departments;
- (e) consultation and participation requirements;
- (f) project GRM and ADB's Accountability Mechanism; and
- (g) monitoring and reporting system. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites.

(ii) Social Safeguards
- (a) sensitization on ADB's policies on Involuntary Resettlement and Indigenous People;
- (b) introduction to social safeguards assessment and document requirements;
- (c) consultation and participations requirements;
- (d) project GRM and ADB's Accountability Mechanism; and
- (e) monitoring and reporting system.

## D. Budget

69. The estimated costs for EARF implementation is presented in Table 10. It includes the costs for consultants' support for the PMO and RPMOS, mitigation measures, capacity building, administrative costs and other costs, e.g., conduct of consultations, resolution of grievances and eventual unanticipated impact from project implementation.

**Table 10: Indicative Costs for Environmental Assessment and Review Framework Implementation**

| No. | Particulars | Stages | Unit | Total Number | Rate (NRe) | Cost (NRe) | Cost Covered by |
|---|---|---|---|---|---|---|---|
| **A.** | **Consultants Costs** | | | | | | |
| 1. | Project Management and Quality Assurance Consultants Environmental safeguard specialist (1 person) | Responsible for environmental safeguards of the project at project management office (PMO) | person months (spread over entire project implementation period) | 24-person months | 300,000 per person month | 7,200,000 | Cost covers only remuneration, which together with budget for travel covered in the PMQAC contract |
| 2. | Design, supervision and management consultants (DSMC) environmental safeguard specialists (3 persons) | Responsible for environmental safeguards of the project at regional project management offices (RPMOs) | person months (spread over entire project implementation period) | 100-person months | 250,000 per person month | 25,000,000 | Cost covers only remuneration, which together with budget for travel covered in the DSMC contract |
| **B.** | **Mitigation Measures** | | | | | | |
| 1. | Compensatory plantation measures (average estimate) | Construction | No. of plantation activities | As needed | Lump Sum | 5,000,000 | Civil works contract |
| 2. | Air quality monitoring | Pre-construction (baseline) Construction | No. of sampling activities | Once during pre-construction to be used as baseline<br><br>As needed during construction phase<br><br>As needed during operation and maintenance phase | | | Civil works contract |
| 3. | Noise levels monitoring | Pre-construction (baseline) Construction | No. of sampling activities | | | | Civil works contract |
| 4. | Water Quality | Pre-construction (baseline) Construction Operation and Maintenance (for water supply and wastewater treatment subprojects) | No. of sampling activities | | | | Costs during operation and maintenance phase covered by respective WUAs or municipalities. |
| **C** | **Capacity Building** | | | | | | |

| No. | Particulars | Stages | Unit | Total Number | Rate (NRe) | Cost (NRe) | Cost Covered by |
|---|---|---|---|---|---|---|---|
| 1. | (i) Orientation workshop for officials involved in the project implementation on ADB Safeguard Policy Statement, Government of Nepal environmental laws and regulations, and environmental assessment process;<br>(ii) induction course contractors, preparing them on environmental management plan (EMP) implementation and environmental monitoring requirements related to mitigation measures; and taking immediate action to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation; and<br>(iii) lessons learned information sharing | Module 1- on environmental assessment and review framework (EARF) and EMP implementation to be conducted by PMO-ESS (prior to contract of award for civil works)<br><br>Module 2 – Any time after Module 1 | Lumpsum | | | 400,000 | Covered under Output 2 - Improved Institutional Capacity and Project Implementation Platform |

| No. | Particulars | Stages | Unit | Total Number | Rate (NRe) | Cost (NRe) | Cost Covered by |
|---|---|---|---|---|---|---|---|
| **D.** | **Administrative Costs** | | | | | | |
| 1. | Legislation, permits, and agreements | Permit for excavation, tree-cutting permits etc. | Lumpsum | | | | These consents are to be obtained by contractor at his own expense. |
| | | Environmental assessment and environmental clearances as per ECA and ECR requirements | Per town | 10 | 60,000 | 600,000 | Covered under the PMO |
| **E.** | **Other Costs** | | | | | | |
| 1. | Public consultations and information disclosure | Information disclosure and consultations during preconstruction and construction phase, including public awareness campaign through media | As per requirement | Lumpsum | 350,000 | 350,000 | Covered under PMO budget |
| 2. | Grievance redress mechanism (GRM) implementation | Costs involved in resolving complaints (meetings, consultations, communication, and reporting/ information dissemination) | As per requirement | Lumpsum | 200,000 | 200,000 | Covered under PMO budget |
| 3. | Any unanticipated impact due to project implementation | Mitigation of any unanticipated impact arising during construction phase and defect liability period | | Lumpsum | Contractor's liability | As per insurance requirement | Civil works contract – contractor's insurance |

## VIII. MONITORING AND REPORTING

70. RPMOs will monitor and measure the progress of EMP implementation with assistance from DMSC. The monitoring activities will correspond with the project's risks and impacts and will be identified in the IEEs for the subprojects. In addition to recording information on the work and deviation of work components from original scope PMO, RPMOs, and DSMC will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome.

71. PMO environmental safeguard specialist will document monitoring results, identify the necessary corrective actions, reflect them in a corrective action plan, and for each quarter, will study the compliance with the action plan developed in the previous quarter. Compliance with loan covenants will be screened by the PMO. RPMOs will submit monthly monitoring and implementation reports to PMO, who will take follow-up actions, if necessary. PMO will submit semi-annual monitoring reports to ADB. The suggested semi-annual monitoring report format is in Appendix 10. Subproject budgets will reflect the costs of monitoring and reporting requirements.

72. ADB will review project performance against the MOWS 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 PMO to ensure that adverse impacts and risks are mitigated, as planned and as agreed with ADB;
(iv) work with PMO to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the legal agreements, and exercise remedies to re-establish 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.

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

## UWSSP INDICATIVE PACKAGES

The list is based on Project Administration Manual Procurement Plan and shows works contract packages that will be processed over the next 18 months. The procurement plan will be updated by the PMO for approval by ADB, at least annually, and more frequently if necessary, and shall cover the next 18 months of procurement activity.

| Package Number | General Description |
|---|---|
| W01 | Charikot (Dolakha): Water Supply and Sanitation Improvement* |
| W02 | Bhojpur (Bhojpur): Water Supply and Sanitation Improvement |
| W03 | Siddhanath Baijanath:*<br>Water Supply and Sanitation Improvement |
| W04 | Diktel (Khotang): Water Supply and Sanitation Improvement |
| W05 | Ilam (Ilaam): Water Supply and Sanitation Improvement* |
| W06 | Liwang (Rolpa): Water Supply and Sanitation Improvement |
| W07 | Chainpur (Bajang):<br>Water Supply and Sanitation Improvement |
| W08 | Khalanga (Darchula):<br>Water Supply and Sanitation Improvement |
| W09 | Subhaghat (Surkhet):<br>Water Supply and Sanitation Improvement |
| W10 | Pragatinagar (Dang):<br>Water Supply and Sanitation Improvement |
| W11 | Brihat Bhanu (Tanahu):<br>Water Supply and Sanitation Improvement |
| W12 | Kanchanrup (Saptari):<br>Water Supply and Sanitation Improvement |
| W13 | Rampurtar (Okahaldunga)<br>Water Supply and Sanitation Improvement |
| W14 | Panchkhal (Kavre): Water Supply and Sanitation Improvement |
| W15 | Makalu Ekuwa khola (Sahnkhuwasbha):<br>Water Supply and Sanitation Improvement |
| W16 | Deurali Hupsekot (Nawalpur):<br>Water Supply and Sanitation Improvement |
| W17 | Madi Palpa: Water Supply and Sanitation |
| W18 | Tikapur:<br>Drainage |
| W19 | Charikot: DWATS* |
| W20 | Mirchaiya: Drainage |
| W21 | Bhojpur Bazar:<br>Sewerage and DWATS |
| W22 | Katahariya Drainage* |
| P01 | SCADA system and installation for service improvements |

* Sample subprojects with draft IEEs during UWSSP loan processing.

## 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: NEP: Urban Water Supply and Sanitation Sector Project**
**Package No. and Description: _____**

| SN | Screening Question | Yes | No | Remarks |
|---|---|---|---|---|
| **A** | **Project Siting**<br>**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**<br>**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? | | | |
| 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? | | | |

| SN | Screening Question | Yes | No | Remarks |
|---|---|---|---|---|
| 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 | | | |

## RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST – SEWERAGE AND SANITATION

**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: NEP: Urban Water Supply and Sanitation Sector Project**
**Package No. and Description: _____**

| SN | Screening Questions | Yes | No | Remarks |
|---|---|---|---|---|
| **A** | **Project Siting** | | | |
| | **In the project area** | | | |
| 1 | Densely populated | | | |
| 2 | Heavy with development activities | | | |
| 3 | Adjacent to or within any environmentally sensitive areas | | | |
| 4 | Cultural heritage sites | | | |
| 5 | Protected areas | | | |
| 6 | Wetland | | | |
| 7 | Mangrove | | | |
| 8 | Estuarine | | | |
| 9 | Buffer zone | | | |
| 10 | Special areas for protecting bio-diversity | | | |
| 11 | Bay | | | |
| | | | | |
| **B** | **Potential Environmental Impacts** | | | |
| | **Will the project cause** | | | |
| 1 | Impairment of historical /cultural monuments/areas and loss/damage to these sites | | | |
| 2 | Interference with other utilities and blocking of access to buildings, nuisance to neighboring areas due to noise, smell and influx of insects, rodents etc. | | | |
| 3 | Dislocation or involuntary resettlement of people | | | |
| 4 | Disproportionate impacts on the poor, women and children indigenous people or other vulnerable groups | | | |
| 5 | Impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage | | | |
| 6 | Overflows and flooding of neighboring properties with raw sewage | | | |
| 7 | Environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers | | | |
| 8 | Noise and vibration due to blasting and other civil works | | | |

| SN | Screening Questions | Yes | No | Remarks |
|---|---|---|---|---|
| 9 | Risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation | | | |
| 10 | Discharge of hazardous material into sewers, resulting in damage to sewer system and danger to workers | | | |
| 11 | Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities | | | |
| 12 | Road blocking and temporary flooding due to land excavation during the rainy season | | | |
| 13 | Noise and dust from construction activities | | | |
| 14 | Traffic disturbances due to construction material transport and wasters | | | |
| 15 | Temporary silt runoff due to construction | | | |
| 16 | Hazards to public health due to overflow flooding and groundwater pollution due to failure of sewerage system | | | |
| 17 | Deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water | | | |
| 18 | Contamination of surface and ground water due to sludge disposal on land | | | |
| 19 | Health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and un-stabilized sludge | | | |
| 20 | Large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system) | | | |
| | Social conflicts between construction workers from other areas and community workers? | | | |
| 21 | Risks to community health and safety due to the transport, storage and use and /or disposal of materials such as explosives, fuel and other chemicals during construction and operation | | | |
| 22 | Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project and accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning | | | |

**Preliminary Climate Risk Screening Checklist as Extracted from the REA Checklist**

**Country/Project Title:**
**Sector:**
**Subsector:**
**Division/Department:**

| | Screening Questions | Score | Remarks[a] |
|---|---|---|---|
| **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, and hydro-meteorological parameters) 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? | | |

[a] 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.

Options for answers and corresponding score are provided below:

| Response | Score |
|---|---|
| Not Likely | 0 |
| Likely | 1 |
| Very Likely | 2 |

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

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

**Other Comments**:

_____

_____

**Prepared by:** _____

## Environments, Hazards and Climate Changes

| Environment | Natural Hazards and Climate Change |
|---|---|
| **Arid/Semiarid and desert environments** | Low erratic rainfall of up to 500 mm rainfall per annum with periodic droughts and high rainfall variability. Low vegetative cover. Resilient ecosystems & complex pastoral and systems, but medium certainty that 10–20% of drylands degraded; 10-30% projected decrease in water availability in next 40 years; projected increase in drought duration and severity under climate change. Increased mobilization of sand dunes and other soils as vegetation cover declines; likely overall decrease in agricultural productivity, with rain-fed agriculture yield reduced by 30% or more by 2020. Earthquakes and other geophysical hazards may also occur in these environments. |
| **Humid and sub-humid plains, foothills and hill country** | More than 500 mm precipitation/yr. Resilient ecosystems & complex human pastoral and cropping systems. 10-30% projected decrease in water availability in next 40 years; projected increase in droughts, heatwaves and floods; increased erosion of loess-mantled landscapes by wind and water; increased gully erosion; landslides likely on steeper slopes. Likely overall decrease in agricultural productivity & compromised food production from variability, with rain-fed agriculture yield reduced by 30% or more by 2020.<br>Increased incidence of forest and agriculture-based insect infestations. Earthquakes and other geophysical hazards may also occur in these environments. |
| **River valleys/ deltas and estuaries and other low lying coastal areas** | River basins, deltas and estuaries in low-lying areas are vulnerable to riverine floods, storm surges associated with tropical cyclones/typhoons and sea level rise; natural (and human-induced) subsidence resulting from sediment compaction and ground water extraction; liquefaction of soft sediments as result of earthquake ground shaking. Tsunami possible/likely on some coasts. Lowland agri-business and subsistence farming in these regions at significant risk. |
| **Small islands** | Small islands generally have land areas of less than 10,000km$^2$ in area, though Papua New Guinea and Timor with much larger land areas are commonly included in lists of small island developing states. Low-lying islands are especially vulnerable to storm surge, tsunami and sea-level rise and, frequently, coastal erosion, with coral reefs threatened by ocean warming in some areas. Sea level rise is likely to threaten the limited ground water resources. High islands often experience high rainfall intensities, frequent landslides and tectonic environments in which landslides and earthquakes are not uncommon with (occasional) volcanic eruptions. Small islands may have low adaptive capacity and high adaptation costs relative to GDP. |
| **Mountain ecosystems** | Accelerated glacial melting, rock falls/landslides and glacial lake outburst floods, leading to increased debris flows, river bank erosion and floods and more extensive outwash plains and, possibly, more frequent wind erosion in intermontane valleys. Enhanced snow melt and fluctuating stream flows may produce seasonal floods and droughts. Melting of permafrost in some environments. Faunal and floral species migration. Earthquakes, landslides and other geophysical hazards may also occur in these environments. |
| **Volcanic environments** | Recently active volcanoes (erupted in last 10,000 years – see www.volcano.si.edu). Often fertile soils with intensive agriculture and landslides on steep slopes. Subject to earthquakes and volcanic eruptions including pyroclastic flows and MOWS flows/lahars and/or gas emissions and occasionally widespread ash fall. |

## "NO MITIGATION MEASURES SCENARIO" CHECKLIST FOR UWSSP

### Checklist 1: Scoping Checklist Part 1 - Questions on Project Characteristics

| No. | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| **1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc.)?** | | | | |
| 1.1 | Permanent or temporary change in land use, landcover or topography including increases in intensity of land use? | | | |
| 1.2 | Clearance of existing land, vegetation and buildings? | | | |
| 1.3 | Creation of new land uses? | | | |
| 1.4 | Pre-construction investigations e.g. boreholes, soil testing? | | | |
| 1.5 | Construction works? | | | |
| 1.6 | Demolition works? | | | |
| 1.7 | Temporary sites used for construction works or housing of construction workers? | | | |
| 1.8 | Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations? | | | |
| 1.9 | Underground works including mining or tunnelling? | | | |
| 1.10 | Reclamation works? | | | |
| 1.11 | Dredging? | | | |
| 1.12 | Coastal structures *e.g.* seawalls, piers? | | | |
| 1.13 | Offshore structures? | | | |
| 1.14 | Production and manufacturing processes? | | | |
| 1.15 | Facilities for storage of goods or materials? | | | |
| 1.16 | Facilities for treatment or disposal of solid wastes or liquid effluents? | | | |
| 1.17 | Facilities for long term housing of operational workers? | | | |
| 1.18 | New road, rail or sea traffic during construction or operation? | | | |
| 1.19 | New road, rail, air, waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc.? | | | |
| 1.20 | Closure or diversion of existing transport routes or | | | |

| No. | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| | infrastructure leading to changes in traffic movements? | | | |
| 1.21 | New or diverted transmission lines or pipelines? | | | |
| 1.22 | Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers? | | | |
| 1.23 | Stream crossings? | | | |
| 1.24 | Abstraction or transfers of water from ground or surface waters? | | | |
| 1.25 | Changes in waterbodies or the land surface affecting drainage or run-off? | | | |
| 1.26 | Transport of personnel or materials for construction, operation or decommissioning? | | | |
| 1.27 | Long term dismantling or decommissioning or restoration works? | | | |
| 1.28 | Ongoing activity during decommissioning which could have an impact on the environment? | | | |
| 1.29 | Influx of people to an area in either temporarily or permanently? | | | |
| 1.30 | Introduction of alien species? | | | |
| 1.31 | Loss of native species or genetic diversity? | | | |
| 1.32 | Any other actions? | | | |
| **2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?** | | | | |
| 2.1 | Land especially undeveloped or agricultural land? | | | |
| 2.2 | Water? | | | |
| 2.3 | Minerals? | | | |
| 2.4 | Aggregates? | | | |
| 2.5 | Forests and timber? | | | |
| 2.6 | Energy including electricity and fuels? | | | |
| 2.7 | Any other resources? | | | |
| **3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?** | | | | |
| 3.1 | Will the project involve use of substances or materials which | | | |

| No. | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| | are hazardous or toxic to human health or the environment (flora, fauna, water supplies)? | | | |
| 3.2 | Will the project result in changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)? | | | |
| 3.3 | Will the project affect the welfare of people e.g. by changing living conditions? | | | |
| 3.4 | Are there especially vulnerable groups of people who could be affected by the project e.g. hospital patients, the elderly? | | | |
| 3.5 | Any other causes? | | | |
| **4. Will the Project produce solid wastes during construction or operation or decommissioning?** | | | | |
| 4.1 | Spoil, overburden or mine wastes? | | | |
| 4.2 | Municipal waste (household and or commercial wastes)? | | | |
| 4.3 | Hazardous or toxic wastes (including radioactive wastes)? | | | |
| 4.4 | Other industrial process wastes? | | | |
| 4.5 | Surplus product? | | | |
| 4.6 | Sewage sludge or other sludges from effluent treatment? | | | |
| 4.7 | Construction or demolition wastes? | | | |
| 4.8 | Redundant machinery or equipment? | | | |
| 4.9 | Contaminated soils or other material? | | | |
| 4.10 | Agricultural wastes? | | | |
| 4.11 | Any other solid wastes? | | | |
| **5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?** | | | | |
| 5.1 | Emissions from combustion of fossil fuels from stationary or mobile sources? | | | |
| 5.2 | Emissions from production processes? | | | |
| 5.3 | Emissions from materials handling including storage or transport? | | | |
| 5.4 | Emissions from construction activities including plant and | | | |

| No. | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| | equipment? | | | |
| 5.5 | Dust or odors from handling of materials including construction materials, sewage and waste? | | | |
| 5.6 | Emissions from incineration of waste? | | | |
| 5.7 | Emissions from burning of waste in open air (*e.g.* slash material, construction debris)? | | | |
| 5.8 | Emissions from any other sources? | | | |
| **6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?** | | | | |
| 6.1 | From operation of equipment e.g. engines, ventilation plant, crushers? | | | |
| 6.2 | From industrial or similar processes? | | | |
| 6.3 | From construction or demolition? | | | |
| 6.4 | From blasting or piling? | | | |
| 6.5 | From construction or operational traffic? | | | |
| 6.6 | From lighting or cooling systems? | | | |
| 6.7 | From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)? | | | |
| 6.8 | From any other sources? | | | |
| **7. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into sewers, surface waters, groundwater, coastal waters or the sea?** | | | | |
| 7.1 | From handling, storage, use or spillage of hazardous or toxic materials? | | | |
| 7.2 | From discharge of sewage or other effluents (whether treated or untreated) to water or the land? | | | |
| 7.3 | By deposition of pollutants emitted to air, onto the land or into water? | | | |
| 7.4 | From any other sources? | | | |
| 7.5 | Is there a risk of long term build-up of pollutants in the environment from these sources? | | | |
| **8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?** | | | | |

| No. | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| 8.1 | From explosions, spillages, fires etc. from storage, handling, use or production of hazardous or toxic substances? | | | |
| 8.2 | From events beyond the limits of normal environmental protection e.g. failure of pollution control systems? | | | |
| 8.3 | From any other causes? | | | |
| 8.4 | Could the project be affected by natural disasters causing environmental damage (*e.g.* floods, earthquakes, landslip, *etc.*)? | | | |
| **9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?** | | | | |
| 9.1 | Changes in population size, age, structure, social groups *etc.*? | | | |
| 9.2 | By resettlement of people or demolition of homes or communities or community facilities e.g. schools, hospitals, social facilities? | | | |
| 9.3 | Through in-migration of new residents or creation of new communities? | | | |
| 9.4 | By placing increased demands on local facilities or services e.g. housing, education, health? | | | |
| 9.5 | By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy? | | | |
| 9.6 | Any other causes? | | | |
| **Question - Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?** | | | | |
| 9.1 | Will the project lead to pressure for consequential development which could have significant impact on the environment e.g. more housing, new roads, new supporting industries or utilities, etc.? | | | |
| 9.2 | Will the project lead to development of supporting | | | |

| No. | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|---|---|---|
| | facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.:<br>• supporting infrastructure (roads, power supply, waste or waste water treatment, etc.)<br>• housing development<br>• extractive industries<br>• supply industries<br>other? | | | |
| 9.3 | Will the project lead to after-use of the site which could have an impact on the environment? | | | |
| 9.4 | Will the project set a precedent for later developments? | | | |
| 9.5 | Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects? | | | |

**Checklist 2: Scoping Checklist Part 2 - Characteristics of the Project Environment (Environmental Sensitivity)**

| | |
|---|---|
| **Question - Are there features of the local environment on or around the Project location which could be affected by the Project?**<br>• Areas which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project?<br>• Other areas which are important or sensitive for reasons of their ecology e.g.<br>• Wetlands,<br>• Watercourses or other waterbodies,<br>• the coastal zone,<br>• mountains,<br>• forests or woodlands<br>• Areas used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the project?<br>• Inland, coastal, marine or underground waters?<br>• Areas or features of high landscape or scenic value?<br>• Routes or facilities used by the public for access | |

| | |
|---|---|
| to recreation or other facilities?<br>• Transport routes which are susceptible to congestion or which cause environmental problems?<br>• Areas or features of historic or cultural importance? | |
| **Question - Is the Project in a location where it is likely to be highly visible to many people?** | |
| **Question - Is the Project located in a previously undeveloped area where there will be loss of greenfield land?** | |
| **Question - Are there existing land uses on or around the Project location which could be affected by the Project? For example:**<br>• Homes, gardens, other private property,<br>• Industry,<br>• Commerce,<br>• Recreation,<br>• public open space,<br>• community facilities,<br>• agriculture,<br>• forestry,<br>• tourism,<br>• mining or quarrying | |
| **Question - Are there any plans for future land uses on or around the location which could be affected by the Project?** | |
| **Question - Are there any areas on or around the location which are densely populated or built-up, which could be affected by the Project?** | |
| **Question - Are there any areas on or around the location which are occupied by sensitive land uses which could be affected by the Project?**<br>• hospitals,<br>• schools,<br>• places of worship,<br>• community facilities | |
| **Question - Are there any areas on or around the location which contain important, high quality or scarce resources which could be affected by the Project? For example:**<br>• groundwater resources,<br>• surface waters,<br>• forestry,<br>• agriculture,<br>• fisheries,<br>• tourism,<br>• minerals. | |
| **Question - Are there any areas on or around the location of the Project which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?** | |
| **Question - Is the Project location susceptible to** | |

| | |
|---|---|
| **earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?** | |
| **Question - Is the Project likely to affect the physical condition of any environmental media?**<br>• The atmospheric environment including microclimate and local and larger scale climatic conditions?<br>• Water – e.g. quantities, flows or levels of rivers, lakes, groundwater. Estuaries, coastal waters or the sea?<br>• Soils – e.g. quantities, depths, humidity, stability or erdodibility of soils?<br>• Geological and ground conditions? | |
| **Question - Are releases from the Project likely to have effects on the quality of any environmental media?**<br>• Local air quality?<br>• Global air quality including climate change and ozone depletion<br>• Water quality – rivers, lakes, groundwater. Estuaries, coastal waters or the sea?<br>• Nutrient status and eutrophication of waters?<br>• Acidification of soils or waters?<br>• Soils<br>• Noise?<br>• Temperature, light or electromagnetic radiation including electrical interference?<br>• Productivity of natural or agricultural systems? | |
| **Question - Is the Project likely to affect the availability or scarcity of any resources either locally or globally?**<br>• Fossil fuels?<br>• Water?<br>• Minerals and aggregates?<br>• Timber?<br>• Other non-renewable resources?<br>• Infrastructure capacity in the locality - water, sewerage, power generation and transmission, telecommunications,<br>waste disposal roads, rail? | |
| **Question - Is the Project likely to affect human or community health or welfare?**<br>• The quality or toxicity of air, water, foodstuffs and other products consumed by humans?<br>• Morbidity or mortality of individuals, communities or populations by exposure to pollution?<br>• Occurrence or distribution of disease vectors including insects?<br>• Vulnerability of individuals, communities or populations to disease?<br>• Individuals' sense of personal security?<br>• Community cohesion and identity? | |

| | |
|---|---|
| • Cultural identity and associations?<br>• Minority rights?<br>• Housing conditions?<br>• Employment and quality of employment?<br>• Economic conditions?<br>• Social institutions? | |

**Checklist 3: Significance of Impacts**

| **Questions to be Considered** | |
|---|---|
| 1. Will there be a large change in environmental conditions? | |
| 2. Will new features be out-of-scale with the existing environment? | |
| 3. Will the effect be unusual in the area or particularly complex? | |
| 4. Will the effect extend over a large area? | |
| 5. Will there be any potential for transboundary impact? | |
| 6. Will many people be affected? | |
| 7. Will many receptors of other types (fauna and flora, businesses, facilities) be affected? | |
| 8. Will valuable or scarce features or resources be affected? | |
| 9. Is there a risk that environmental standards will be breached? | |
| 10. Is there a risk that protected sites, areas, features will be affected? | |
| 11. Is there a high probability of the effect occurring? | |
| 12. Will the effect continue for a long time? | |
| 13. Will the effect be permanent rather than temporary? | |
| 14. Will the impact be continuous rather than intermittent? | |
| 15. If it is intermittent will it be frequent rather than rare? | |
| 16. Will the impact be irreversible? | |
| 17. Will it be difficult to avoid, or reduce or repair or compensate for the effect? | |

## RELEVANT ENVIRONMENTAL QUALITY STANDARDS

(Note: International Guidelines are presented, where applicable, to show comparison and will be useful if evaluation of quality monitoring results include checking of how subproject's environmental performance fare with international standards.)

**Table A5.1: Ambient Air Quality Standards**

| Parameter | Averaging Period* | Nepal's Ambient Air Quality Standard, 2003**($\mu g/m^3$) | WHO Air Quality Guidelines ($\mu g/m^3$) | | Standard values to be followed by UWSSP subprojects, whichever are applicable^^^^ ($\mu g/m^3$) |
|---|---|---|---|---|---|
| | | | Global Update^ 2005 | Second Edition ^^ 2000 | |
| TSP | Annual | - | - | - | - |
| | 24-hour | 230 | - | - | 230 |
| $PM_{10}$ | Annual | - | 20 | - | 20 |
| | 24-hour | 120 | 50 | - | 50 |
| $PM_{25}$ | 1-year | - | 10 | - | 10 |
| | 24-hour | - | 25 | - | 25 |
| $SO_2$ | Annual | 50 | - | - | 50 |
| | 24-hour | 70 | 20 | - | 20 |
| | 10-minute | - | 500 | - | 500 |
| $NO_2$ | 1-year | 40 | 40 | - | 40 |
| | 24-hour | 80 | - | - | 80 |
| | 1-hour | - | 200 | - | 200 |
| CO | 8-hour | 10,000 | - | 10,000 | 10,000 |
| | 15-minute | 100,000 | - | 100,000 | 100,000 |
| Pb | 1-year | 0.5 | - | 0.5 | 0.5 |
| Benzene | 1-year | 20 | - | - | 20 |

* Due to short term duration of civil works, the shortest period will be more practical to use.
** as implementing rules on ambient air quality standards under the Environmental Protection Act, 1997. Summary available from Environment Statistics of Nepal 2011, Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu, Nepal.
^ Source: Environmental, Health and Safety General Guidelines, 2007. International Finance Corporation, World Bank Group.
^^ Source: Air Quality Guidelines for Europe, Second Edition, 2000; WHO Regional Office for Europe, Copenhagen
^^^ Subject to capacity of executing agency to do the test, including the availability of facilities to do the test in the country.

**Table A5.2: Noise Level Standards**

| Receptor/ Source | National Noise Standard Guidelines, 2012* (dB) | | WHO Guidelines Value For Noise Levels Measured Out of Doors** (One Hour $LA_q$ in dBA) | | Standard values to be followed by UWSSP subprojects, whichever are applicable (dB) |
|---|---|---|---|---|---|
| | Day | Night | 07:00 – 22:00 | 22:00 – 07:00 | |
| Industrial area | 75 | 70 | 70 | 70 | 70 for day time<br>70 for night time |
| Commercial area | 65 | 55 | | | 65 for day time<br>55 for night time |
| Rural residential area | 45 | 40 | 55 | 45 | 45 for day time<br>40 for night time |
| Urban residential area | 55 | 50 | 55 | 45 | 55 for day time<br>45 for night time |

| Receptor/ Source | National Noise Standard Guidelines, 2012* (dB) | | WHO Guidelines Value For Noise Levels Measured Out of Doors** (One Hour $LA_q$ in dBA) | | Standard values to be followed by UWSSP subprojects, whichever are applicable (dB) |
|---|---|---|---|---|---|
| | Day | Night | 07:00 – 22:00 | 22:00 – 07:00 | |
| Mixed residential area | 63 | 55 | 55 | 45 | 55 for day time<br>45 for night time |
| Quiet area | 50 | 40 | - | - | 50 for day time<br>40 for night time |
| Water Pump | 65 | | - | | 65 |
| Diesel generator | 90 | | - | | 90 |

* as implementing rules on noise standard guidelines under Environmental Protection Act, 1997.
** Guidelines for Community Noise, WHO, 1999.Source: Environmental, Health and Safety General Guidelines, 2007. International Finance Corporation, World Bank Group.

**Table A5.3: National Drinking Water Quality Standards, 2006**

| Group | National Drinking Water Quality Standards, 2006* | | | WHO Guidelines for Drinking-Water Quality, 4th Edition, 2011** | Standard values to be followed by UWSSP subprojects, whichever are applicable^^^ |
|---|---|---|---|---|---|
| | Parameter | Unit | Max. Concentration Limits | | |
| Physical | Turbidity | NTU | 5(10) *** | - | 5(10) *** |
| | pH | | 6.5 – 8.5 | none | 6.5 – 8.5 |
| | Color | TCU | 5 (15) | none | 5 (15) |
| | Taste and Odor | | Would not be objectionable | - | Would not be objectionable |
| | TDS | mg/l | 1000 | - | 1000 |
| | Electrical Conductivity | µc/cm | 1500 | - | 1500 |
| | Iron | mg/l | 0.3 (3) | - | 0.3 (3) |
| | Manganese | mg/l | 0.2 | - | 0.2 |
| | Arsenic | mg/l | 0.05 | 0.01 | 0.01 |
| | Cadmium | mg/l | 0.003 | 0.003 | Same |
| | Chromium | mg/l | 0.05 | 0.05 | 0.05 |
| | Cyanide | mg/l | 0.07 | none | 0.07 |
| | Fluoride | mg/l | 0.5 – 1.5 ^ | 1.5 | 0.5 – 1.5 ^ |
| | Lead | mg/l | 0.01 | 0.01 | 0.01 |
| | Ammonia | mg/l | 1.5 | none established | 1.5 |
| Chemical | Chloride | mg/l | 250 | none established | 250 |
| | Sulphate | mg/l | 250 | none | 250 |
| | Nitrate | mg/l | 50 | 50 | 50 |
| | Copper | mg/l | 1 | 2 | 1 |
| | Total Hardness | mg/l | 500 | - | 500 |
| | Calcium | mg/l | 200 | - | 200 |
| | Zinc | mg/l | 3 | none established | 3 |
| | Mercury | mg/l | 0.001 | 0.006 | 0.001 |
| | Aluminium | mg/l | 0.2 | none established | 0.2 |

| Group | National Drinking Water Quality Standards, 2006* | | | WHO Guidelines for Drinking-Water Quality, 4th Edition, 2011** | Standard values to be followed by UWSSP subprojects, whichever are applicable^^^ |
|---|---|---|---|---|---|
| | Parameter | Unit | Max. Concentration Limits | | |
| | Residual Chlorine | mg/l | 0.1 - 0.2 | 5 ^^ | 0.1 - 0.2 |
| Micro Germs | E-coli | MPN/100ml | 0 | Must not be detectable in any 100 ml sample | 0 |
| | Total Coliform | MPN/100ml | 0 in 95%of samples taken | | 0 in 95%of samples taken |

* as the implementing rules on drinking water quality standards under Water Resources Act, 1992
** Health-based guideline values
*** Figures in parenthesis are upper range of the standards recommended.
^ These standards indicate the maximum and minimum limits.
^^ From WHO (2003) Chlorine in Drinking-water, which states that this value is conservative.
^^^ Subject to capacity of executing agency to do the test, including the availability of facilities to do the test in the country.

**Table A5.4: Tolerance Limits for Wastewater to be Discharged into Inland Surface Waters from Combined Wastewater Treatment Plant, 2004***

| Parameters | Unit | Tolerance Limit^ |
|---|---|---|
| TSS | mg/L | 50 |
| Particle size of suspended particles | | Shall pass 850-micron sieve |
| pH | | 5.5 – 9.0 |
| Temperature | | Shall not exceed 40 °C in any section of the stream within 15 m downstream from the effluent outlet. |
| BOD5 at 20°C | mg/L | 50 |
| Oil & grease | mg/L | 10 |
| Phenolic compounds | mg/L | 1 |
| Cyanides (as CN) | mg/L | 0.2 |
| Sulphides (as S) | mg/L | 2 |
| Radioactive materials<br>Alpha emitters<br>Beta emitters | <br>c/ml<br>c/ml | <br>$10^{-7}$<br>$10^{-8}$ |
| Insecticides | | Absent |
| Total residual chlorine | | 1 |
| Fluorides (as F) | mg/L | 2 |
| Arsenic (as As) | mg/L | 0.2 |
| Cadmium (as Cd) | mg/L | 2 |
| Hexavalent Chromium (as $Cr^{+6}$) | mg/L | 0.1 |
| Copper (as Cu) | mg/L | 3 |
| Lead (as Pb) | mg/L | 0.1 |
| Mercury (as Hg) | mg/L | 0.01 |
| Nickel (as Ni) | mg/L | 3 |
| Selenium (as Se) | mg/L | 0.05 |
| Zinc (as Zn) | mg/L | 5 |
| Ammonical nitrogen | mg/L | 50 |
| COD | mg/L | 250 |
| Silver | mg/L | 0.1 |

* as implementing rules on effluent standards under Environmental Protection Act, 1997. Summary available from Environment Statistics of Nepal 2011, Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu, Nepal.

^ Subject to capacity of executing agency to do the test, including the availability of facilities to do the test in the country.

## OUTLINE OF AN ADB INITIAL ENVIRONMENTAL EXAMINATION REPORT

1. This outline is part of the safeguard requirements. An initial environmental examination (IEE) report is required for all environment category B projects. Its level of detail and comprehensiveness is commensurate to the significance of potential environmental impacts and risks. A typical IEE may have a narrower scope than an environmental impact assessment (EIA), depending on the nature of the project. The substantive aspects of this outline will guide the preparation of IEE reports, although not necessarily in the order shown.

I. **Introduction**

II. **Policy, Legal, and Administrative Framework –**discusses the national and local legal and institutional frameworks within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

III. **Description of UWSSP –** describes (i) UWSSP; (ii) its major components; and (iii) its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

IV. **Description of the Environment (Baseline Data) –** describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

V. **Anticipated Environmental Impacts and Mitigation Measures –** (i) predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media), and physical cultural resources in the project's area of influence, in quantitative terms, and to the extent possible; (ii) identifies mitigation measures and any residual negative impacts that cannot be mitigated; (iii) explores opportunities for enhancement; (iv) identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and (v) examines global, trans-boundary, and cumulative impacts as appropriate.

VI. **Information Disclosure, Consultation, and Participation -** (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders; (ii) summarizes comments and concerns received from affected people and other stakeholders, and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and indigenous peoples; and (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination), and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

VII. **Grievance Redress Mechanism –** describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

VIII. **Environmental Management Plan –** deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate to the project's impacts and risks):

A. Mitigation:
   (a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
   (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
   (c) provides links to any other mitigation plans (for example, for involuntary resettlement, indigenous people, or emergency response) required for the project.

B. Monitoring:
   (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits, and definition of thresholds that will signal the need for corrective actions; and
   (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate mitigation measures, and documents the progress and results of mitigation.

C. Implementation arrangements:
   (a) specifies the implementation schedule, showing phasing and coordination with overall project implementation;
   (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
   (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan

D. Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

IX. **Conclusion and Recommendation** – provides the conclusions drawn from the assessment and provides recommendations.

2. The following is an outline which will guide the preparation of IEE reports in the order shown:

Executive Summary
1. Introduction
2. Policy and Legislative Framework
3. Analysis of Alternatives
4. Proposed Description

## PROPOSED FORMAT FOR ATTENDANCE SHEET AND NOTES OF CONSULTATION

(Subproject Title)
**Urban Water Supply and Sanitation Sector Project**
ADB Loan No. XXXX

E-1: Attendance Sheet
Date:

Venue/Location: _____

Consulted Group: _____

Consulting Group: _____

| No | Name | Address | Age | Gender | | Head of HH | | Ethnicity | Representation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | M | F | Y | N | | Resident | Business Owner | Youth | Others* |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

***** Examples: Rural Municipality/Urban Municipality, Ward Council, NGOs, Schools, Churches, Women's Groups, other Civil Society Groups, etc.

(Subproject Title)
**Urban Water Supply and Sanitation Sector Project**
ADB Loan No. XXXX

E-2: Notes of Consultations
Date:

Venue/Location : _____

Consulted Group : _____

Consulting Group _____

No. of Participants Total: _____

Female: _____

Male: _____

**Discussion, Responses, Outcomes:**

| No. | Name | Gender | | Question, Response, Outcome |
|---|---|---|---|---|
| | | M | F | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

## SAMPLE GRIEVANCE REDRESS FORM

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

| | | | | | |
|---|---|---|---|---|---|
| **Date** | | **Place of registration** | | | |
| **Contact Information/ Personal Details** | | | | | |
| **Name** | | **Gender** | ***Male**<br>***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:<br><br>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:**<br>Note/Letter<br>E-mail<br>Verbal/Telephonic | |
| **Reviewed by:** (Names/Positions of Official(s) reviewing grievance) | |
| **Action Taken:** | |
| **Whether Action Taken Disclosed:** | Yes<br>No |
| **Means of Disclosure:** | |

## SAMPLE SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT TEMPLATE

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

I. INTRODUCTION
- Overall project description and objectives
- Description of sub-projects
- Environmental category of the sub-projects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and sub-project progress and status

| No. | Sub-Project Name | Status of Sub-Project | | | | List of Works | Progress of Works |
|---|---|---|---|---|---|---|---|
| | | Design | Pre-Construction | Construction | Operational | | |
| | | ☐ | ☐ | ☐ | ☐ | | |
| | | ☐ | ☐ | ☐ | ☐ | | |
| | | ☐ | ☐ | ☐ | ☐ | | |

II. COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

| No. | Sub-Project Name | Statutory Environmental Requirements | Status of Compliance | Action Required |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

III. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

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

IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

- Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
- There shall be Reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the semi-annual Report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:
    - What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
    - If water was escaping site boundaries or tracks were seen on adjacent roads;
    - Adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;

- Are their designated areas for concrete works, and refuelling;
- Are their spill kits on site and if there are site procedure for handling emergencies;
- Is there any chemical stored on site and what is the storage condition?
- Is there any dewatering activities if yes, where is the water being discharged;
- How are the stockpiles being managed;
- How is solid and liquid waste being handled on site;
- Review of the complaint management system;
- Checking if there are any activities being under taken out of working hours and how that is being managed.

**Summary Monitoring Table**

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

**Overall Compliance with CEMP/EMP**

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

V. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

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

VI. MONITORING OF ENVIRONMENTAL IMPACTS ON THE PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

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

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

**Air Quality Results**

| Site No. | Date of Testing | Site Location | Parameters (Government Standards) | | |
|---|---|---|---|---|---|
| | | | **PM10** ($\mu g/m^3$) | **SO2** ($\mu g/m^3$) | **NO2** ($\mu g/m^3$) |
| | | | | | |
| | | | | | |
| | | | | | |

| Site No. | Date of Testing | Site Location | Parameters (Monitoring Results) | | |
|---|---|---|---|---|---|
| | | | **PM10** ($\mu g/m^3$) | **SO2** ($\mu g/m^3$) | **NO2** ($\mu g/m^3$) |
| | | | | | |
| | | | | | |
| | | | | | |

**Water Quality Results**

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

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

**Noise Quality Results**

| Site No. | Date of Testing | Site Location | $LA_{eq}$ (dBA) (Government Standard) | |
|---|---|---|---|---|
| | | | **Day Time** | **Night Time** |
| | | | | |
| | | | | |

| Site No. | Date of Testing | Site Location | $LA_{eq}$ (dBA) (Government Standard) | |
|---|---|---|---|---|
| | | | Day Time | Night Time |
| | | | | |
| | | | | |

VII. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

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

Appendixes

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

SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT

Project Name
Contract Number
NAME: _____DATE: _____
TITLE: _____
DMA: _____
LOCATION: _____
GROUP: _____
WEATHER CONDITION: _____
INITIAL SITE CONDITION: _____
CONCLUDING SITE CONDITION:
Satisfactory:____ Unsatisfactory:____ Incident:____ Resolved:____ Unresolved:___
INCIDENT:
Nature of incident:

| | | |
|---|---|---|
| Project Activity Stage | Survey | |
| | Design | |
| | Implementation | |
| | Pre-Commissioning | |
| | Guarantee Period | |

_____
Intervention Steps: _____
Incident Issues
Resolution

**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**