

Kathmandu Valley Water Supply Management Board
Kathmandu Valley Water Security Improvement Project (KV WaSIP) – Sisneri
Water Supply Project
Jawlakhel, Lalitpur

Terms of Reference

**Consulting Services for the Preparation of an
Environmental Impact Assessment (EIA), an
Environmental and Social Impact Assessment (ESIA),
and Other Environmental and Social Documents
Required for the Project**

Client: Kathmandu Valley Water Supply Management Board (KVWSMB)

Financing: International Development Association (IDA) – World Bank Group

Date: September 2026

Acronym	Full Form
ACSR	Aluminum Conductor Steel Reinforced
AIS	Air Insulated Substation(s)
BMP	Biodiversity Management Plan
BOD	Biochemical Oxygen Demand
CBD	Convention on Biological Diversity
CHMP	Cultural Heritage Management Plan
CIA	Cumulative Impact Assessment
COD	Chemical Oxygen Demand
CSIA	Cumulative/Social Impact Assessment
DC	Direct Current
DHT	Downhole/Dilatometer Test
DI	Ductile Iron
DO	Dissolved Oxygen
DWSSM	Department of Water Supply and Sewerage Management
EAP	Emergency Action Plan
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EN	European Norm
ERT	Electrical Resistivity Tomography
ESCP	Environmental and Social Commitment Plan
ESF	(World Bank) Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard(s)
FPIC	Free, Prior and Informed Consent
GBV	Gender-Based Violence
GIS	Geographic Information System

GRM	Grievance Redress Mechanism
HIA	Heritage Impact Assessment
IDA	International Development Association
IEE	Initial Environmental Examination
ILO	International Labor Organization
IPP	Indigenous Peoples Plan
JV	Joint Venture
KTFT	Kathmandu Terai Fast Track
KUKL	Kathmandu Upatyaka Khanepani Limited
KV WaSIP	Kathmandu Valley Water Security Improvement Project
KVWSMB	Kathmandu Valley Water Supply Management Board
LMP	Labor Management Plan / Labor Management Procedures
LPS	Liters Per Second
LRP	Livelihood Restoration Plan
masl	meters above sea level
MLD	Million Liters per Day
MRL	Maximum Reservoir Level
MW	Megawatt
NFDIN	National Foundation for Development of Indigenous Nationalities
OHS	Occupational Health and Safety
OUV	Outstanding Universal Value
PAC	Poly Aluminum Chloride
PCR	Physical Cultural Resources
PGA	Peak Ground Acceleration
PMU	Project Management Unit
PPE	Personal Protective Equipment
QGIS	Quantum Geographic Information System
RAP	Resettlement Action Plan

RCC	Reinforced Concrete (Cement)
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SRT	Seismic Refraction Tomography
ToR	Terms of Reference
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNESCO	United Nations Educational, Scientific and Cultural Organization
WSP	Water Supply Project
WTP	Water Treatment Plant

1 Background and Introduction

The Kathmandu Valley Water Supply Management Board (KVWSMB) is responsible for the planning, development, management and operation of water supply infrastructure serving the Kathmandu Valley. In order to improve the reliability and sustainability of water supply to the Valley, particularly to the southern and central parts of the Valley, the Government of Nepal, through KVWSMB, is developing the Sisneri Water Supply Project under the Kathmandu Valley Water Security Improvement Project (P517244) with support from the World Bank.

The Sisneri Water Supply Project is intended to augment the water supply to Kathmandu Valley through development of a new reservoir and associated water conveyance, treatment and transmission infrastructure. The project comprises, among other components, the proposed Sisneri RCC gravity dam and reservoir, intake and pumping facilities, reservoir conveyance facilities, intermediate reservoir, raw water conveyance pipeline, water treatment plant, treated water transmission system, associated access infrastructure, power supply facilities and related ancillary and associated facilities.

The proposed project is expected to provide approximately 140 MLD during the wet season and 80 MLD during the dry season to the Kathmandu Valley. The principal project components and their technical characteristics shall be based on the latest approved and/or available project design and investigation documents provided by KVWSMB.

The project is subject to the applicable environmental requirements of the Government of Nepal and the environmental and social requirements of the World Bank. Accordingly, the project requires an Environmental Impact Assessment (EIA) in accordance with the applicable laws, rules, regulations and procedures of the Government of Nepal, as well as an Environmental and Social Impact Assessment (ESIA) and associated environmental and social instruments in accordance with the World Bank Environmental and Social Framework (ESF) and the applicable Environmental and Social Standards (ESSs).

The EIA and ESIA shall be undertaken as an integrated assessment. The Consultant shall utilize existing project information, previous studies and available environmental and social baseline information to the maximum extent practicable and shall undertake additional surveys, investigations and specialist studies wherever required to fill identified information gaps and to meet the requirements of the Government of Nepal and the World Bank.

The Consultant shall prepare the required Scoping Document and EIA Terms of Reference in accordance with the applicable Government of Nepal requirements and shall support KVWSMB in obtaining approval from the competent Government authority before commencement of the EIA study. The Consultant shall subsequently undertake the EIA and prepare the ESIA and all associated environmental and social management instruments required for the project.

The Consultant shall also provide technical and administrative support to KVWSMB throughout the Government of Nepal approval process and the World Bank review and clearance process, including addressing comments, undertaking revisions and preparing additional information or studies where required.

The project involves the following infrastructure components, as detailed in the Final Report for the Detailed Engineering Survey, Design, Drawings, Cost Estimate, and Procurement Documents (KVWSMB, 2024). All data, parameters, quantities, and other information explicitly stated in the TOR have been derived from earlier studies and are provided for reference and scoping purposes only. The actual data, design parameters, quantities, and scope of services may vary and shall be determined based on the final design of the dam and the findings and recommendations of other relevant studies to be undertaken under the Project.

2 Project Description

2.1 Project Components

a) RCC Dam and Intake Structure

A 65-meter high Reinforced Concrete (RCC) gravity dam on the **Sisneri (Kulekhani) River**, located approximately 500 meters upstream of the confluence with the Kogate River, on the boundary of Indrasarovar Rural Municipality (Ward No. 3) and Bhimphedi Rural Municipality (Wards No. 7 and 8), Makwanpur District. Key design parameters are:

- Maximum Reservoir Level (MRL): 1,157 m above sea level (masl)
- Maximum Draw Level: 1,145 masl
- Reservoir inundation area: approximately 74 hectares, extending approximately 3 km upstream from the dam axis
- Land use in the reservoir: left bank is predominantly barren land; right bank is barren land and forest

- Design flood (1,000-year return period): 1,751.1 m³/s (Snyder's Method)
- Peak Ground Acceleration (PGA): 0.30g for a 475-year return period
- Dam site geology: Ipa Granite; the waterway alignment crosses the Danuwargaon active fault
- Intake structure: Two sump wells (internal dimensions 28.8 m × 3 m × 8.8 m depth) housing 21 submersible pump sets (15 operational + 6 standby), each rated at 110 LPS, with a total pumping head of 302 m and unit power requirement of 294 kW

b) Kogate River Diversion Weir

A 4-meter high broad-crested concrete weir, 78 meters in length, on the Kogate River, designed to divert supplementary flows into the Sisneri reservoir. The weir is designed for a 100-year return period flood of 205 m³/s. An under sluice of 2 m × 3 m at invert level 1,178 masl is provided to pass riverbed materials and flush sediment.

c) Water Conveyance and Pumping System

A total pipeline length of **17.062km** of Ductile Iron (DI) pipe, comprising three segments:

- **Pumping Line 1:** From the dam intake at elevation 1,124 masl to the Balancing/Reservoir Tank at Darbang Danda (elevation 1,290 masl); length 306 m; 3 Nos of DI pipe of dia 800mm, total pumping head 302 m; power requirement 294 kW
- **Gravity Line:** From the Reservoir Tank (1,290 masl) to the WTP at Makhubesi (1,220 masl); length 8,690 m; 3 Nos of DI pipe of dia 800 mm route follows the Bagmati River corridor
- **Pumping Line 2:** From the WTP at Makhubesi (1,220 masl) to the Sainbu Reservoir (KUKL, Lalitpur Metropolitan City, 1,375 masl); length 8,066 m; 2 Nos of DI pipe of dia 1000 mm, follows the existing Bhaiseapati-Makhubesi municipal road; total pumping head 316 m; power requirement 285 kW per pump set

The pipeline system includes pressure vessels (21 units of 0.6 m³ each at Pumping Station 1; one unit of 10 m³ at Pumping Station 2).

d) Balancing/Reservoir Tank

An underground Reinforced Concrete (RCC) balancing tank with a capacity of **6,000 m³** at Darbang Danda.

e) Water Treatment Plant

A conventional water treatment plant with a design capacity of **140 MLD (1.62 m³/s)**, located at Makhubesi, Dakshinkali Municipality (Ward Nos. 2, 7, and 8). Treatment process includes: Receiving Chamber (detention time 4.19–5 minutes); Flash Mixing; Flocculation (vertical baffling, 7 units, 3-stage, 30-minute detention); Sedimentation (horizontal flow, 7 units, 50.4 m × 14.2 m × 3.4 m, 128-minute detention); Rapid Sand Filtration (28 chambers, 34.3 m² each, silica sand, filtration rate 6.07 m/hr); and Chlorination. Chemicals used: Poly Aluminum Chloride (PAC) as coagulant, lime for pH correction, and bleaching powder for sterilization. Existing water quality tests show the raw water requires treatment primarily for turbidity, iron, and bacteriological contamination (E. coli).

f) Access Road

A new **10.054 km access road** connecting the dam site at Sisneri through Makhubesi, Khokana, and Bungamati to the main road network. Road specifications: formation width 5–6 m; carriageway 5.5 m where possible; premix bituminous pavement; maximum gradient 16%; design standard: Nepal Road Standard 2070 BS. Protection structures along the road alignment include reinforced soil walls with gabion facia (Paramesh walls, EN 14475:2006), heights ranging from **4 m to 27 m**. The access road passes directly through the traditional Newar settlements of **Khokana** and **Bungamati**, which are recognized heritage areas.

g) Bridge over Bagmati River

An **80-meter single-span steel superstructure bridge** over the Bagmati River, providing vehicle and pipeline access. Specifications: total width 5.45 m; carriageway 4.25 m; footpaths 0.6 m on each side; Class A (single lane) live load design; design discharge 1,211 m³/s; bearing pedestal bottom level 1.31 m above the High Flood Level (1,216.87 masl); concrete grade M30; Fe 500 steel reinforcement.

h) Power Supply Infrastructure

A **56.02 km double-circuit 33 kV transmission line** (ACSR Dog conductor) connecting to two Air Insulated Substations (AIS): (i) **Dukuchhap Substation** (33 kV, serving Pumping Station 2 and the WTP, total power demand approximately 6,432 kW); and (ii) **Sisneri Dam Site Substation** (33/132 kV, serving Pumping Station 1, total power demand approximately 3,680 kW). Total project power demand: approximately **10 MW**. Backup power: 110V DC Lead Acid battery system (400 Ah) at each substation.

i) Construction Material Sources

Two quarry/borrow sources have been identified during detail Engineering Survey and design, but the EIA and ESIA can suggest more sources with potential impacts and mitigation measures:

- **Bagmati River Quarry** (near confluence with Sisneri Khola): granite (70%), quartzite (20%), and other aggregates; estimated volume approximately 200 m × 20 m × 3 m
- **Sisneri-Bhimphedi Road Quarry**: fine-grained quartzite (grey to white); described as "unlimited" volume

The locations of construction camps and workers' accommodation will be determined during the EIA/ESIA process.

j) Protection and River Training Structures

Reinforced soil walls with gabion facia along the pipeline corridor and the WTP site, plus other river training and slope protection works.

2.2 Project Area, Affected Local Governments, and Affected Population

The project area spans **three districts** (Makwanpur, Kathmandu, and Lalitpur) and **six local government units**:

Local Government Unit	District	Affected Wards	Component
Indrasarovar Rural Municipality	Makwanpur	Ward 3	Dam, reservoir

Bhimphedi Rural Municipality	Makwanpur	Wards 7 and 8	Dam, reservoir
Dakshinkali Municipality	Kathmandu	Wards 2, 7, and 8	WTP, pipeline, access road
Bagmati Rural Municipality	Kathmandu	Ward 1	Pipeline, bridge
Godawari Municipality	Lalitpur	Wards 7, 8, and 9	Pipeline, access road
Lalitpur Metropolitan City	Lalitpur	Wards 18, 21, and 22	Pipeline, Sainbu reservoir terminus

The total population residing within or adjacent to the project's Area of Influence across these local units is approximately **54,086 people** in approximately **13,046 households**. Major settlements along the access road and pipeline corridor include **Sisneri, Makkubesi, Khokana, and Bungamati**. The Detailed Engineering Survey and Design Report confirms that the project will involve “acquisition of large quantities of land and displacement of many affected families.” The specific numbers of physically displaced and economically affected households will be determined through the census and asset inventory conducted under this assignment, which in turn will inform resettlement and livelihood-restoration activities under the Project.

3 Objectives of the Assignment

The overall objective of the assignment is to undertake an integrated **Environmental Impact Assessment (EIA)** and **Environmental and Social Impact Assessment (ESIA)** for the Sisneri Water Supply Project and to prepare all associated environmental and social management instruments required for obtaining approval from the Government of Nepal and environmental and social clearance from the World Bank.

The specific objectives of the assignment are to:

- Review the existing project studies, designs, reports, environmental and social information and other relevant documents available for the Sisneri Water Supply Project, and identify information and assessment gaps that need to be addressed for completion of the EIA and ESIA.

- Prepare the **Scoping Document and EIA Terms of Reference** in accordance with the applicable Government of Nepal requirements and support KVWSMB in obtaining approval from the competent authority prior to commencement of the EIA.
- Establish and update the environmental and social baseline conditions within the project's **Area of Influence (AoI)** through appropriate field investigations, surveys, consultations and specialist studies.
- Identify, assess and predict the potential environmental and social risks and impacts of the project during pre-construction, construction, operation and other relevant project phases, including direct, indirect, induced and cumulative impacts.
- Assess project risks and impacts in accordance with the applicable **World Bank Environmental and Social Standards (ESSs)** and identify the measures required to avoid, minimize, mitigate and manage such risks and impacts.
- Assess feasible project alternatives, including alternatives related to project location, design, technology, alignment, construction methods, operation and the no-project alternative, from environmental and social as well as technical and economic perspectives, as applicable.
- Identify and assess impacts on affected communities, vulnerable groups, disadvantaged groups, land and natural resources, livelihoods, forests, biodiversity, ecosystem services, cultural heritage, labor and working conditions, community health and safety, and other relevant environmental and social receptors.
- Undertake all specialist environmental and social studies required for the EIA and ESIA, including studies relating to hydrology and environmental flows, biodiversity and critical habitat, downstream impacts, land acquisition and resettlement, Indigenous Peoples, labor and working conditions, community health and safety, cultural heritage, climate and disaster risks, cumulative impacts, dam safety and other matters identified through the assessment.
- Prepare the EIA, ESIA and all associated environmental and social management instruments required under the Government of Nepal regulatory framework and the World Bank ESF, based on the findings of the integrated assessment.

- Develop appropriate environmental and social management, mitigation, monitoring and institutional measures, including the Environmental and Social Management Plan (ESMP) and other project-specific plans and instruments required for implementation.
- Undertake meaningful stakeholder engagement and consultation throughout the assessment process, including the consultations and public hearing required under the Government of Nepal EIA process and the stakeholder engagement and disclosure requirements of the World Bank ESF.
- Support KVWSMB in obtaining approval of the EIA from the competent Government authority and in obtaining World Bank review and clearance of the ESIA and associated environmental and social instruments.
- Address comments received from KVWSMB, Government authorities, the World Bank and other relevant stakeholders and revise the EIA, ESIA and associated instruments as required until the applicable approval and clearance processes are satisfactorily completed.
- Strengthen the capacity of KVWSMB and relevant project implementation personnel for effective implementation, monitoring and management of the environmental and social commitments identified through the EIA and ESIA.

The Consultant shall undertake the assignment as **one integrated EIA and ESIA process**, to the extent practicable, so that environmental and social baseline studies, consultations and specialist investigations are shared between the two assessment processes. Additional investigations shall be undertaken wherever necessary to satisfy the requirements of the Government of Nepal and the World Bank.

4 Scope of Work

The assignment is structured into the following tasks, to be carried out concurrently or sequentially as appropriate, in coordination with KVWSMB's PMU and the World Bank task team.

4.1 Task A: Inception and Mobilization

Upon contract effectiveness, the Consultant shall undertake the inception and mobilization activities required for the integrated EIA and ESIA assignment. The Consultant shall:

- Review all available project documentation, including the Sisneri Water Supply Project Feasibility Study (2023), Sisneri Water Supply Project Detailed Engineering Design

Report (2024), and all other relevant studies, survey data, environmental and social information, designs, reports, maps, and project documents made available by KVWSMB.

- Meet with and coordinate with the KVWSMB Project Management Unit (PMU), Ministry of Physical Infrastructure and Development (MoID), Ministry of Forests and Environment (MoFE/MoAFE), Department of Water Supply and Sewerage Management (DWSSM), the affected Local Governments, including Indrasarovar Rural Municipality, Bhimphedi Rural Municipality, Dakshinkali Municipality, Bagmati Rural Municipality, Godawari Municipality and Lalitpur Metropolitan City, and the World Bank task team, as required.
- Undertake a preliminary field visit to all major project sites and components, including the proposed Sisneri dam and reservoir, Kogate River diversion weir, Makkubesi Water Treatment Plant, pipeline alignment and associated facilities, proposed access road including the sections passing through Khokana and Bungamati, Bagmati River bridge, and the identified construction material/quarry sites.
- Review the existing environmental and social information and identify data gaps, additional investigations, surveys, consultations, and specialist studies required for completion of the national EIA and World Bank ESIA.
- Prepare a refined methodology for undertaking the national EIA and World Bank ESIA as an integrated assessment, ensuring that the requirements of the Government of Nepal and the World Bank Environmental and Social Framework (ESF) are addressed through a coordinated process and, to the extent practicable, through common baseline studies, field investigations, consultations, and impact assessments.
- Prepare a detailed work plan and implementation schedule, including key activities, milestones, sequencing and interrelationships among the EIA, ESIA, specialist studies, environmental and social management instruments, consultations, regulatory approvals, and World Bank review processes.
- Prepare a stakeholder mapping and consultation plan covering project-affected persons and communities, vulnerable and disadvantaged groups, relevant Indigenous Peoples where applicable, affected Local Governments, government agencies, community organizations, heritage authorities, and other relevant stakeholders.
- Prepare draft data collection tools, questionnaires, survey formats, interview guides, checklists, and other instruments required for environmental and social baseline surveys,

household and socioeconomic surveys, census and asset inventory, stakeholder consultations, and specialist assessments.

- Prepare a seasonal baseline survey plan, particularly for aquatic biodiversity and hydrology, including the requirements for wet-season and dry-season surveys, to ensure that seasonal variations and potential downstream environmental and social impacts are adequately assessed.

The Consultant shall ensure that the inception phase establishes a common framework for the EIA and ESIA and avoids unnecessary duplication of investigations, consultations, data collection, and reporting. Where existing studies and information are adequate and reliable, these shall be utilized and updated or supplemented as necessary.

Deliverable 1: Inception Report

4.2 Task B: Scoping, Preparation and Approval of EIA Scoping Document and ToR

The Consultant shall undertake the scoping of the Project in accordance with the applicable requirements of the Government of Nepal and the World Bank Environmental and Social Framework. The national EIA scoping process and the World Bank ESIA scoping shall be undertaken as an integrated process to the extent practicable.

- Define/map the Area of Influence (AoI) for each component, distinguishing direct, indirect, cumulative and project-induced zones. The AoI shall explicitly cover the **74-ha reservoir area and approximately 3 km upstream**, all six affected Local Governments, the **17.062 km total pipeline system including the multiple parallel pipes in the respective pipeline sections**, the **10.054 km access road through Khokana/Bungamati**, the **56.02 km transmission line corridor**, and downstream communities whose property borders a natural watercourse and who use/access water and may potentially be exposed to dam-break flooding.
- Prioritize key environmental and social issues, including:
 - dam-break risk and downstream consequences;
 - the Danuwargaon active fault;
 - reservoir forest on the right bank, tree clearance and biodiversity;
 - traditional Newar settlements of Khokana and Bungamati;
 - land acquisition and displacement;

- labor and SEA/SH risks;
 - cultural heritage;
 - aquatic biodiversity in the Sisneri/Kulekhani and Bagmati river systems;
 - sediment and downstream flow;
 - quarry/borrow areas; and
 - other significant environmental and social risks identified through the scoping process.
- Undertake initial stakeholder consultation as part of the scoping process and document the key issues and concerns raised by stakeholders.
 - Based on the review of existing information, preliminary field investigations and stakeholder consultations, identify the environmental and social issues and potential impacts that require detailed assessment under the national EIA and World Bank ESIA.
 - Prepare the **Scoping Document for the national EIA** in accordance with the applicable requirements of the Government of Nepal, including the applicable environmental legislation, regulations, guidelines and prescribed format.
 - Prepare the **Terms of Reference (ToR) for the national EIA**, incorporating the findings of the scoping exercise and defining the scope, methodology, baseline investigations, specialist studies, impact assessment, alternatives analysis, mitigation and management measures, stakeholder consultation and other requirements necessary for undertaking the EIA.
 - Ensure that the national EIA Scoping Document and ToR are consistent with the World Bank ESIA requirements and that, to the extent practicable, the baseline studies, specialist investigations and stakeholder consultations are designed to satisfy both national EIA and World Bank ESIA requirements and avoid unnecessary duplication.
 - Submit the EIA Scoping Document and EIA ToR to **KVWSMB for review and onward submission to the competent Government authority**, as applicable, and support KVWSMB throughout the review and approval process.
 - Incorporate comments received from KVWSMB, the competent Government authority and other relevant agencies and revise the EIA Scoping Document and ToR as required until approval is obtained.

- The Consultant shall not commence the detailed national EIA assessment activities requiring approval of the EIA ToR until the **EIA Scoping Document and ToR have been approved by the competent authority**, while activities required for the World Bank ESIA, including baseline investigations and consultations, may proceed in accordance with the agreed work program and applicable requirements.
- Prepare a **Scoping Report** for the World Bank ESIA containing:
 - mapped AoI;
 - prioritized environmental and social issues;
 - proposed methodology;
 - data gaps and required additional studies;
 - preliminary stakeholder map; and
 - key ESIA scoping results.

The World Bank ESIA Scoping Report shall be aligned with the approved national EIA Scoping Document and ToR, where applicable, and shall incorporate any additional environmental and social assessment requirements arising from the World Bank ESF/ESS.

Deliverable 2: EIA Scoping Document, EIA ToR and ESIA Scoping Report:

The Consultant shall prepare and submit:

- **Draft EIA Scoping Document and EIA ToR** for review by KVWSMB;
- **Final EIA Scoping Document and EIA ToR** for submission to the competent Government authority;
- **ESIA Scoping Report**, including the mapped AoI, prioritized issues, proposed methodology, data gaps, required specialist studies and preliminary stakeholder mapping; and
- Nepali summary/versions of the national EIA Scoping Document and ToR as required for the Government approval process.

The Consultant shall support KVWSMB in obtaining approval of the EIA Scoping Document and ToR and shall incorporate the approved scope and ToR requirements into the subsequent EIA activities.

4.3 Task C: Legal, Policy and Institutional Framework

The Consultant shall undertake a detailed review of the applicable legal, policy, regulatory and institutional framework governing the Project in Nepal and the requirements of the World Bank Environmental and Social Framework (ESF). The review shall identify the applicable requirements, institutional responsibilities, and any gaps between national requirements and the World Bank Environmental and Social Standards (ESSs).

4.3.1 National Legal and Regulatory Framework

The Consultant shall review and assess the applicability of, but not be limited to, the following national laws, regulations, policies, guidelines, standards and procedures:

- Environment Protection Act, 2019 and Environment Protection Rules, 2020, including applicable EIA requirements and procedures;
- applicable national EIA Guidelines and sector-specific environmental guidelines;
- Forest Act, 2019 and applicable regulations, guidelines and procedures relating to forest land, tree clearance and compensatory plantation;
- National Parks and Wildlife Conservation Act, 1973 and Buffer Zone Management Regulations, 1996, where applicable;
- Land Acquisition Act, 2034 (1977), Land Act, 2021, Land Revenue Act, 2034 and applicable compensation norms and procedures;
- National Heritage Conservation Act, 2060 and applicable procedures of the Department of Archaeology;
- Water Resources Act, 2049 and Water Resources Regulations, 2050, including requirements for water use licensing for extraction of water from the Sisneri/Kulekhani and Kogate river systems for the proposed water supply scheme;
- Labor Act, 2074 and Child Labor Act, 2056;
- Indigenous Nationalities Act, 2058, NFDIN Act, 2002 and applicable policies and action plans concerning Indigenous Peoples;
- Constitution of Nepal, 2015, including fundamental rights relating to Indigenous Peoples, Dalits, the environment, property and compensation;
- Local Government Operation Act, 2017;
- Good Governance Act, 2008;

- Nepal Road Standard, 2070 BS; and
- other applicable national laws, policies, regulations, standards, guidelines and procedures relevant to the environmental and social risks and impacts of the Project.

The Consultant shall also review Nepal's relevant international treaties and conventions to which the country is a party, including, as applicable:

- Convention on Biological Diversity (CBD);
- Ramsar Convention on Wetlands;
- UNESCO World Heritage Convention; and
- relevant International Labour Organization (ILO) conventions.

The Consultant shall identify the permits, approvals, licenses, clearances, consents and other regulatory requirements applicable to each major project component and shall identify the responsible government agencies and the anticipated timing and sequence for obtaining such approvals.

4.3.2 World Bank Environmental and Social Framework

The Consultant shall undertake a detailed review of the World Bank Environmental and Social Framework and the applicable Environmental and Social Standards, including:

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts;
- ESS2: Labor and Working Conditions;
- ESS3: Resource Efficiency and Pollution Prevention and Management;
- ESS4: Community Health and Safety;
- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, where applicable;
- ESS8: Cultural Heritage; and
- ESS10: Stakeholder Engagement and Information Disclosure.

ESS9 (Financial Intermediaries) is not applicable to this Project.

The Consultant shall also review relevant World Bank Good Practice Notes and guidance, including those relating to:

- Stakeholder Engagement;
- Labor Influx;
- Gender-Based Violence (GBV);
- Indigenous Peoples;
- Cultural Heritage;
- Dam Safety; and
- Biodiversity and Critical Habitat.

The Consultant shall also consider the applicable **World Bank Group Environmental, Health, and Safety Guidelines**, including the relevant guidelines for water and sanitation infrastructure and other applicable construction and operational activities.

4.3.3 Gap Analysis between National Requirements and World Bank ESF

The Consultant shall undertake a gap analysis between applicable national environmental and social requirements and the World Bank ESF/ESS requirements.

The gap analysis shall specifically consider, but not be limited to:

- differences between government compensation rates and **full replacement cost** requirements under ESS5;
- treatment of non-titled, informal occupants, tenants, sharecroppers and other persons without formal legal rights to land;
- requirements relating to **Indigenous Peoples and Free, Prior and Informed Consent (FPIC)** under ESS7;
- requirements relating to **no net loss/net gain and critical and natural habitats** under ESS6;
- requirements for meaningful stakeholder consultation, information disclosure and project-level **Grievance Redress Mechanisms (GRM)** under ESS10;
- labor and working conditions, occupational health and safety, worker grievance mechanisms and other requirements under ESS2;
- community health and safety requirements under ESS4; and

- dam safety requirements under ESS4 compared with applicable national requirements and standards.

The Consultant shall identify appropriate gap-filling measures and incorporate these measures into the EIA, ESIA and associated environmental and social management instruments.

The Consultant shall discuss and confirm the identified gaps and proposed gap-filling measures with KVWSMB and the World Bank task team and ensure that the final EIA/ESIA documentation adequately addresses the applicable requirements.

The Consultant shall also review the applicability of other World Bank Environmental and Social Standards based on the final project financing and implementation arrangements, as appropriate.

4.4 Task D: Environmental Baseline

The Consultant shall establish a comprehensive environmental baseline for the Project Area of Influence (AoI), based on a review of existing information, field investigations, seasonal surveys, laboratory analysis, and specialist studies as required. Existing baseline information and previous studies shall be reviewed and utilized where adequate, reliable, and representative, and shall be supplemented through additional investigations where data gaps are identified.

The baseline assessment shall cover the pre-construction condition of the physical and biological environment and shall provide sufficient information to assess potential environmental risks and impacts during construction, operation and maintenance of the Project.

4.4.1 Physical Environment

The Consultant shall assess and document the following physical environmental characteristics:

- **Topography and land use:** Prepare appropriate topographic, land-use and land-cover maps using available satellite imagery, drone surveys and field verification, including the reservoir inundation area, reservoir rim and all major project components and associated facilities.
- **Geology and geotechnical conditions:** Review available geological and geotechnical information and supplement it where necessary. The assessment shall consider the relevant geological formations of the Kathmandu Group, including Markhu, Tistung, Sopyang, Chandragiri, Chitlang and Phulchauki formations, as well as the Ipa Granite formation. The assessment shall consider the implications of the **Danuwargaon active fault** for the dam,

reservoir, pipeline, access road and other project infrastructure and shall review and supplement available geotechnical investigations as required.

- **Seismicity and natural hazards:** Assess seismic and other natural hazards relevant to the Project, including the design basis of **PGA 0.30g**, reservoir-induced seismicity, landslides, slope instability, cloudburst, debris flow, erosion and other hazards. Particular attention shall be given to slope stability along the reservoir rim and along the access road and pipeline alignments, including areas subject to steep slopes and high rainfall.
- **Hydrology:** Assess the hydrological characteristics of the Sisneri/Kulekhani and Kogate river systems and relevant downstream watercourses. The assessment shall review available hydrological records and modelling, including the reported annual average flow of approximately **1.97 m³/s** in the Sisneri/Kulekhani basin and the range of flows identified through the available long-term simulation. The assessment shall characterize seasonal variability, downstream flow regimes, existing water users and ecological requirements.
- **Environmental flows:** Establish the baseline downstream flow regime and assess the environmental flow requirements necessary to maintain downstream aquatic ecosystems, river-dependent communities and existing water uses. The assessment shall consider the proposed abstraction of up to approximately **140 MLD (1.62 m³/s)** and its relationship with the natural flow regime.
- **Sediment:** Review available sediment studies and modelling and assess baseline sediment transport and deposition conditions. The assessment shall consider the implications of the proposed dam and Kogate diversion weir for sediment trapping, downstream sediment supply and potential changes to downstream river morphology and bank stability.
- **Groundwater:** Characterize groundwater conditions in areas potentially affected by the Project, including groundwater use and dependence by local communities where relevant.
- **Climate and meteorology:** Establish relevant baseline meteorological and climatic conditions, including rainfall, temperature, extreme rainfall events and other parameters relevant to project design, construction and operation. The assessment shall consider relevant climate-change projections and implications for project-related environmental risks.
- **Air quality, noise and vibration:** Establish baseline air quality, noise and vibration conditions at representative sensitive receptors, including settlements and communities in

Khokana and Bungamati, the dam and reservoir area, WTP site, pipeline and access road corridors, and other locations likely to experience construction-related impacts.

4.4.2 Biological Environment

The Consultant shall establish the baseline biological environment within the AoI, including terrestrial, aquatic and associated ecosystems.

The assessment shall include, but not be limited to:

- **Flora and vegetation:** Map and inventory vegetation and forest cover within the reservoir, access road, pipeline, transmission line and other project footprints. The survey shall identify rare, threatened, endemic and other species of conservation significance and identify government and community forests and areas requiring forest clearance or other permits.
- **Terrestrial fauna:** Assess mammals, birds, reptiles, amphibians and other relevant fauna, including species of conservation significance, habitat use and movement patterns. The assessment shall identify potential wildlife movement corridors and sensitive habitats.
- **Transmission-line biodiversity risks:** Assess potential impacts of the approximately **56.02 km transmission line corridor**, including vegetation clearance, habitat fragmentation and potential avian collision and electrocution risks.
- **Aquatic ecology:** Undertake seasonal wet-season and dry-season surveys of aquatic biodiversity in the **Sisneri/Kulekhani River upstream and downstream of the proposed dam, Kogate River upstream and downstream of the proposed diversion weir, and the Bagmati River in the vicinity of the proposed bridge/pipeline crossing**. The surveys shall include, as appropriate, fish, macroinvertebrates, aquatic plants and other relevant aquatic organisms.
- **Aquatic ecological functions:** Assess fish migration routes, spawning and breeding areas, aquatic habitats and other ecological functions that may be affected by the proposed dam, diversion weir, water abstraction and changes in downstream flows.
- **Critical and natural habitat:** Screen and assess the presence of **critical habitat and natural habitat in accordance with ESS6**. Where critical habitat is identified, the Consultant shall undertake the additional assessment required under ESS6 and recommend appropriate measures consistent with the mitigation hierarchy.

- **Invasive species:** Identify invasive alien species and assess risks of their introduction or spread during construction and operation.
- **Protected and ecologically sensitive areas:** Identify protected areas, ecologically sensitive areas and other areas of biodiversity significance within or potentially connected to the AoI.

4.4.3 Dam Safety and Hazard Baseline

The Consultant shall establish the baseline information necessary to assess dam safety and downstream hazard risks.

The Consultant shall:

- undertake a detailed assessment of dam-break hazards for at least two scenarios:
 - failure of the **Sisneri Dam alone**; and
 - a combined failure scenario involving **Sisneri Dam and the existing Kulekhani system**, as appropriate based on the available design and dam-break assessment;
- review the available modelling, including the reported combined peak discharge of approximately **21,500 m³/s**, and undertake additional modelling as necessary;
- prepare dam-break inundation maps showing the potential extent, depth, velocity and time of arrival of flood waves;
- identify downstream communities, settlements, infrastructure, public facilities, agricultural land, natural resources and other assets potentially exposed to dam-break flooding;
- assess reservoir-induced seismicity and other reservoir-related hazards; and
- assess the stability of the reservoir rim and surrounding slopes, including potential landslide-generated impulse waves and other hazards that could affect the reservoir and dam.

The baseline hazard assessment shall provide the basis for the subsequent dam safety assessment, Emergency Action Plan (EAP) and community health and safety assessment under the ESIA.

4.4.4 Water Quality

The Consultant shall establish a comprehensive baseline of surface-water quality for the water bodies potentially affected by the Project.

Sampling shall include, as appropriate:

- Sisneri/Kulekhani River **upstream and downstream of the proposed dam;**
- Kogate River **upstream and downstream of the proposed diversion weir;** and
- Bagmati River in the vicinity of the proposed bridge/pipeline crossing.

The baseline water-quality assessment shall include, as applicable:

Physical parameters

- temperature;
- turbidity;
- total suspended solids (TSS);
- total dissolved solids (TDS); and
- electrical conductivity.

Chemical parameters

- pH;
- biochemical oxygen demand (BOD);
- chemical oxygen demand (COD);
- dissolved oxygen (DO);
- nutrients;
- relevant heavy metals; and
- iron.

Bacteriological parameters

- total coliform; and
- E. coli.

Sampling locations, frequency and parameters shall be determined based on the characteristics of the receiving water bodies, existing pollution sources, project components and applicable national and World Bank requirements.

The Consultant shall identify existing sources of pollution, including agricultural runoff, settlements, wastewater discharges and other anthropogenic sources, including influences from the existing Kulekhani system.

The Consultant shall also assess the suitability of the baseline water quality for the proposed water supply scheme and its implications for the proposed treatment processes.

Where required based on the findings of the baseline assessment, the Consultant shall undertake or recommend **reservoir water-quality modelling** to assess potential stratification, eutrophication, dissolved oxygen depletion, nutrient dynamics, methane generation and other water-quality changes following impoundment.

Deliverable 3a: Environmental Baseline Report: The report shall present the baseline findings, survey methodologies, sampling locations, laboratory results, maps, seasonal survey results, identified sensitive receptors, data limitations and recommendations for the impact assessment and subsequent environmental and social management measures.

4.5 Task E: Social Baseline and Social Assessment

The Consultant shall undertake a comprehensive social baseline and assessment covering the Project Area of Influence and all six affected Local Governments. The assessment shall establish the socioeconomic, demographic, livelihood, land-use, cultural heritage, Indigenous Peoples, gender and community health and safety conditions relevant to the Project and shall provide the basis for the assessment of social risks and impacts and preparation of the required environmental and social instruments.

4.5.1 Socioeconomic Baseline

The Consultant shall undertake household surveys, key informant interviews (KIIs), focus group discussions (FGDs) and other consultations as required to establish the socioeconomic baseline of affected communities and households within the AoI.

The assessment shall cover, but not be limited to:

- demographics, including age, sex, ethnicity, caste, language, religion and education;
- household composition and dependency;
- formal and informal livelihoods and employment;
- land ownership, land use and tenure arrangements;
- sources of income and expenditure;
- food security and livelihood dependence on natural resources;
- access to public services and infrastructure; and

- existing channels for raising and resolving grievances.

4.5.2 Vulnerable and Disadvantaged Groups

The Consultant shall identify vulnerable and disadvantaged groups and assess their specific vulnerabilities and the potential for disproportionate impacts arising from the Project.

The assessment shall consider, as applicable:

- female-headed households;
- households below the poverty line;
- elderly persons;
- persons with disabilities;
- landless and near-landless households;
- tenants and sharecroppers;
- informal occupants and encroachers;
- Dalit communities;
- households without formal employment; and
- other groups identified through the assessment.

The Consultant shall assess the specific measures required to ensure that vulnerable and disadvantaged groups are able to participate meaningfully in stakeholder engagement and have equitable access to project benefits and assistance.

4.5.3 Gender Assessment

The Consultant shall undertake a gender assessment covering, as relevant:

- gender-disaggregated land ownership and titling;
- gender roles in livelihoods and access to natural resources;
- control over household income and productive assets;
- women's participation in decision-making;
- potential impacts associated with labor influx;
- risks of GBV, SEA and SH;
- access to project employment and economic opportunities; and

- intersecting vulnerabilities affecting women and other vulnerable or minority groups, including Indigenous Peoples where applicable.

4.5.4 Census and Asset Inventory

The Consultant shall undertake a complete census of all persons and households residing on or deriving livelihoods from land that may be acquired or affected by the Project. The census shall cover all relevant project components and associated facilities, including:

- reservoir and dam area;
- WTP;
- pipeline and associated facilities;
- access road;
- Bagmati River bridge and approaches;
- transmission line;
- quarry and construction material areas; and
- construction camps and other temporary facilities, where their locations are identified.

The census shall establish household composition, livelihoods, assets, vulnerability and other information required to identify affected persons and determine potential physical and economic displacement.

The Consultant shall prepare an asset inventory covering:

- land ownership and tenure arrangements;
- residential and other structures;
- trees and crops;
- businesses and other productive assets;
- common property resources; and
- non-titled and informal assets and occupants.

The Consultant shall undertake appropriate market assessment to establish **full replacement cost** in accordance with ESS5 and shall identify any differences between replacement cost and applicable Government compensation rates.

The Consultant shall establish an appropriate **cut-off date** in consultation with KVWSMB and affected communities and shall ensure that the cut-off date is appropriately disclosed.

4.5.5 Indigenous Peoples and FPIC

The Consultant shall assess whether ESS7 applies to any communities affected by the Project.

The Project design report identifies the traditional settlements of **Khokana and Bungamati** along the access road as communities with distinct identities, customary governance arrangements and collective attachment to their areas. The Consultant shall undertake a thorough Social Assessment against the criteria of ESS7 and shall also screen communities in the reservoir and other project areas. Where ESS7 applies, the Consultant shall assess:

- distinct identity;
- customary governance arrangements;
- customary land and resource use;
- sacred and ritual areas;
- intangible cultural heritage;
- collective attachment to land and natural resources; and
- potential risks, impacts, benefits and opportunities associated with the Project.

The Consultant shall assess whether **Free, Prior and Informed Consent (FPIC)** is required in accordance with paragraph 24 of ESS7 and shall document the basis for the conclusion.

The assessment shall identify and map sacred sites, ritual forests, traditional-use areas and other culturally significant resources, including intangible cultural heritage.

4.5.6 Cultural Heritage

The Consultant shall identify and assess physical and intangible cultural heritage resources within the Project AoI, including:

- archaeological resources;
- temples and shrines;
- cremation sites;
- ritual water resources;
- sacred trees and forests;
- monuments and other culturally significant structures; and
- intangible cultural heritage and traditional practices.

For **Khokana and Bungamati**, the Consultant shall undertake a **Heritage Impact Assessment (HIA)**, in coordination with the Department of Archaeology and relevant Local Governments, to assess potential direct, indirect and visual impacts of the Project, including impacts associated with land use, traffic, vibration, noise and changes to the cultural landscape and Outstanding Universal Value, where applicable.

The Consultant shall consult the Department of Archaeology and relevant heritage custodians and shall assess potential impacts of project traffic and construction activities on the structural integrity and heritage character of affected areas.

The Consultant shall also assess potential impacts on intangible heritage, including river-related rituals, traditional access routes, sacred water resources and cultural practices that may be affected by dam construction, reservoir inundation or changes in downstream flows.

4.5.7 Labor Influx and Community Health and Safety

The Consultant shall assess potential social risks associated with labor influx and the presence of construction workers in project-affected communities.

The assessment shall include:

- labor flow by year;
- workforce requirements by project component;
- resident and migrant workers;
- worker accommodation and construction camps;
- potential GBV, SEA and SH risks;
- communicable diseases and other community health risks;
- substance abuse;
- road and traffic safety;
- potential conflict between workers and local communities; and
- other community health and safety risks associated with construction activities.

The Consultant shall establish a baseline of relevant community health conditions in potentially affected settlements and identify communities and groups that may be particularly vulnerable to project-related health and safety risks.

Deliverable 3b: Social Baseline and Social Assessment Report:

The report shall include the socioeconomic and demographic baseline, vulnerable group and gender assessment, census and asset inventory, assessment of land and livelihood impacts, Indigenous Peoples screening and Social Assessment, FPIC documentation and conclusion where applicable, cultural heritage assessment, and labor influx and community health and safety baseline.

4.6 Task F: Impact Assessment

The Consultant shall undertake a comprehensive assessment of the environmental and social risks and impacts associated with the Project throughout its lifecycle, including pre-construction, construction, operation and maintenance phases.

The assessment shall consider direct, indirect, induced and cumulative impacts and shall build upon the environmental and social baseline studies, specialist investigations and stakeholder consultations undertaken under the preceding tasks.

4.6.1 Impact Assessment Methodology

The Consultant shall establish and apply an appropriate impact assessment methodology for identifying and evaluating the significance of environmental and social risks and impacts.

The assessment of significance shall consider, as applicable:

- magnitude;
- spatial extent;
- duration;
- reversibility;
- probability; and
- sensitivity of affected receptors.

The Consultant shall present the assessment using an appropriate significance matrix or equivalent approach and shall clearly identify potentially significant risks and impacts requiring mitigation and management.

4.6.2 Environmental Impacts

The Consultant shall assess, but not be limited to, the following environmental risks and impacts:

- loss of approximately **74 ha of land associated with reservoir inundation**, including impacts on forest, natural habitat and habitat fragmentation;
- changes in downstream river flows resulting from water abstraction and reservoir operation, including changes from the natural average flow of approximately **1.97 m³/s**, seasonal flow patterns, environmental flows, downstream water users and aquatic ecosystems;
- impacts on fish passage and aquatic biodiversity resulting from the proposed dam and Kogate diversion weir;
- geological and geotechnical risks associated with the **Danuwargaon active fault**, reservoir rim slopes, steep terrain, landslides, rainfall, cloudburst, debris flow and instability along the pipeline and access road corridors;
- reservoir water-quality impacts, including potential **stratification, eutrophication, dissolved oxygen depletion and methane generation**, and implications for downstream water quality and water treatment;
- sediment trapping and reduced downstream sediment supply, including potential impacts on river morphology, bank stability, agricultural productivity and downstream ecosystems;
- impacts associated with quarry and construction material extraction;
- impacts associated with construction camps, worker accommodation and other temporary facilities;
- dam-break risks and potential downstream consequences, including the two dam-break scenarios identified under the baseline/hazard assessment;
- construction-related air quality, noise and vibration impacts, particularly at sensitive receptors and heritage areas;
- impacts associated with the approximately **56.02 km transmission line**, including vegetation clearance, habitat fragmentation and potential avian collision and electrocution risks; and
- cumulative environmental impacts associated with the Sisneri Project and existing/planned developments, including the **Kulekhani system, Bagmati River system and Kathmandu Terai Fast Track (KTFT)**, as relevant.

The Consultant shall also assess other environmental risks and impacts identified through the baseline studies, scoping process and stakeholder consultations.

4.6.3 Social Impacts

The Consultant shall assess, but not be limited to, the following social risks and impacts:

- physical displacement associated with the reservoir, dam and other project footprints;
- economic displacement affecting agricultural land, irrigation, orchards, forest resources, fishing, businesses and other livelihood activities;
- impacts on landowners, tenants, sharecroppers, informal occupants, users of common property resources and other affected persons;
- impacts on vulnerable and disadvantaged groups and differential impacts on affected households and communities;
- impacts on communities potentially covered by ESS7, including the traditional settlements of **Khokana and Bungamati**, where applicable;
- impacts on sacred and ritual sites, traditional water resources, pathways, cultural practices and other tangible and intangible cultural heritage;
- impacts on the cultural heritage character and Outstanding Universal Value of Khokana and Bungamati, where applicable;
- impacts associated with labor influx, including **GBV, SEA and SH**, communicable diseases, substance abuse and community conflict;
- community health and safety risks;
- traffic and road safety risks;
- disruption to community access, local roads, natural resources and public services during construction; and
- differential and cumulative impacts on vulnerable groups and other potentially disadvantaged communities.

4.6.4 Cumulative and Induced Impacts

The Consultant shall assess cumulative and induced environmental and social impacts associated with the Project and other existing or reasonably foreseeable developments.

The assessment shall include, as relevant:

- cumulative hydrological and ecological impacts within the river basin, including interactions with the Kulekhani system;

- cumulative impacts on the Sisneri/Kulekhani and Bagmati river systems;
- cumulative impacts associated with changes in downstream flows, sediment transport and aquatic ecology;
- induced development associated with the new access road, including potential land speculation, in-migration, tourism and other changes in land use;
- potential induced impacts on the cultural heritage areas of **Khokana and Bungamati**, including increased development pressure and heritage encroachment; and
- other cumulative or induced impacts identified through the assessment.

The Consultant shall identify appropriate measures to avoid, minimize, mitigate and manage significant cumulative and induced impacts and shall incorporate these measures into the ESMP and other relevant environmental and social management instruments.

The impact assessment shall provide the basis for the preparation of the mitigation measures, ESMP and other environmental and social instruments under the subsequent tasks.

4.7 Task G: Mitigation Measures and Environmental and Social Management Plan (ESMP)

The Consultant shall develop appropriate measures to avoid, minimize, mitigate and manage the environmental and social risks and impacts identified through the EIA and ESIA. The mitigation and management measures shall follow the mitigation hierarchy and shall be integrated, where appropriate, into the Project design, construction arrangements, operation procedures and contractual requirements.

4.7.1 Mitigation Measures

The Consultant shall apply the mitigation hierarchy of:

avoid → minimize → mitigate → restore → offset/compensate, as applicable.

The Consultant shall identify measures to avoid or minimize significant environmental and social risks and impacts and shall develop appropriate mitigation, restoration and, where required, offset or compensation measures.

The mitigation measures shall include, as relevant:

- measures to avoid or minimize impacts on forests, natural habitats and biodiversity;

- measures for fish passage and protection of aquatic biodiversity;
- measures to maintain appropriate downstream environmental flows;
- measures to minimize impacts associated with sediment trapping and changes in downstream sediment transport;
- measures to address slope stability, erosion, landslides and other geological and natural hazard risks;
- measures to minimize impacts associated with quarrying and construction material extraction;
- measures to minimize impacts on water quality and aquatic ecosystems;
- measures to minimize impacts associated with construction camps and worker accommodation;
- measures to minimize air quality, noise and vibration impacts;
- measures to address impacts associated with the transmission line, including vegetation clearance and avian risks;
- measures to minimize impacts on cultural heritage, particularly in Khokana and Bungamati;
- measures to minimize disruption to community access, local roads and public services;
- measures to address labor influx, GBV/SEA/SH, community health and safety and traffic safety risks; and
- other measures identified through the EIA, ESIA, specialist studies and stakeholder consultations.

Where appropriate, the Consultant shall recommend design modifications and other project measures, including **fish passage structures, environmental flow provisions, road modifications and vegetation buffers**, to avoid or minimize environmental and social impacts.

4.7.2 Environmental and Social Management Plan

The Consultant shall prepare a comprehensive **Environmental and Social Management Plan (ESMP)** covering the relevant phases and components of the Project.

The ESMP shall include, but not be limited to:

- mitigation measures for each identified environmental and social risk and impact;

- the responsible institution/party for implementation of each measure;
- implementation timing and linkage with project activities;
- environmental and social monitoring requirements;
- measurable monitoring indicators;
- monitoring frequency and responsibilities;
- reporting arrangements;
- institutional arrangements and environmental and social staffing requirements;
- contractor and subcontractor environmental and social responsibilities;
- arrangements for environmental and social audits and supervision;
- documentation and record-keeping requirements; and
- a fully costed environmental and social management and monitoring budget.

The ESMP shall include appropriate monitoring of key risks during construction and operation, including:

- post-impoundment water quality and aquatic ecology;
- downstream environmental flows;
- sediment and river conditions;
- biodiversity and habitat conditions; and
- heritage-related noise and vibration impacts.

The Consultant shall define the institutional arrangements required for implementation, monitoring, supervision and reporting of the ESMP and shall identify the required environmental and social personnel within KVWSMB and other responsible agencies.

4.7.3 Contractor Environmental and Social Management Plan

The Consultant shall establish the requirements to be incorporated into the Contractor's Environmental and Social Management Plan (**C-ESMP**) and relevant bidding and contract documents.

The C-ESMP requirements shall address, as relevant:

- erosion and sediment control;
- dust and air-quality management, particularly in Khokana and Bungamati;
- noise and vibration management, including measures for heritage areas;




- water-quality protection;
- quarry and construction material management;
- construction camps and worker accommodation;
- waste and hazardous-material management;
- traffic and road safety;
- occupational health and safety;
- community health and safety;
- emergency preparedness and incident management;
- worker Code of Conduct, including requirements relating to GBV/SEA/SH; and
- other construction-related environmental and social risks identified through the ESIA.

The Consultant shall ensure that relevant ESMP and C-ESMP requirements are incorporated into the Project's procurement and construction contracts and are clearly assigned to the responsible contractors and subcontractors.

Deliverable 4: Environmental and Social Management Plan

The Consultant shall submit the draft ESIA comprising:

- **Volume I – Main ESIA Report**, including the assessment and mitigation framework;
- **Volume II – Standalone Environmental and Social Management Plans and Instruments**, as applicable; and
- **Volume III – Annexes and supporting information.**

4.8 Task H: National Environmental Impact Assessment (EIA)

The Consultant shall prepare the Environmental Impact Assessment (EIA) in accordance with the applicable requirements of the Government of Nepal, including the **Environment Protection Act, 2019, Environment Protection Rules, 2020, applicable EIA Guidelines, and the approved EIA Scoping Document and ToR.**

The EIA shall be consistent with and cross-referenced to the ESIA and shall utilize, to the extent practicable, the common baseline information, specialist studies, consultations and impact assessments undertaken for the integrated EIA and ESIA.

The Consultant shall:

- Prepare the EIA in accordance with the prescribed national format and requirements, covering all relevant environmental and social issues associated with the Project and its components.
- Ensure that the EIA adequately assesses environmental and social risks and impacts associated with the Project during pre-construction, construction, operation and maintenance phases.
- Ensure consistency between the EIA and ESIA and avoid unnecessary duplication of baseline studies, specialist investigations and stakeholder consultations.
- Where national requirements and World Bank ESF requirements differ, identify and address the differences through the integrated environmental and social assessment and associated management measures.
- Incorporate the findings of the environmental and social baseline studies, specialist investigations, alternatives assessment, impact assessment, stakeholder consultations and mitigation measures into the EIA.
- Support KVWSMB throughout the review and approval process of the EIA by the competent Government authority, including responding to comments, participating in review meetings and revising the EIA as required.
- Incorporate comments and recommendations received from the competent Government authority, KVWSMB and other relevant agencies and finalize the EIA.
- Prepare and support submission of the documentation required for **forest clearance/tree clearance and related environmental approvals**, as applicable.

The Consultant shall also review the EIA against the final Project design and associated facilities. As the **Detailed Engineering Design of the Dam and Ancillary Works is expected to be completed by the end of Month 14**, the Consultant shall revise the EIA and ESIA, as necessary, to reflect the final design where there are significant changes from the project design and information on which the assessment was based.

Deliverable 5: National EIA

The Consultant shall prepare and submit:

- **Draft EIA – Volume I and Volume II;**
- **Final EIA and required tree clearance/forest clearance documentation; and**



- revisions to the EIA, where required, to reflect the final Detailed Engineering Design of the Dam and Ancillary Works.

The Consultant shall provide all necessary support to KVWSMB for obtaining the required environmental clearance and regulatory approvals and shall address comments received during the Government review process until the EIA is satisfactorily completed and approved.

4.9 Task I: Resettlement Action Plan (RAP)

The Consultant shall prepare a comprehensive **Resettlement Action Plan (RAP)** in accordance with **ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement** and the applicable requirements of the Government of Nepal, including the Land Acquisition Act, 2034 (1977), for all Project components and associated facilities.

The RAP shall be based on the census, asset inventory, socioeconomic assessment and land acquisition requirements identified through the EIA and ESIA and shall cover all categories of Project-affected persons (PAPs).

The RAP shall include, but not be limited to, the following:

- A comprehensive description of the Project and all components requiring land acquisition or causing restrictions on land use, derived from the including:
 - the approximately 74 ha reservoir and dam area;
 - Kogate River diversion weir;
 - Makkubesi WTP;
 - balancing/reservoir tank;
 - the 17.062 km total pipeline system and associated facilities;
 - the 10.054 km access road;
 - Bagmati River bridge and approaches;
 - the 56.02 km transmission line and associated substations;
 - quarry and construction material areas; and
 - construction camps and other temporary facilities, where locations are identified.
- A legal and institutional gap analysis between the applicable national land acquisition and compensation framework and ESS5.

- The results of the complete census of affected persons and households and the asset inventory covering land, structures, trees, crops, businesses, common property resources and other affected assets.
- Identification of all categories of affected persons, including:
 - titled landowners;
 - tenants;
 - sharecroppers;
 - informal occupants and users;
 - encroachers;
 - users of common property resources;
 - affected businesses and workers; and
 - other persons affected by land acquisition or restrictions on land use.
- Valuation of affected assets based on **full replacement cost without deduction for depreciation or salvage value**, in accordance with ESS5.
- An **Entitlement Matrix** defining compensation and assistance for each category of affected person and type of loss.
- Identification of persons and households requiring physical relocation and economic rehabilitation and assessment of the extent and nature of displacement.
- A **Livelihood Restoration Plan (LRP)** for affected persons experiencing significant livelihood impacts, including where households lose more than 10 percent of productive assets. The LRP shall consider, as appropriate:
 - skills development;
 - priority access to project employment;
 - agricultural rehabilitation;
 - microenterprise support;
 - support for restoration of affected businesses and livelihoods; and
 - measures specifically addressing the needs of women and other vulnerable persons.
- Culturally appropriate livelihood restoration and assistance measures for Indigenous Peoples and other communities where applicable.
- Specific assistance measures for vulnerable and disadvantaged affected persons and households.

- Establishment and disclosure of an appropriate **cut-off date** for eligibility.
- Independent valuation and verification of compensation and replacement costs where required.
- Institutional arrangements for RAP implementation, including establishment or designation of an appropriate **resettlement unit within the KVWSMB PMU**, local-level coordination arrangements in each affected Local Government, and arrangements for external monitoring.
- A resettlement implementation schedule linked to the Project's civil works programme. Land acquisition and resettlement activities shall be planned in coordination with the Project design and construction programme, including the anticipated land acquisition period during the initial stages of Project implementation.
- A detailed and fully costed RAP budget covering compensation, assistance, livelihood restoration, institutional arrangements, monitoring and other implementation costs.
- A project-level **RAP Grievance Redress Mechanism (GRM)** consistent with ESS5 and integrated, where appropriate, with the Project GRM.
- Internal and external monitoring arrangements, including monitoring of resettlement implementation and evaluation of livelihood restoration outcomes.

The RAP shall include the information and structure required under **ESS5**, including the indicative RAP outline provided in the applicable ESS5 requirements.

The Consultant shall consult with affected persons and communities, KVWSMB, affected Local Governments and other relevant stakeholders throughout preparation of the RAP and shall incorporate the outcomes of consultations into the RAP.

The RAP shall be consistent with the national EIA, ESIA, census and asset inventory, Indigenous Peoples Plan where applicable, Stakeholder Engagement Plan and other relevant environmental and social instruments.

Deliverable 6a: Draft RAP

Deliverable 6b: Final RAP: The Consultant shall submit the **Final RAP**, incorporating comments from KVWSMB, the World Bank and relevant stakeholders.

4.10 Task J: Indigenous Peoples Plan (IPP) and Free, Prior and Informed Consent (FPIC)

The Consultant shall assess the applicability of **ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities** based on the findings of the Social Assessment undertaken under Task E.

Where ESS7 applies, the Consultant shall prepare a standalone **Indigenous Peoples Plan (IPP)** in accordance with ESS7.

The IPP shall include, but not be limited to, the following:

- findings of the Social Assessment relevant to Indigenous Peoples;
- identification of Indigenous Peoples potentially affected by the Project;
- assessment of their distinct identity, customary governance, land and resource use, sacred and ritual areas, cultural practices, intangible cultural heritage and collective attachment to land and natural resources;
- assessment of the potential risks, impacts, benefits and opportunities associated with the Project;
- culturally appropriate measures to avoid, minimize, mitigate and manage adverse impacts;
- measures to ensure culturally appropriate and meaningful participation of affected Indigenous Peoples throughout Project preparation and implementation;
- measures to ensure equitable access to Project benefits and opportunities;
- benefit-sharing measures, including, as appropriate, project employment, skills development, community-led development activities and support for cultural heritage;
- measures addressing impacts on sacred sites, sacred trees, ritual water resources, traditional pathways and other culturally significant resources;
- measures addressing construction-related noise, vibration, dust, traffic and other impacts on affected communities, including Khokana and Bungamati where applicable;
- institutional arrangements for implementation and monitoring of the IPP;
- grievance redress arrangements that are culturally appropriate and accessible to affected Indigenous Peoples;
- monitoring indicators and reporting arrangements; and
- a fully costed implementation budget.

4.10.1 J.1 Assessment of FPIC

The Consultant shall undertake a detailed assessment of whether **Free, Prior and Informed Consent (FPIC)** is required in accordance with **paragraph 24 of ESS7**.

The Consultant shall:

- assess the circumstances specified under ESS7 in which FPIC is required;
- document the basis and conclusion of the assessment;
- where FPIC is required, develop the appropriate plan and sequence of engagement and decision-making;
- document the process through which FPIC is to be sought and obtained;
- identify the conditions and process for withdrawal of consent, where applicable; and
- ensure that the conclusions and agreed measures are reflected in the IPP and other relevant environmental and social instruments.

The Consultant shall ensure that the assessment of ESS7 applicability and FPIC is undertaken through meaningful and culturally appropriate engagement with the potentially affected communities and is coordinated with the Stakeholder Engagement Plan.

Deliverable 7: Indigenous Peoples Plan

Where ESS7 applies, the Consultant shall submit:

- **Draft Indigenous Peoples Plan;** and
- **Final Indigenous Peoples Plan**, incorporating comments from KVWSMB, the World Bank and relevant stakeholders.

Where ESS7 does not apply, the Consultant shall document the screening and assessment undertaken and the basis for the conclusion in the ESIA.

4.11 Task K: Biodiversity Management Plan (BMP)

Where critical or natural habitats are identified within the Project's Area of Influence, the Consultant shall prepare a standalone **Biodiversity Management Plan (BMP)** in accordance with **ESS6** and applicable national requirements.

The BMP shall include, but not be limited to, the following:

- the results of the **critical habitat assessment** undertaken under the biological baseline and impact assessment tasks, including the basis for concluding whether critical and/or natural habitat is present within the AoI;
- an **Environmental Flow Assessment** establishing the minimum downstream flow requirements for the Sisneri River below the dam necessary to maintain aquatic ecosystem functioning and downstream community water use, noting that the river's reported annual average flow is approximately **1.97 m³/s** and the Project proposes to divert up to **140 MLD (1.62 m³/s)**, equivalent to approximately **82% of the average flow**; the Consultant shall recommend a scientifically defensible environmental flow release regime consistent with applicable national requirements;
- an assessment of **fish passage** requirements at the 65 m Sisneri Dam and the Kogate diversion weir, including the need for a fish passage facility and, where required, a design recommendation;
- avoidance and mitigation measures for **terrestrial habitat loss** along the reservoir rim, access road and transmission line corridors;
- where a **biodiversity offset** is determined to be required consistent with the mitigation hierarchy under ESS6, the selection of an appropriate offset site, habitat enhancement design, long-term management arrangements, provision for animal crossings where required, and the associated financing arrangements;
- measures for the management of **invasive species** associated with Project construction and operation; and
- a **monitoring plan** with quantitative biodiversity indicators, monitoring frequency, responsibilities and reporting arrangements.

The BMP shall be prepared as a standalone management instrument and shall form part of the environmental and social management plans under the ESIA.

Deliverable: Draft BMP, if applicable, and Final BMP.

4.12 Task L: Cultural Heritage Management Plan (CHMP)

The Consultant shall prepare a standalone **Cultural Heritage Management Plan (CHMP)** in accordance with **ESS8** and applicable national requirements for cultural heritage.

The CHMP shall:

- identify and document tangible and intangible cultural heritage within the Project's area of influence, including archaeological sites, temples, shrines, cremation sites, ritual water sources, sacred trees, monuments and other culturally significant resources;
- prepare an inventory and assessment of **physical cultural resources (PCR)** that may be affected by the Project components, including the dam and reservoir, access road, pipeline, transmission line, WTP, bridge and associated construction activities;
- assess potential impacts on **Khokana and Bungamati**, including direct, indirect, visual and landscape impacts associated with the proposed access road and other Project activities, as well as impacts from vibration, noise, dust and increased traffic on cultural heritage and heritage values;
- in coordination with the **Department of Archaeology (DoA), UNESCO Kathmandu Office and relevant local governments**, assess the potential impacts of the Project on the Outstanding Universal Value (OUV) and heritage setting of Khokana and Bungamati. The necessity and relevance of a detailed **Heritage Impact Assessment (HIA)** shall be discussed and confirmed with the relevant authorities and the World Bank;
- assess potential impacts of construction traffic, including heavy vehicles, on the structural integrity and heritage character of historic buildings, monuments and settlements, and identify appropriate protection and management measures;
- identify culturally appropriate measures for the protection of **sacred sites, sacred trees, ritual areas and traditional access routes**, including any impacts associated with changes in river flow, reservoir inundation or construction activities;
- assess potential impacts on **intangible cultural heritage**, including river-related rituals, ceremonies, traditional practices and community access to culturally significant water resources;
- establish measures for protection, avoidance, minimization and management of cultural heritage impacts, including appropriate monitoring of heritage structures and sites during construction;
- prepare a **Chance Find Procedure** for archaeological or other cultural heritage discoveries during construction and ensure that it is incorporated into the relevant works contracts and implemented by contractors;

- define institutional responsibilities and coordination arrangements among KVWSMB, contractors, DoA, local governments, heritage custodians and other relevant stakeholders;
- include arrangements for consultation and engagement with affected communities and heritage custodians throughout Project implementation; and
- provide implementation arrangements, monitoring requirements and a **costed budget** for the CHMP.

The CHMP shall be prepared as a standalone management instrument and shall form part of the environmental and social management plans under the ESIA.

4.13 Task M: Labor Management Plan (LMP)

The Consultant shall prepare a standalone **Labor Management Plan (LMP)** in accordance with **ESS2** and applicable national labor requirements. The LMP shall cover all Project workers during the anticipated **36-month construction period**, including workers engaged for the dam, WTP, pipeline, access road, bridge, transmission line and associated works.

The LMP shall:

- prepare a labor flowchart showing the anticipated workforce by year, skill category and Project component, including resident and migrant workers;
- assess applicable national labor requirements and identify gaps with the requirements of **ESS2**, and propose appropriate gap-filling measures;
- establish requirements for working conditions, including minimum wages, working hours, night work, rest periods, leave, employment contracts, non-discrimination and equal opportunity;
- address child labor and forced labor and establish measures to prevent their occurrence within the Project workforce and supply chain;
- assess occupational health and safety risks associated with Project activities, including dam foundation and concrete works, underwater/subaqueous intake and sump works, confined spaces, steep slopes and excavation, tunneling where applicable, explosives, high-voltage 33 kV works, construction traffic, night work and seismic hazards;
- establish occupational health and safety measures, including appropriate PPE, worker safety requirements, incident reporting and emergency preparedness and response arrangements;

- address construction traffic and transportation-related risks to workers and communities;
- establish a **Worker Grievance Mechanism (Worker GRM)** that is accessible to all workers, including migrant workers, and is separate from the community GRM. The mechanism shall provide confidential channels for complaints, including complaints related to GBV, SEA and SH;
- establish measures for prevention and response to **GBV/SEA/SH**, including a worker Code of Conduct, training and awareness requirements, and appropriate referral arrangements;
- establish requirements for worker accommodation, occupational health, transportation and other facilities for migrant and non-local workers;
- establish requirements for contractor and subcontractor compliance with the LMP, including flow-down of labor and OHS requirements into contracts and supervision of compliance;
- define institutional responsibilities for KVWSMB, contractors, subcontractors and other relevant parties, including requirements for monitoring, reporting and incident management; and
- provide implementation arrangements and a **costed budget** for the LMP.

The LMP shall be prepared as a standalone management instrument and shall form part of the environmental and social management plans under the ESIA.

Deliverable: Draft LMP and Final LMP.

4.14 Task N: GBV/SEA/SH Action Plan

The Consultant shall prepare a standalone **GBV/SEA/SH Action Plan** to address risks associated with labor influx and Project activities, particularly at the remote dam and access road sites and in communities along the access road, including **Khokana and Bungamati**.

The Action Plan shall:

- assess and identify site-specific **GBV/SEA/SH risks** associated with each Project component and affected community, considering labor influx, worker accommodation, community interactions and other Project-related risks;

- establish preventive measures, including a **Code of Conduct** to be signed by all workers and relevant contractors before deployment to the Project, together with appropriate induction, training and refresher training;
- establish measures to strengthen awareness and prevention among workers and communities, including engagement with women's groups and other relevant community organizations;
- establish appropriate measures at worker accommodation and construction sites, including adequate lighting and security arrangements;
- establish measures to prevent inappropriate interaction between contractor personnel and local communities, including restrictions on unsupervised contractor staff entering heritage and culturally sensitive areas;
- establish a **survivor-centered, confidential and accessible mechanism** for reporting GBV/SEA/SH incidents through multiple channels;
- establish appropriate referral pathways for survivors to **medical, psychosocial and legal services**, while ensuring confidentiality, informed consent and protection from retaliation;
- coordinate with relevant government and service providers, including **District Administration Offices, police, health facilities and women's organizations** in the affected areas of Makwanpur and Lalitpur;
- establish requirements for confidential handling and documentation of GBV/SEA/SH complaints and incidents, consistent with applicable requirements for protection of personal information and survivor confidentiality;
- define the roles and responsibilities of KVWSMB, contractors, supervision consultants and other relevant parties for implementation of the Action Plan;
- establish arrangements for **quarterly incident tracking and reporting** by the PMU and an **annual independent review** of the effectiveness of the GBV/SEA/SH measures; and
- provide implementation arrangements, monitoring requirements and a **costed budget** for the Action Plan.

The GBV/SEA/SH Action Plan shall be implemented in coordination with the LMP, SEP and Project-level GRM, while maintaining appropriate confidentiality and survivor-centered procedures for GBV/SEA/SH complaints.

4.15 Task O: Dam Safety and Emergency Action Plan (EAP)

The Consultant shall prepare a standalone **Dam Safety and Emergency Action Plan (EAP)** in accordance with **ESS4** and applicable national requirements. As the proposed Sisneri Dam is approximately **65 m high**, the requirements applicable to large dams under ESS4 shall be addressed.

The Consultant shall:

- review the dam design and assess its structural and operational safety, including the design flood of approximately **1,751.1 m³/s for the 1,000-year return period**, spillway capacity, seismic design parameters including **PGA of 0.30g**, geological and geotechnical conditions including the **Ipa Granite** and **Danuwargaon active fault**, and other relevant dam safety considerations;
- assess potential dam-break hazards and prepare dam-break inundation assessments for at least the following scenarios:
 - failure of the **Sisneri Dam alone**; and
 - a combined failure scenario involving **Sisneri Dam and the downstream Kulekhani system**, considering the combined peak discharge identified in the detailed design report of approximately **21,500 m³/s**;
- identify the downstream inundation extent, flood depth, velocity and arrival time and assess potential risks to downstream communities, settlements, infrastructure, public facilities, property, livelihoods and other assets;
- identify downstream areas and communities requiring particular attention for emergency preparedness, evacuation and warning arrangements;
- assess potential reservoir-induced seismicity and other natural hazards that could affect dam safety;
- assess reservoir rim and surrounding slope stability and the potential consequences of landslides and impulse waves for dam safety and downstream communities;
- prepare an **Emergency Action Plan (EAP)** establishing arrangements for early warning, emergency notification and communication, evacuation routes and assembly areas, emergency response procedures and responsibilities;

- establish communication and coordination arrangements among the dam operator, KVWSMB, District Administration Offices, local governments, emergency services and affected communities;
- identify appropriate early warning and emergency communication systems and establish arrangements for maintaining and testing these systems;
- establish roles and responsibilities of relevant agencies and personnel during different emergency conditions, including arrangements for emergency drills and community awareness;
- identify dam safety monitoring and instrumentation requirements, including monitoring of **pore pressure, settlement, seepage and seismic activity**, together with appropriate monitoring frequency, trigger levels and response actions;
- establish requirements for routine inspection, maintenance, emergency preparedness and response, including procedures for emergency drawdown where required;
- establish arrangements for periodic review and updating of the EAP based on changes in downstream conditions, Project design, dam safety information and lessons from drills or actual incidents; and
- provide institutional arrangements, monitoring and reporting requirements and a **costed budget** for implementation of the Dam Safety and EAP measures.

The Dam Safety and EAP shall be prepared as a standalone management instrument and shall form part of the environmental and social management plans under the ESIA.

4.16 Task P: Stakeholder Engagement Plan (SEP) and Public Disclosure

The Consultant shall prepare and update a detailed **Stakeholder Engagement Plan (SEP)** in accordance with **ESS10** and applicable national requirements. The SEP shall cover all Project components and affected stakeholders throughout the Project lifecycle.

The Consultant shall:

- identify and categorize Project stakeholders, including affected communities, vulnerable and disadvantaged groups, Indigenous Peoples where relevant, local governments, government agencies, heritage authorities, civil society organizations and other interested parties;

- establish appropriate methods and channels for stakeholder engagement, considering the characteristics of different stakeholder groups and ensuring meaningful participation of women, vulnerable groups and other potentially marginalized stakeholders;
- undertake at least **three formal rounds of stakeholder consultation**:
 - during the scoping stage;
 - during disclosure of draft assessment findings and management measures; and
 - prior to finalization of the ESIA and associated management instruments;
- undertake additional consultations for the EIA, RAP, IPP/FPIC, CHMP, BMP, LMP, GRM and other environmental and social instruments as required under national requirements and the World Bank ESF;
- ensure that consultation and disclosure materials are provided in **Nepali and, where appropriate, relevant local languages**, including materials appropriate for communities in Khokana and Bungamati;
- support public disclosure and consultation processes required under the national environmental assessment process, including newspaper notices and coordination with the relevant authority for public review and comments;
- establish a **Consultation Register** documenting the date, location, participants, sex, ethnicity/identity and other relevant characteristics of participants, information disclosed, issues and concerns raised, responses provided and agreed follow-up actions. Appropriate photographic or video documentation shall also be maintained;
- establish arrangements for continuous stakeholder engagement throughout Project preparation and implementation, including engagement with affected communities during land acquisition, construction and operation;
- ensure that stakeholder feedback is appropriately considered in the ESIA, EIA, RAP, IPP/FPIC, CHMP, BMP and other relevant Project instruments, with documented responses to substantive concerns;
- coordinate national environmental disclosure and consultation requirements with the **MoFE/MoAFE** and other competent authorities, as applicable;
- establish disclosure arrangements for the final ESIA and associated environmental and social management instruments in accordance with World Bank requirements; and

- ensure that the **final ESIA is disclosed on the World Bank external website prior to appraisal**, in accordance with applicable World Bank requirements.

The Consultant shall maintain records of stakeholder engagement and consultation throughout the assignment and include a summary of stakeholder engagement activities, issues raised, responses and how feedback was incorporated in the relevant Project documents.

Deliverable: Updated SEP and consultation/disclosure register and summary.

4.17 Task Q: Grievance Redress Mechanism (GRM)

The Consultant shall develop a Project-level **Grievance Redress Mechanism (GRM)** in accordance with **ESS10** and applicable national requirements. The GRM shall be accessible to all affected and interested stakeholders throughout Project preparation and implementation.

The GRM shall:

- establish a Project-level grievance mechanism under **KVWSMB**, with accessible grievance submission and response arrangements at the local level in all six affected local governments;
- provide multiple channels for submission of grievances, including local offices, written submissions, telephone/SMS and other appropriate communication channels, with access to the mechanism in **Nepali and relevant local languages**;
- ensure that the GRM is accessible to women, vulnerable and disadvantaged groups, Indigenous Peoples where relevant, persons with disabilities, landowners, tenants, informal occupants, workers and other affected persons;
- establish arrangements for grievance registration, acknowledgement, assessment, resolution, closure and escalation, including clear and reasonable timelines for each stage;
- establish appropriate grievance committees or focal points involving relevant ward/community representatives, local governments and the PMU, as appropriate;
- establish a **confidential and survivor-centered mechanism for GBV/SEA/SH-related complaints**, linked with the referral and support services identified in the GBV/SEA/SH Action Plan;

- ensure that GBV/SEA/SH complaints are handled separately and confidentially, with information shared only on a need-to-know basis and without requiring survivors to disclose details through the general grievance process;
- establish arrangements for monitoring and documenting grievances while protecting the confidentiality of sensitive information;
- ensure that use of the Project GRM does not prevent or restrict affected persons from seeking remedies through **national administrative or judicial mechanisms**;
- establish procedures for escalation of unresolved grievances to higher levels within the Project and, where appropriate, to the relevant government authorities;
- establish arrangements for regular reporting of grievance statistics, trends, resolution status and systemic issues to **KVWSMB and the World Bank**, including quarterly monitoring and reporting by the PMU; and
- provide institutional responsibilities, staffing requirements, awareness and communication arrangements, monitoring requirements and a **costed budget** for establishment and operation of the GRM.

The Consultant shall ensure that the GRM is appropriately linked with the RAP, IPP/FPIC, LMP, GBV/SEA/SH Action Plan, SEP and other relevant environmental and social instruments.

4.18 Task R: Environmental and Social Capacity Building

The Consultant shall assess the environmental and social capacity of **KVWSMB/PMU and other relevant implementing agencies** and provide appropriate capacity building and training to support effective implementation and supervision of the Project's environmental and social requirements.

The Consultant shall:

- identify institutional capacity gaps related to implementation of the **World Bank Environmental and Social Framework (ESF), ESS requirements, Environmental and Social Commitment Plan (ESCP), EIA/ESIA requirements and associated environmental and social management instruments**;
- conduct a **first capacity-building workshop** covering, at a minimum, the ESF, relevant ESS requirements, ESCP, environmental and social screening, ESIA requirements and the roles and responsibilities of relevant Project staff;

- provide **on-the-job training and mentoring** to the PMU and relevant KVWSMB staff throughout the assignment, particularly the Team Leader and Environmental and Social Specialists responsible for Project implementation and supervision;
- conduct a **second capacity-building workshop** focused on environmental and social supervision during construction, including implementation and supervision of **Contractor's Environmental and Social Management Plans (C-ESMPs), RAP, GRM, labor and OHS requirements, incident management and environmental and social monitoring and reporting**;
- include relevant contractors, supervision consultants, local government representatives and other implementing agencies in training activities where appropriate;
- prepare training materials and practical guidance relevant to the Project and its environmental and social instruments;
- assess the effectiveness of the capacity-building activities and identify any additional training or institutional support required during Project implementation; and
- provide recommendations for sustaining environmental and social capacity within KVWSMB/PMU beyond the consultancy period.

Deliverable: Workshop reports and training materials for the first and second workshop

4.19 Task S: Regulatory Clearance

The Consultant shall support the Client in obtaining all environmental and related regulatory clearances required for implementation of the Project, in accordance with applicable national laws and regulations.

The Consultant shall:

- support the process for obtaining **Environmental Clearance** from the competent authority in accordance with the Environment Protection Act, 2019 and Environment Protection Rules, 2020;
- support the preparation and submission of documents required for environmental approval and respond to comments, observations and information requests from the relevant authorities;
- support the process for obtaining approval for **forest land diversion** under the Forest Act, 2019, where Project components affect government or community forest;

- identify the forest areas and trees requiring clearance and support the preparation of documentation for tree clearance and forest land diversion;
- incorporate requirements for **compensatory afforestation and other applicable forest-related compensation measures**, including measures associated with the forest area on the right bank of the reservoir;
- coordinate with the relevant government agencies, local governments and other authorities during the regulatory clearance process; and
- ensure that conditions and commitments arising from environmental, forest and other regulatory approvals are incorporated into the relevant EIA, ESIA, ESMP, RAP and other Project instruments, as applicable.

5 Consultant's Responsibilities

The Consultant shall be responsible for the overall planning, coordination, execution and timely completion of the environmental and social assessment activities required under this ToR. The Consultant shall:

- Review and utilize all relevant existing project information, studies, surveys, designs and reports made available by KVWSMB and identify any information gaps requiring further assessment.
- Undertake all field investigations, surveys, studies, assessments and stakeholder consultations required under the Scope of Work.
- Prepare the national EIA and World Bank ESIA and all associated environmental and social instruments and documentation specified in this ToR.
- Ensure that the EIA and ESIA are consistent with the latest available project design and that relevant environmental and social findings are appropriately incorporated into project design and associated mitigation measures.
- Ensure compliance with applicable Government of Nepal legal and regulatory requirements and the World Bank Environmental and Social Framework and applicable Environmental and Social Standards.
- Coordinate the national EIA and World Bank ESIA processes and ensure consistency between the two processes while avoiding unnecessary duplication of studies and consultations.

- Conduct meaningful, inclusive and culturally appropriate stakeholder engagement throughout the assignment in accordance with the Stakeholder Engagement Plan.
- Coordinate with KVWSMB, the PMU, the World Bank task team, relevant government agencies, affected local governments and other stakeholders as required.
- Participate in meetings, workshops, public consultations, government review meetings and World Bank review missions as required.
- Respond to comments received from KVWSMB, Government authorities, stakeholders and the World Bank and revise the relevant documents accordingly.
- Prepare and maintain appropriate records of field investigations, consultations, surveys, stakeholder feedback, grievances and other activities undertaken under the assignment.
- Maintain the confidentiality and security of personal and project information and comply with applicable data protection requirements.
- Ensure that all personnel engaged under the assignment comply with the applicable Code of Conduct and environmental, social, health and safety requirements during field activities.
- Maintain a suitably qualified and adequately staffed team throughout the assignment and ensure timely mobilization of specialist expertise when required.
- Submit all deliverables in the format and within the timeframes specified in this ToR and promptly notify KVWSMB of any matter that may affect the agreed schedule.
- Transfer all final reports, databases, GIS files, survey data, consultation records, photographs and other relevant project information generated under the assignment to KVWSMB upon completion of the assignment.

The Consultant shall remain responsible for the technical quality, completeness and internal consistency of all reports and other outputs prepared under this assignment.

The Consultant shall lease office space of suitable size in the vicinity of the Sisneri WSP Office at Jawlakhel, furnished with all necessary amenities including adequate parking. The cost of the office rental has been provided for under the Provisional Sum (PS) component of the cost estimate. The Consultant shall propose suitable location options, with the final selection to be made in consultation with the Client.

6 KVWSMB's Responsibilities and Inputs

KVWSMB shall provide reasonable support to enable the Consultant to undertake the assignment effectively and in accordance with the agreed schedule. KVWSMB shall:

- Provide authorization letters and letters of introduction to relevant government agencies and local governments, as required.
- Provide all available project reports and information, including the **Sisneri WSP Feasibility Study (2023), Sisneri WSP Detailed Engineering Design Report (2024), Volumes I and II, draft ESCP, draft SEP, geotechnical investigation reports, hydrological studies, topographic survey data**, and other relevant existing studies and surveys.
- Provide access to available geotechnical and geophysical investigation data, including borehole, ERT, SRT, MASW and DHT data, as well as available drone, total station and other topographic survey data.
- Facilitate access to relevant government information and records required for the assignment, including national census data, cadastral and land records, socioeconomic information and other relevant data.
- Facilitate access to all project sites, including the dam site, reservoir area, Kogate diversion, WTP, pipeline alignment, access road, Bagmati bridge, transmission line areas, quarry/borrow areas and affected communities.
- Facilitate meetings and coordination with relevant government agencies, including the competent environmental authority, Ministry of Water Supply/concerned sector agencies, Department of Archaeology, Department of Forests and Soil Conservation, Department of Hydrology and Meteorology and other relevant agencies.
- Facilitate coordination and consultations with all affected local governments and relevant community representatives.
- Coordinate with the Consultant and the detailed engineering design consultant to ensure that the Consultant has access to the latest available project design and engineering information.
- Facilitate coordination between the Consultant and the World Bank task team and participate in relevant review meetings and consultations.

- Review submitted draft deliverables and provide consolidated comments and feedback to the Consultant within **three weeks of submission**, to the extent practicable.
- Provide timely decisions, instructions and approvals within its authority to facilitate implementation of the assignment.
- Facilitate the national EIA review and approval process and other regulatory clearance processes for which KVWSMB is the responsible project agency.
- Facilitate public disclosure, consultations, public hearings and other statutory processes required under national legislation and the World Bank ESF.

KVWSMB shall make available all relevant information in its possession but shall not be responsible for the accuracy or completeness of information obtained from third-party sources. The Consultant shall independently assess the adequacy and reliability of information used in preparing the EIA, ESIA and associated documents.

7 Deliverables

All deliverables shall be submitted in editable **MS Word format and PDF format**. Hard copies shall be provided where required by KVWSMB or the competent authority. All substantive reports shall be prepared in English, with key public-facing documents and sections, including the non-technical executive summary, entitlement matrix, GRM procedures and consultation materials, provided in Nepali as appropriate.

The Consultant shall submit the following deliverables:

No.	Deliverable	Language	Deadline
1	Inception Report , including methodology, detailed work plan, stakeholder mapping, data collection tools and seasonal survey plan	English	End of Week 4
2	EIA Scoping Document and EIA ToR, and ESIA Scoping Report , including Nepali summary and initial stakeholder consultation outcomes	English + Nepali summary	End of Week 8
3	Training Workshop Report – Workshop 1	English	Month 2

4	Updated Stakeholder Engagement Plan (SEP)	English	End of Month 4
5	Environmental Baseline Report	English	End of Month 5
6	Draft Labor Management Procedures (LMP)	English	End of Month 5
7	Social Baseline and Social Assessment Report , including census, asset inventory and FPIC assessment/documentation, as applicable	English	End of Month 6
8	Final Labor Management Procedures (LMP)	English	End of Month 7
9	Draft Indigenous Peoples Plan (IPP), if applicable	English	End of Month 8
10	Draft Biodiversity Management Plan (BMP), if applicable	English	End of Month 8
11	Training Workshop Report – Workshop 2	English	Month 9
12	Draft ESIA , comprising Volume I: Main Report, Volume II: Standalone Management Plans, and Volume III: Annexes	English	End of Month 10
13	Draft Resettlement Action Plan (RAP)	English	End of Month 10
14	Consultation Register and Disclosure Summary of National EIA	English / Nepali	End of Month 10
15	Draft National EIA Report in the prescribed national format	Nepali / English	End of Month 10

16	Final Resettlement Action Plan (RAP) incorporating KVWSMB and World Bank review comments	English	End of Month 12
17	Final Indigenous Peoples Plan (IPP), if applicable	English	End of Month 12
18	Final Biodiversity Management Plan (BMP), if applicable	English	End of Month 12
19	Final ESIA , incorporating KVWSMB, Government and World Bank review comments	English	End of Month 14
20	Final National EIA Report , incorporating competent authority/MoFE review comments	Nepali / English	End of Month 14
21	Executive Summary of ESIA for public disclosure	English / Nepali	End of Month 14
20	Review and Update of EIA/ESIA Documentation based on the Detailed Engineering Design of the Dam and Ancillary Works, as required	English / Nepali as applicable	Month 14
23	Regulatory Clearance Applications and Supporting Documentation for Environmental, Forest, Water Use and DoA-related approvals, as applicable	Nepali / English	In accordance with regulatory timelines
24	Final Disclosure, Regulatory Follow-up and Assignment Completion Documentation , including responses to comments and clearance conditions	English / Nepali as applicable	Months 15–16

7.1 Management Plans and Associated Documents

The standalone management plans and instruments required under the Scope of Work shall form part of the relevant ESIA documentation and shall be finalized and updated as necessary. These shall include, as applicable:

- Labor Management Procedures (LMP);
- Resettlement Action Plan (RAP);
- Indigenous Peoples Plan (IPP), where ESS7 is applicable;
- Biodiversity Management Plan (BMP), where critical or natural habitats or other significant biodiversity values are identified;
- Cultural Heritage Management Plan (CHMP);
- GBV/SEA/SH Action Plan;
- Dam Safety Plan and Emergency Action Plan (EAP);
- Stakeholder Engagement Plan (SEP); and
- Grievance Redress Mechanism (GRM).

The Consultant shall ensure that the above documents are consistent with the findings and recommendations of the EIA and ESIA and are updated where required following project design changes, regulatory review, World Bank review or stakeholder feedback.

7.2 Presentation and Consultation Workshops

The Consultant shall organize and facilitate presentation and consultation workshops at a minimum at the following stages:

- **Inception stage – Month 1;**
- **Completion of baseline studies – Month 6;**
- **Draft EIA/ESIA disclosure and consultation – Months 10–12, as appropriate; and**
- **Finalization/submission of EIA and ESIA – Months 12–14.**

The workshops shall include KVWSMB PMU, relevant Government counterparts, affected local governments, relevant stakeholders and, where appropriate, the World Bank task team.

8 Terms of Payment

The Consultant shall be paid against satisfactory completion and acceptance of the following deliverables. Payments shall be made upon submission and acceptance of the respective deliverables by KVWSMB.

S.N.	Milestone / Deliverable	Payment (%)
1	Inception Report	10%
2	EIA Scoping Document and EIA ToR, and ESIA Scoping Report	15%
3	Environmental and Social Baseline Reports and Draft LMP	15%
4	Draft ESIA, Draft RAP, Draft IPP (if applicable), Draft BMP (if applicable), and Draft EIA	20%
5	Final RAP, Final IPP (if applicable), Final BMP (if applicable), and Final ESIA/EIA following review and consultation	25%
6	Support for regulatory clearances, final disclosure, incorporation of final comments/conditions, and completion of the assignment	15%
	Total	100%

Payments shall be made following review and acceptance of the applicable deliverables by KVWSMB, in accordance with the provisions of the Contract.

Where regulatory approvals or clearances are subject to timelines of government authorities beyond the Consultant's control, payment shall be linked to the Consultant's satisfactory completion and submission of the required documentation and provision of the required follow-up support, rather than the timing of the authority's decision.

9 Duration of Assignment

The total duration of the assignment shall be **16 months** from the date of contract signing.

The Consultant shall plan and carry out the EIA and ESIA activities in a coordinated manner, including field investigations, seasonal baseline studies, stakeholder consultations, preparation and review of reports, support for regulatory approvals, and incorporation of comments from KVWSMB, the Government of Nepal, and the World Bank.

The Consultant shall also coordinate the EIA/ESIA activities with the detailed engineering design of the Project. Where the final engineering design results in significant changes to the Project components or their impacts, the Consultant shall review and update the EIA/ESIA documentation accordingly.

10 Qualification Requirements

10.1 Qualification of the Consulting Firm

The Consulting Firm, or Joint Venture of Consulting Firms, shall demonstrate the following general, specific, and geographic experience:

10.1.1 General Experience of the firm:

The firm shall be duly registered as a consulting firm with least ten (10) years of demonstrated experience as core business in the fields of Environmental Impact Assessment (EIA), Environmental and Social Impact Assessment (ESIA), Cumulative Impact Assessment (CIA), dam engineering, water resources, civil engineering, hydropower, water supply, hydraulic infrastructure, or closely related engineering services. The firm shall have successfully or substantially completed at least five (5) assignments involving EIA or ESIA for an infrastructure project in the water resources, water supply, irrigation, hydropower, urban infrastructure, or other major civil infrastructure sector, meeting either of the following:

- (i) a consulting contract value of NRs. 10 million or more where the assignment was undertaken primarily for environmental and/or social services; or
- (ii) a consulting contract value of NRs. 30 million or more where the assignment comprised feasibility study and/or detailed engineering design together with environmental and/or social services.

10.1.2 Specific Experience of the Consulting Firm (Last 10 years)

- (a) The Consulting Firm shall have successfully completed or substantially completed at least two (2) consulting assignment involving Environmental Impact Assessment (EIA), Environmental and Social Impact Assessment (ESIA), Cumulative Impact Assessment (CIA) for a water resources or water supply project, meeting either of the following requirements:

- (i) a consulting contract value of NRs. 10 million or more where the assignment was undertaken primarily for environmental and/or social services; or
 - (ii) a consulting contract value of NRs. 30 million or more where the assignment comprised feasibility study and/or detailed engineering design together with environmental and/or social services.
- (b) The Consulting Firm shall have successfully completed or substantially completed at least one (1) EIA, ESIA or CIA assignment directly related to a water resources project involving a dam, reservoir, or water storage infrastructure with a dam height of at least 35 meters.
- (c) The Consulting Firm shall have successfully completed or substantially completed at least one (1) assignment involving a Detailed Environmental Impact Assessment (EIA), Environmental and Social Impact Assessment (ESIA), or Cumulative Impact Assessment (CIA) for a water resources project located in the hilly or mountainous region of Nepal.
- (d) The Consulting Firm shall have successfully completed or substantially completed at least one (1) assignment involving Environmental Impact Assessment (EIA) or Environmental and Social Impact Assessment (ESIA) financed by or implemented with the support of the World Bank or another multilateral or bilateral development partner in the water resources, water supply, irrigation, hydropower or other water related infrastructure sector.

10.2 Technical and managerial capability of the firm:

The firm shall demonstrate as having the requisite technical and managerial capacity to undertake the assignment in the submitted company profile(s). Key Experts will not be evaluated at the shortlisting stage.

Where the Consultant is a Joint Venture, the required experience may be demonstrated collectively by the JV partners, unless otherwise specified in the bidding documents.

The Consultant shall provide documentary evidence of the above experience, including contract/assignment value, client name, location, scope of services, date of completion, and relevant completion/acceptance documents.

10.3 Required Experts and Indicative Man-Months

The Consultant shall mobilize suitably qualified Key and Non-Key Experts as required for successful completion of the EIA and ESIA.

10.3.1 Key Experts

S.N.	Key Expert Position	Indicative Input (Person-Months)
1	Team Leader / Senior Environmental / EIA-ESIA Expert	16
2	National Environment Expert	14
3	Senior Social Specialist / Resettlement Specialist	14
4	Indigenous Peoples Specialist	8
5	Biodiversity / Aquatic Ecology Specialist	8
6	Social / Legal Specialist	6
7	Cultural Heritage Specialist	4
8	GBV / Gender Specialist	4
9	Dam Safety / Emergency Planning Specialist	4
10	GIS / Spatial Analysis Specialist	6
	Total Key Expert Input	84 Person-Months

10.3.2 Non-Key Experts

S.N.	Non-Key Expert Position	Indicative Input (Person-Months)
1	Community Health and Safety Specialist	5

2	Wildlife / Zoologist Expert	6
3	Forestry Expert	6
4	Water Resources / Hydrology Specialist	3
5	Senior Infrastructure/ Civil Engineer	3
6	Reservoir Water Quality / Limnology Specialist	2
	Total Non-Key Expert Input	25 Person-Months

10.3.3 Other Support Staff

In addition to the above experts, the Consultant shall provide adequate support staff as required, including:

- Community Liaison Officers (CLOs)/ Communication Expert;
- Socioeconomic survey and enumeration teams;
- Environmental and social monitoring support staff;
- Interpreters/translators, including local language support where required; and
- Other technical specialists or support personnel required for specific field investigations.

The Consultant shall determine the timing and level of mobilization of the experts in accordance with the approved work plan and requirements of the assignment. The indicative person-months may be adjusted between experts where necessary, provided that the required scope, quality, and outputs of the assignment are maintained.

10.4 Minimum Qualification and Experience of Key Experts

The Consultant shall propose suitably qualified and experienced Key Experts for the assignment. The minimum qualification and experience requirements for the Key Experts shall be as follows:

1. Team Leader / Senior Environmental / EIA-ESIA Expert

- Master's Degree in Environmental Science, Environmental Management, Environmental Engineering, or related field.

- At least **15 years of professional experience** in environmental assessment and management.
- Experience in preparation/supervision of IEE/EIA/ESIA/CIA/CSIA for infrastructure projects in at least **3 projects**.
- Experience in at least **2 water resources-related projects** as Team Leader.
- Experience in at least **1 water resources project in the hilly/mountain region of Nepal or similar terrain** as Team Leader.
- Experience with World Bank Environmental and Social Framework or equivalent international safeguard requirements is desirable.

2. National Environment Expert

- Master's Degree in Environmental Science, Environmental Management, Environmental Engineering, or related field.
- At least **10 years of professional experience** in environmental assessment and management.
- Experience in environmental assessment of at least **3 infrastructure projects**.
- Experience in at least **2 water resources-related projects**.
- Experience in preparation and implementation of EMP/ESMP, environmental monitoring, and construction-phase environmental management is desirable.

3. Senior Social / Resettlement Specialist

- Master's Degree in Sociology, Anthropology, Social Sciences, Development Studies, Economics, or related field.
- At least **10 years of professional experience** in social assessment, resettlement, and social development.
- Experience in social assessment/resettlement of at least **3 infrastructure projects**.
- Experience in at least **2 water resources-related projects**.
- Experience in census, socioeconomic surveys, asset inventory, compensation, livelihood restoration, and stakeholder engagement.
- Experience with World Bank ESS5 and preparation of RAPs is desirable.

4. Sociologist / Anthropologist / Indigenous Peoples Specialist

- Bachelor's or Master's Degree in Sociology, Anthropology, Social Sciences, Development Studies, or related field.
- At least **10 years of professional experience** in social assessment and community development.
- Experience in social assessment and stakeholder consultation for at least **3 infrastructure projects**.
- Experience in at least **2 water resources-related projects**.
- Experience in assessment of vulnerable groups, indigenous/local communities, customary institutions, cultural practices, and community consultation.
- Experience with ESS7 and FPIC assessment, **where applicable**, is desirable.

5. Biodiversity / Aquatic Ecology Specialist

- Master's Degree in Zoology, Biology, Fisheries, Aquatic Science, Environmental Science, or related field.
- At least **10 years of professional experience** in biodiversity and aquatic ecological assessment.
- Experience in biodiversity/ecological assessment of at least **3 infrastructure projects**.
- Experience in at least **2 water resources-related projects**.
- Experience in aquatic ecology, fisheries, fish habitat, environmental flows, and biodiversity assessment.
- Experience in assessment of critical/natural habitats and fish passage is desirable.
- Good knowledge of Nepal's environmental, forest, water resources, land, and related regulatory requirements.
- Experience in coordination with Government agencies and environmental clearance processes is desirable.

6. Social / Legal / Resettlement Specialist

- Master's Degree in Sociology, Anthropology, Social Sciences, Development Studies, Law, or related field.

- At least **10 years of professional experience** in social assessment, land acquisition, resettlement, and social/legal compliance.
- Experience in social/resettlement aspects of at least **3 infrastructure projects**.
- Experience in at least **2 water resources or major infrastructure projects**.
- Good knowledge of Nepalese land acquisition, compensation, resettlement, and social safeguard requirements.
- Experience in preparation of RAP and coordination with relevant Government agencies is desirable.

7. Cultural Heritage Specialist

- Master's Degree in Archaeology, Anthropology, Cultural Heritage, Heritage Conservation, Architecture, or related field.
- At least **8 years of professional experience** in cultural heritage assessment and management.
- Experience in cultural heritage assessment for at least **2 infrastructure projects**.
- Experience in assessment of impacts on tangible and intangible cultural heritage, including heritage sites, cultural landscapes, traditional settlements, and community practices.
- Experience in Nepal and coordination with the Department of Archaeology or relevant heritage authorities is desirable.

8. GBV / Gender Specialist

- Master's Degree in Gender Studies, Sociology, Social Sciences, Development Studies, or related field.
- At least **8 years of professional experience** in gender, GBV, SEA/SH, social development, or related fields.
- Experience in gender/GBV assessment and management for at least **2 infrastructure or development projects**.
- Experience in preparing and implementing GBV/SEA/SH prevention and response measures.
- Experience with World Bank or equivalent international safeguard requirements is desirable.

9. Dam Safety / Emergency Planning Specialist

- Master's Degree in Civil Engineering, Water Resources Engineering, Hydrology, Dam Engineering, or related field.
- At least **10 years of professional experience** in dam safety, reservoir engineering, hydrology, or emergency planning.
- Experience in at least **2 dam or major water resources projects**.
- Experience in dam-break analysis, downstream flood risk assessment, emergency preparedness, early warning systems, and Emergency Action Plans.
- Experience with international dam safety requirements is desirable.

10. GIS / Spatial Analysis Specialist

- Bachelor's or Master's Degree in GIS, Geography, Geomatics, Remote Sensing, Environmental Science, or related field.
- At least **5 years of professional experience** in GIS and spatial analysis.
- Experience in GIS mapping for at least **3 infrastructure/environmental assessment projects**.
- Experience in GIS-based EIA/ESIA mapping for at least **2 projects**.
- Proficiency in GIS software such as ArcGIS and/or QGIS.

11 Coordination and Reporting

The Consultant shall work in close coordination with KVWSMB, the Project Management Unit (PMU), the World Bank, relevant Government agencies, and the affected Local Governments throughout the assignment.

The following arrangements shall apply:

- **KVWSMB/PMU shall be the primary counterpart** for the Consultant and shall coordinate the provision of project information, meetings, reviews, and decisions.
- The Consultant shall maintain regular coordination with the **detailed engineering design team** to ensure that the EIA and ESIA remain consistent with the Project design.
- The Consultant shall coordinate, as required, with relevant Government agencies and institutions, including the Ministry of Forests and Environment, Ministry of Water Supply, Department of Archaeology, Department of Hydrology and Meteorology, Department of

Forests, Department of Water Supply and Sewerage Management, District Administration Offices, and affected Local Governments.

- The Consultant shall participate in meetings, consultations, workshops, field missions, and review meetings organized by KVWSMB and/or the World Bank.
- The Consultant shall respond to comments provided by KVWSMB, Government authorities, and the World Bank and incorporate agreed comments into the relevant reports.
- The Consultant shall maintain a **comment-response matrix** for major review comments and shall submit it together with revised/final reports.
- The Consultant shall submit **monthly progress reports** summarizing progress, activities completed, key findings, issues encountered, planned activities for the following month, and any decisions or support required from KVWSMB.
- Monthly progress reports shall normally be submitted by the **5th day of the following month**.
- Draft reports shall be submitted to KVWSMB in editable format for review, followed by final versions incorporating agreed comments.
- All final reports, supporting documents, survey data, consultation records, GIS data, maps, photographs, and other project-related information generated under the assignment shall be submitted to KVWSMB in appropriate editable and electronic formats.
- The Consultant shall maintain confidentiality and ensure appropriate protection of personal and sensitive information collected during surveys and consultations.
- The Consultant shall not make public statements or independently disclose project information without prior approval from KVWSMB, except where disclosure is required under applicable national law or the World Bank's disclosure requirements.
- The Consultant shall maintain proper records of stakeholder consultations, grievances, field investigations, meetings, and other activities undertaken during the assignment.

12 Code of Conduct

The Consultant and all personnel engaged under the assignment shall comply with a project-specific Code of Conduct. The Code of Conduct shall, at a minimum, address:

- respectful and non-discriminatory conduct toward local communities and project stakeholders;

- prohibition of sexual exploitation, abuse and sexual harassment (SEA/SH);
- prohibition of child and forced labor;
- prohibition of bribery, corruption and other prohibited practices;
- respect for local customs, cultural heritage and community practices;
- confidentiality and responsible handling of project and personal information; and
- appropriate procedures for reporting and addressing violations.

The Code of Conduct shall be communicated to all relevant personnel before deployment to the field.

13 Basis of Expression of Interest & Proposal Preparation

All data, parameters, quantities, estimates, and other information provided in this TOR, including those derived from previous studies, are provided for **reference, preliminary scoping, and proposal preparation purposes only** and shall not be construed as definitive or guaranteed quantities or conditions. The Consultant shall independently review and assess the information provided, together with the requirements of the TOR, and shall determine the appropriate methodology, scope, level of effort, field investigations, surveys, testing, logistics, personnel, equipment, and other resources required to satisfactorily complete the assignment.

The Consultant shall be deemed to have satisfied itself as to the adequacy and sufficiency of the information available for preparing its proposal. Variations in the data, quantities, design parameters, site conditions, or scope that may arise from the final design of the dam or from subsequent studies shall not, in themselves, constitute a basis for additional payment, except where otherwise expressly provided for in the Contract.