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ATTACHMENTS

1	NWEDC Environmental and Social Policy Statement
2	Minimum E&S Standards to be met by the Contractor

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ACRONYMS AND ABBREVIATIONS

CESMP	Construction Environmental and Social Management Plan
CSE	Construction Supervision Engineer
E&S	environmental and social
EHS	environmental, health, and safety
EIA	Environmental Impact Assessment
EPC	engineering, procurement, and construction
ESHS	environmental, social, health, and safety
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plans
ESMC	Environmental and Social Management Cell
ESMS	Environmental and Social Management System
EST	Environmental Supervision Team
ESST	Environmental and Social Supervision Team
GIIP	Good International Industry Practice
GM	General Manager
IFC	International Finance Corporation
NWEDC	Nepal Water and Energy Development Company
O&M	operations and maintenance
OE	Owner's Engineer
PMO	Project Management Office
SEO	Safety and Environmental Officer
SOP	Standard Operating Procedure

1. INTRODUCTION

1.1. PURPOSE

This Environmental and Social Management System (ESMS) Framework has been prepared for Upper Trishuli-1 Hydropower Project (Project) for the purpose of defining standards, protocols, and procedures at the project level for managing environmental and social risks and opportunities associated with the project construction and operation activities. This ESMS Framework establishes the Project's commitment to put in place an adequate management system to manage the environmental and social (E&S) impacts and associated risks arising from the Project, as well as to ensure that the Project is developed and operated in a sustainable manner. The applicable administrative and regulatory context against which this ESMS Framework has been developed included national, international, and lender regulations, which have been included in Chapter 5, Applicable Legal and Lender Requirements.

NWEDC will need to take this ESMS Framework and develop a detailed ESMS through which it can operationalize all of its commitments, lender requirements, and government approval conditions. The first step will be to develop an overall Project Commitments Register, and then develop a detailed set of actions required to assure appropriate implementation of all Project commitments. NWEDC will contract with an international consultant to assist in the development and initial implementation of a detailed ESMS.

1.2. OVERVIEW

The ESMS developed by Nepal Water and Energy Development Company (NWEDC) for the Project defines the environmental, social, health, and safety (ESHS) principles, objectives, and protection measures that ensure the project does not cause any harmful impacts. Contractors, including engineering procurement and construction (EPC) contractor and operation and maintenance (O&M) contractor, will follow the ESMS. NWEDC retains ultimate responsibilities for the environmental, health, and safety (EHS) performance of all contractors.

This ESMS will be updated and/or revised as necessary to address the prevailing conditions and stage of the Project. Responsibilities for implementation of identified mitigation or management actions are outlined in the Environmental and Social Management and Monitoring Plans (ESMMP) for the Project. NWEDC's Environmental and Social Management Cell (ESMC) along with the Owner's Engineer (OE) will oversee and monitor the implementation of relevant ESMMP elements by the EPC/O&M contractors and subcontractors. ESMC and OE will monitor, audit, and assess the compliance of the EPC contractor's implementation of the relevant aspects of the ESMMP during the construction phase and ensure that corrective actions are taken when necessary to maintain EHS performance in line with international standards and Good International Industry Practice (GIIP).

This ESMS should be read along with the ESMMP and update accordingly, should there be relevant changes to the Management plans.

2. COMPANY ESHS POLICY

NWEDC adopted an Environmental and Social Policy Statement on 19 December 2016, which was formally executed by its Chief Executive Officer, Bo Seuk Yi (see Attachment 1).

3. COMPANY EHS STAFFING

The Project will establish an organisational structure at the corporate and site level to manage environmental, health, safety and social impacts and to aid in meeting their respective goals and objectives as well as implementing the Project’s commitment through their respective policies. Figure 1 highlights the Project’s development and management organisational structure.

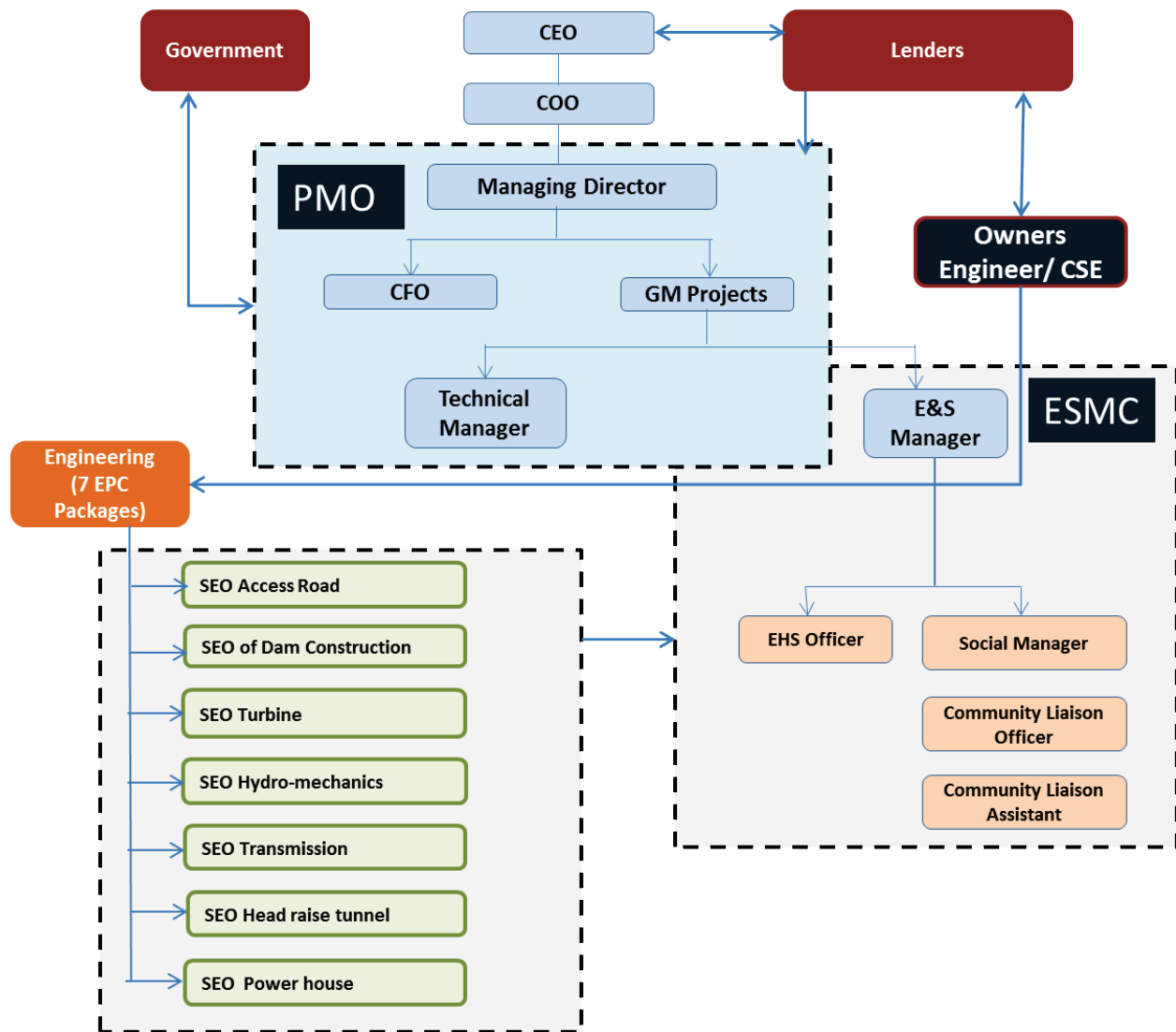


Figure 1: UT-1 ESMS Implementation Organisational Chart

3.1. KEY STAKEHOLDERS FOR ESMS IMPLEMENTATION

The Project Management Office (PMO) has the ultimate responsibility for the Project and is supported by the ESMC in managing the environmental and social impacts. The ESMC will be responsible for the overall implementation of the ESMS and for ensuring the Environmental Impact Assessment (EIA) recommended mitigation and monitoring actions are implemented, monitored, assessed, evaluated, and disseminated to project stakeholders for feedback and improvements. The ESMC will consist of the following personnel:

- An Environmental and Social (E&S) Manager at the corporate level (already appointed);
- One Social Manager supported by two community liaison officers at the site level; and
- Two to three E&S officer (already appointed).

3.2. ROLES AND RESPONSIBILITY

3.2.1. Construction Phase

See Table 1 for the various departments and personnel that will play an integral role in the implementation of the ESMS. In addition to the various departments and responsibilities presented in Table 1, the Corporate E&S Manager will present the key observations, findings, and issues as well as the findings of the external consultant/OE's findings to the Board on a monthly basis.

Table 1: Department Roles and Responsibilities in the Construction Phase

Designation	Description	Responsibilities (not limited to)
Project Management Office (PMO) ESMS committee (PMO and Environmental and Social Manager)	The PMO will comprise of the General Manager (GM) Projects, Chief Financial Officer, MD and other personnel who the MD might authorize. The PMO has the overall responsibility to ensure management of the environmental and social impacts of the project.	<ul style="list-style-type: none"> • Remove the Contractor's representative or any employee(s) from the site or work or suspend the representative or employee if the Contractor or his employees fails to implement Environmental and Social Management and Monitoring Plans (ESMMP) until the matter is remedied. • Submit performance reports to the Lenders as per an agreed upon frequency, detailing the progress of the ESMS and any other issues therein. • Approve the qualifications and criteria for members in the Environmental and Social Management Cell (ESMC) and the Environmental Supervision Team. • Along with the E&S Manager, act as the ESMS Committee and meet once a month to discuss on the key aspects of ESMMP implementation for the Project based on the reports from Environmental and Social Management Cell (ESMC) and Owner's Engineer (OE).
Environmental and Social Management Cell (ESMC)	The ESMC will consist of community liaison officers, Environmental Health and Safety Officer, Social Manager, and one Environmental Manager. The Environmental Manager at corporate leads the ESMC.	<ul style="list-style-type: none"> • Ensure that the Environmental Impact Assessment (EIA) recommended mitigation and monitoring measures are being implemented, monitored, assessed and evaluated. • Obtain the necessary compliances and permits for the Project. • Provide progress/performance reports to the PMO in the ESMS committee meetings. • Stop construction in emergency situations where consultation with the Construction Supervision Engineer (CSE) or the Environmental Supervision Team (EST) is not immediately possible. • Conduct periodical inspection of construction site. • Consult and/or communicate with the local communities, project-affected people, regulatory agencies, and other stakeholders during the project preparation and construction to ensure that they have full knowledge of project progress, potential issues and mitigation actions, and to listen and respond to their concerns, suggestions and demands for environmental and community protection. • Maintain open and direct lines of communication with Contractors, CSE/OE and the Environmental and Social Supervision Team (ESST) with regard to E&S matters.
Site-level EHS Team, ESMC	Will be located on-site and will report directly to the E&S Manager. They form a part of the ESMC.	<ul style="list-style-type: none"> • Monitor the environment health and safety activities of the Contractors on-site against the requirements in the ESMS and Management Plans. • Supervise the baseline, compliance, and impact monitoring of construction contractor's activities and advice the on-site engineers of needed actions at the site during regular environmental management meetings. • Provide needed corrective action as per the field requirements to minimize impacts. • Analyse and review the environmental monitoring report of the project construction and forward to the Corporate E&S Manager for review by stakeholders.

Designation	Description	Responsibilities (not limited to)
Site level Community Liaison Officers, ESMC	<p>Community Liaison Officers will work in close proximity to the affected communities and settlements near the Project site. Community Liaison Officers must include a female Tamang Speaker</p> <p>They will report directly to the Social Manager and form a part of the ESMC.</p>	<ul style="list-style-type: none"> • Handle community grievances. • Implement the Livelihood Restoration Plan and the Project Development Agreement requirements related to community development and benefit sharing. • Maintain direct communication with the community on matters related to the project. • Understand the concerns of the community and communicate to the E&S manager.
Owner’s Engineer (OE)/Construction Supervision Engineer (CSE)	<p>OE/CSE will verify the ESMMP implementation and provide support as necessary. OE/CSE will be responsible for monitoring EPC contractor's compliance to the environmental issues listed in the ESMMP.</p> <p>The OE/CSE will report to the PMO/ESMS committee through E&S manager;</p> <p>The OE/CSE will supervise construction works according to the provisions of EIA, the Environmental and Social Specifications for Contractors and direct the construction contractor in consultation with the environmental engineers for the environmental improvement</p>	<ul style="list-style-type: none"> • Preside over monthly Environmental Management and Health and Safety Meetings of the supervision engineers, contractors and Environmental Engineers. • Supervise the Contractor’s compliance with contract specifications, including the implementation and operation of environmental mitigation measures and ensure their effectiveness, and other aspects of the ESMMP Implementation Plan. Major noncompliance by the Contractor will be cause for suspension of works and other penalties until the non-compliance has been resolved to the satisfaction of the ESMC. Contractors are also required to comply with national and municipal regulations governing the environment, public health and safety. • Instruct the Contractor(s) to take remedial actions within a specified timeframe and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints. • Supervise the Contractor’s activities and ensure that the requirements in the ESMMP and contract specifications are fully complied with. • Instruct the Contractor(s) to stop activities which generate adverse impacts, and/or when the Contractor(s) fails to implement the ESMMP requirements / remedial actions instructed by the ESMC. • Participate in the joint site inspection with ESMC. • Order site protection and report to the relevant authorities and the ESMC if the Contractor discovers cultural relics by chance. • Request and monitor Contractors’ felling of trees and vegetation and ensure they are strictly in accordance with the pre-determined area, numbers, species, etc. • Engage a qualified staff, preferably a landscape architect, to review and monitor the Contractor’s submitted Clearing, Revegetation and Restoration Management Plan (included in Contractor’s environmental specifications), and to supervise the Contractor’s landscaping works. • Monitor noise levels at sensitive receptors by use of portable noise monitoring kit. Monitoring will take place during intensive construction activities, such as excavation, piling, power generation, material transport and night time construction and will be conducted near villages, schools, and other sensitive receptors along the project alignment.

Designation	Description	Responsibilities (not limited to)
		<ul style="list-style-type: none"> • Conduct visual inspections to check for air-borne dust during demolition, bulk material handling and storage, and transportation routes near the villages; • Conduct visual inspections to check water quality in receiving rivers, fish ponds, and lakes affected by the construction activity. Check for turbidity, odour, colour, fish kills, etc., at discharge points in water bodies adjacent to construction sites and construction camps. • Prepare reports for environmental monitoring data and site environmental conditions. • Adhere to procedures for carrying out grievance and complaint investigations. • Review and approve relevant Standard Operating Procedures (SOPs) prepared by the Safety and Environmental Officer (SEO) and EPC Contractor in coordination with ESMC.
Sustainability and External Relations Director	Company EHS personnel	<ul style="list-style-type: none"> • Must speak Korean • Coordinate HR/Community Relations/H&S/E&S aspects of the project reporting directly to NWEDC's Managing Director
EHS personnel of OE/CSE	OE/CSE is expected to have EHS personnel to look after the E&S performance of the project.	<ul style="list-style-type: none"> • Carry out environmental site inspections to assess and audit the Contractors' site work practices, equipment, and work methodologies with respect to pollution control and adequacy of environmental mitigation measures implemented. • Monitor compliance with environmental protection measures, pollution prevention, and control measures and contractual requirements. • Investigate complaints and recommend any required corrective measures. • Advise the Contractor on environment improvement, awareness, and proactive pollution prevention measures. • Complete start-up, weekly, monthly, and site-closure checklists. • Follow the procedures in the ESMMP and recommend suitable mitigation measures to the Contractor in the case of noncompliance. Carry out additional monitoring of noncompliance within the specified timeframe. • Submit Contractor's ESMMP Implementation Plan reports to the ESMC and relevant administrative authorities, if required. • Keep detailed records of all site activities that may pertain to the environment. • Supervise construction works where environmental management is a key aspect (e.g. in sensitive areas, with high environmental risk, etc.). • Keep a photographic record of progress on site from an environmental perspective. • Keep a register of complaints in the site office and recording and dealing with any community comments or issues. • Keep a record of on-site incidents and accidents and how these were dealt with. • Implementing the BMP with the support of the ESST
EPC Contractor and contractors for separate work packages	Key responsibility for implementation of the requirements of the mitigation	<ul style="list-style-type: none"> • Develop a project specific CESMP and elaborate other parallel sub plans. • Provide a construction site layout plan that identifies key activity area including laydown, accommodation and parking etc. prior to commencement of works.

Designation	Description	Responsibilities (not limited to)
	<p>activities in the construction ESMMP.</p> <p>The EPC contractor will be responsible for subcontractor(s) performance including subcontractor(s) adhere to the requirements of the Construction Environmental and Social Management Plan (CESMP).</p>	<ul style="list-style-type: none"> • Produce detailed method statements relating to key activities that include specific reference to requirements of the plans contained herein during the Project progression. • Provide all training necessary to oversee and implement ESMMP requirements. • Be responsible for producing comprehensive suite of EHS management and coordination procedures. • Identify a full-time person on site with dedicated EHS responsibilities to oversee works on site (SEO). • Ensure that all subcontractor(s) have dedicated EHS staff to implement the CESMP and monitor and manage this on an on-going basis. The subcontractor(s) staff will be required to liaise closely with the EPC contractor EHS staff, including the provision of monthly reports and participation in weekly construction review meetings. • Comply with relevant legislative requirements governing environment, public health, and safety. • Work within the scope of contractual requirements and other tender conditions. • Organize representatives of the construction team to participate in the joint site inspections undertaken by the ESMC. • Carry out any corrective actions as instructed by the ESMC or the OE. • Provide information to and update the OE regarding works activities that may result in adverse environmental conditions. • In case of non-compliances/discrepancies, carry out investigation and submit proposals on mitigation measures, and implement remedial measures to reduce environmental impacts. • Stop construction activities that generate adverse impacts upon receipt of instructions from the ESMC or OE. Propose and carry out corrective actions and implement alternative construction method, if required, to minimize environmental impacts. Major noncompliance by the Contractor will be cause for suspension of works and other penalties until the noncompliance has been resolved to the satisfaction of the ESMC.
<p>Workplace Safety and Environmental Officer (SEO) of each of the seven packages</p>	<p>To be appointed by each of the EPC contractors for relevant work packages.</p>	<ul style="list-style-type: none"> • Oversee the Contractor’s internal compliance with the ESMMP requirements and ensure that the environmental specifications are adhered to. • Carry out regular environmental site inspections to monitor compliance with the environmental protection measures • Submit the Contractor’s ESMMP Implementation Plan to the ESMC, EST, PMO, and other relevant authorities as required. • Prepare relevant SOPs as required, detailing the step-by-step actions, responsibilities, and the monitoring mechanism and get it approved with ESMC. • Investigate complaints and recommend any mitigation measures. • Prepare relevant reports and submit to the ESMC and OE/SCE as per pre-identified frequencies; • Inform both OE/SCE and ESMC about any incidents/accidents within 12 hours. • Work in close coordination with ESMC’s site team. • Take prime responsibility for practical implementation of the environmental management.

Designation	Description	Responsibilities (not limited to)
		<ul style="list-style-type: none"> • Oversee and ensure the implementation of the CESMP and parallel management plans (with support from the EPC contractor EHS Expert and Construction Manager and ensure all contractors and subcontractors are in compliance with the CESMP requirements. • Review and report performance to the EPC contractor Construction Manager. • Review subcontractors’ environmental protection/mitigation measures to ensure compliance with the CESMP. • Report any CESMP noncompliances to the EPC contractor Construction Manager on a daily basis. • Carryout regular environmental awareness sessions and assist personnel in applying environmental standards on site. • Conduct regular audits/inspections to check that committed impact mitigation measures are being implemented. • Act as the first point of contact on environmental matters for the EPC contractor, for the government authorities, other external bodies and the general public
ESST (Environment and Social Supervision Team)	ESST on-site comprising of EPC site head and SEO, OE/CSE Engineer and E&S person (representatives of ESMC) and site head	<ul style="list-style-type: none"> • Meet once a month to discuss on E&S aspects and ESMMP implementation. • Carry out audits as relevant. • Monitor the implementation of the BMP. • Discuss on correction actions required. • Agree on key decisions to be taken. • Report to the PMO the minutes for approval of any key decisions and/or sanctions.
International Consulting Firm	Key responsibility is to assist NWEDC	<ul style="list-style-type: none"> • Development, set up, and implementation of the Owners ESMMP, CESMMP, and the O&M ESMMP

3.2.2. Operations Phase

The proposed operations phase organizational structure is shown in Figure 2. The Environment and Social Supervision Team (ESST) will be comprised of the O&M site head and SEO, representatives of ESMC, and site head, and will meet once in a month to discuss on the overall E&S performance, ESMMP implementation, and take key decisions as relevant. The Minutes of the Meeting will be sent to the PMO at the corporate level for approval and sanctions as necessary. Also many of the OE functions during the construction phase will be taken over by the ESST during the operations phase as the accident/incident analysis etc.

The roles and responsibility will be similar to construction stage apart from the CSE/OE which will cease to exist beyond two years of operations stage; i.e. the period from which NWEDC awards Provisional Acceptance Certificate (PAC) to EPC contractor to the time NWEDC awards Final acceptance certificate (FAC).

An external consultant should be hired by NWEDC to monitor the progress on a six-monthly basis in the operations phase depending upon its internal monitoring requirements or lenders requirement.

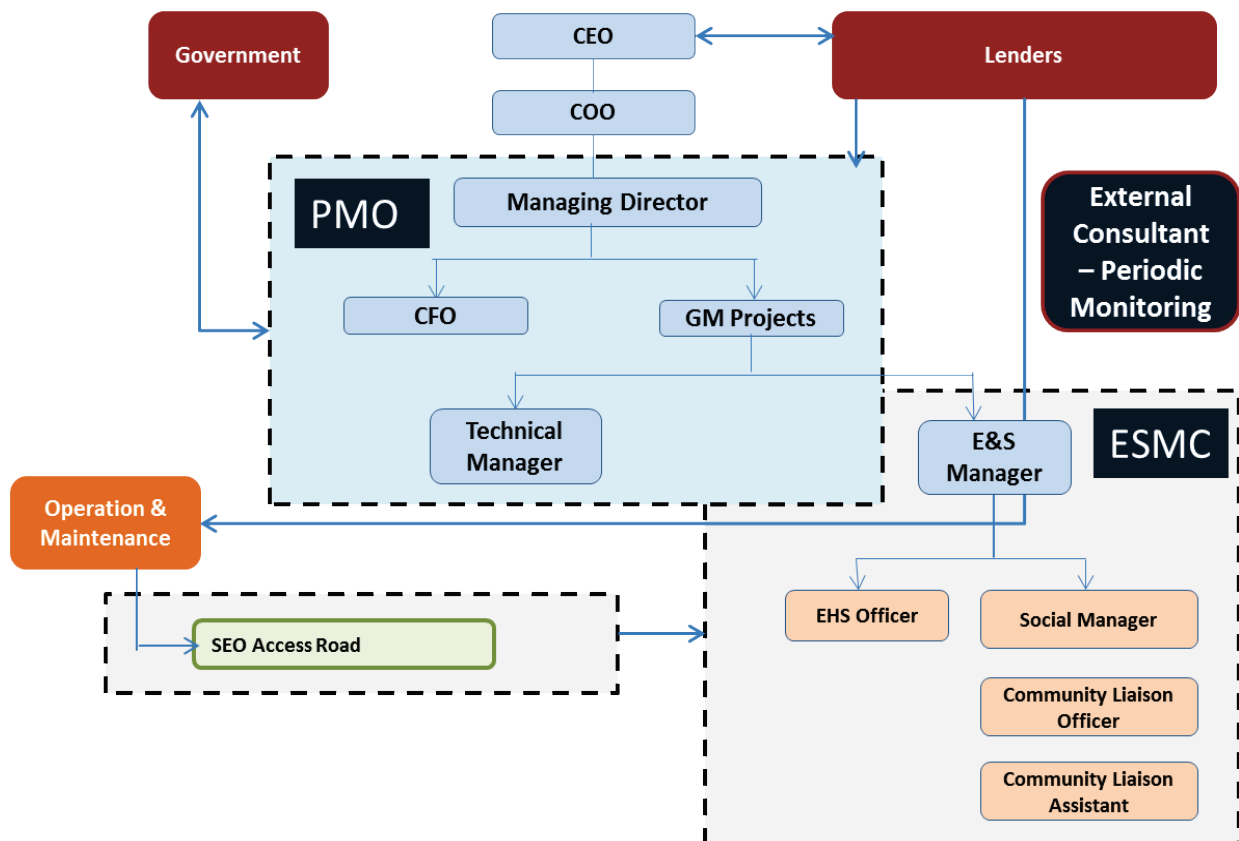


Figure 2: UT-1 ESMS Implementation Organisational Chart (Operation Stage)

4. CODE OF CONDUCT

A major concern during the construction of large hydroelectric projects is the potential negative impacts that might arise from the interaction of outside workers with local communities. For this reason, it is required that NWEDC establish a Code of Conduct that emphasizes the importance of appropriate behaviour, respect for local communities and customs, and compliance with relevant Nepalese laws and regulations.

All contractors of NWEDC should sign and follow the Code of Conduct. Each NWEDC and Contractor employee working on the Project shall be informed of the Code of Conduct once she/he has signed the contract to work for the Project. The Code of Conduct should be available to local communities at the Public Information Centres established for the Project.

The Code of Conduct should address at least the following topics:

- All the workers/labourers shall comply with the laws and regulations of Nepal;
- All illegal substances, abuse of drugs and alcohol, carrying of firearms, as well as pornographic material and gambling shall be prohibited;
- Fighting (physical or verbal), creating nuisances and disturbances in or near communities, or disrespecting local customs and traditions shall be prohibited;
- Smoking shall only be allowed in designated areas;
- Workers shall follow appropriate standards of dress and personal hygiene while visiting local communities and in the accommodation quarters; and
- Workers visiting the local communities shall behave in a manner consistent with the Code of Conduct.

5. APPLICABLE LEGAL AND LENDER REQUIREMENTS

The ESMS has been prepared in compliance with the identified reference framework, which includes both applicable environmental and social regulations of Nepal as well as international standards such as the International Finance Corporation (IFC) Performance Standards, in keeping with the Lender requirements. Table 2 provides a brief overview of the regulations. Detailed analysis of the reference framework governing the project is provided in Chapter 3, Legislative and Regulatory Framework, of the Summary Environmental and Social Impact Assessment (ESIA).

Table 2: Applicable Reference Framework

S.No	Reference Framework	
1	Nepal Laws and Act	<ul style="list-style-type: none"> • Constitution of Nepal 2072 BS (2015 AD) replacing the Interim Constitution of Nepal, 2007 AD • Environmental Protection Act, 1997 • Nepal Environmental Policy and Action Plan 1993 • The Water Resources Act 1993

S.No	Reference Framework	
		<ul style="list-style-type: none"> • Water Resource Regulation, 1993; Local Self Governance Act, 2055 BS (1998 AD) • Wildlife Protection Act, 1958 (2015 BS) • National Park and Wildlife Conservation Act, 1973 • Aquatic Life Protection Act, 1961 and First Amendment, 1998 • Soil and Watershed Protection Act, 1982 • Solid Waste Management and Resource Mobilization Act, 1987 • Forest Act, 1993 • Hydropower Development Policy, 2056 (2001) • Electricity Act, 2049 BS (1992) AD • Explosives Act, 1961 • Local Self Governance Act, 1998 • Land Acquisition Act, 2034 (1977) • Agriculture (New Arrangements) Act (1963) • Land Administration Act (1963) • Land Reform Act, 2021 (1964) • The Land Revenue or Malpot Aien (Land Administration and Revenue) Act 2034 BS (1977) • Land (Survey and Measurement) Act, (1963) • The Land (Measurement and Inspection) Act, 2020 BS (1962, as amended) • Land Acquisition, Resettlement and Rehabilitation Policy for Infrastructure Development Projects, 2071 BS (2015 AD) • The Guthi Corporation Act, 2033 BS (1976) Second Amendment 1993.
2	Nepal Rules and Regulations	<ul style="list-style-type: none"> • Environmental Protection Rules, 1997 • Forest Rule, 1995 • Local Self Governance Regulations, 1999 • Electricity Rules, 1993 • National Park and Wildlife Conservation Rules, 1974 • Agricultural Perspective Plan, 1995 • Forest Sector Master Plan, 1988 • Nepal Biodiversity Implementation Plan, 2003 • Revised Forest Policy, 2000 • National Conservation Strategy, 1988 • Poverty Reduction Strategy, 2002 • Water Resources Strategy, 2002.
3	International Treaties and Conventions	<ul style="list-style-type: none"> • Convention on International Trade of Endangered Species • Convention on Biological Diversity 1992 • Ramsar Convention, 1971 • International Tropical Timber Agreement, 1983 • Basel Convention, 1992 • Biodiversity Convention, 1992 • ILO 169: Convention on Indigenous People
4	Guidelines	<ul style="list-style-type: none"> • National EIA Guidelines, 1993 • EIA Guidelines for Water Resource Sector 1994 • EIA Guidelines for Forest Sector, 1995 • Community Forest Guidelines (2001) & Inventory Guidelines (2005) • Guidelines of Use of Forestland for Other Purposes, 2006 (2063 BS) • National Health Care and Waste Management Guideline, 2002 • Guidelines on Environmental Management Plan, Monitoring and Auditing Published by MoEST, 2006 • Environmental Management Guidelines, (Road),1997 • Forest Product Collection and Sales Distribution Guidelines, 2000 (2057 BS)

S.No	Reference Framework	
5	International requirements	<ul style="list-style-type: none"> • Buffer Zone Management Guidelines, 1999 • IFC Performance Standards (PS 1-8), 2012 Edition • IFC/WB General EHS Guidelines (April 30 2007) • EHS Guidelines for Electric Power Transmission and Distribution (2007) • ADB Safeguard Policy Statement, 2009 • World Bank Operational Policies • OP 4.01: Environmental Assessment • OP 4.04: Natural Habitats • OP 4.10: Indigenous People • OP 4.11: Physical Cultural Resources • OP 4.12: Involuntary Resettlement • European Investment Bank’s Statement of Environmental and Social Principles and Standards, 2009

EHS = environmental health and safety; EIA = Environmental Impact Assessment; IFC = International Finance Corporation; ILO = International Labour Organization; WB = World Bank

5.1. RISK MANAGEMENT

A Regulatory EIA (June 2012) and a Supplementary ESIA (December 2014) have been undertaken for the Project, per IFC Performance Standards. These documents identify the major environmental, ecological, and social impacts due to the construction and operation of the project. A Cumulative Impact Assessment was also carried out considering the all the project in the entire Trishuli watershed.

The studies assessed the impacts based on duration, extent, and magnitude during the construction and operation phases, and proposed mitigation measures that will need to be implemented. In addition, an impact assessment is presented in Chapter 7, Key Project Environmental and Social Impacts, Risks, and Mitigation, of the Summary ESIA.

Based on the measures identified, construction and operation phase management plans have been developed to ensure the impacts are managed and the appropriate mitigation measures are in place. These plans include the following management plans for construction and the operations phase. See Appendix B, Environmental and Social Management and Monitoring Plans, for a detailed discussion of these management plans.

5.1.1. Construction and Phase Management Plans

The following management plans have been developed for the construction phase of the project:

- Air Quality
- Blasting and Explosives
- Cultural Heritage
- Emergency Preparedness and Response
- Excavation, Slope Stability, Sediment and Erosion Control
- Materials Handling and Storage
- Noise and Vibration Control

- Occupational Health and Safety
- Site Security Site
- Rehabilitation and Landscaping
- Spill Prevention and Response
- Spoil Management and Disposal
- Traffic
- Waste Management Plan
- Wastewater management
- Water Quality
- Worker Accommodations
- Stockpiles, Quarries, and Borrow Pits Impact Management
- Maintenance Management Plan

The following management plans have been developed for the operations phase of the project:

- Key Highlights of Operation Phase Mitigation Measures
- Environmental Flow Management Plan

The following general management plans have been developed for the project:

- Biodiversity Action Plan
- Stakeholder Engagement/Grievance Redress Mechanism
- Land Acquisition and Livelihood Restoration Plan
- Indigenous and Vulnerable Peoples Development Plan
- Labour Influx Management Plan
- Plans Required by the PDA
- Cumulative Impacts Management Plan; and
- Environmental and Social Management and Monitoring and Reporting Plan.

These management plans will be implemented during the pre-construction, construction, and post-construction phases of the Project development. The Contractors must be made aware of these management plans and sufficient training on implementation of the same must be provided to the workers as planned by the ESMC and agreed upon with EPC and O&M contractors.

Regular monitoring of the management plan implementation will need to be conducted by the SEO and verified by EHS personnel of OE/ESMC. The schedule of monitoring will be agreed upon with the Lenders and in keeping with the requirements in the management plans, if any.

5.1.2. Operation Phase Management Plan

During the operation phase of the project, the main impact will be due to the improper management of environmental flow in the area, which will lead to deterioration of water quality and will subsequently impact aquatic habitat. Hence, the major management plan for implementation during this phase is the Environmental Flow Management Plan. Additionally, the O&M Contractors will need to implement key mitigation measures to ensure protection of environmental and socioeconomic conditions of the project site

The site EHS team within the ESMC will be in charge of ensuring that the Contractors comply with the specifications as set in the Management Plans. In addition, SEO will also ensure monitoring of management plan implementation during the project activities.

Progress reports tracking the performance of the ESMP will be sent by the ESMC for review by the Lenders, and any changes required will be submitted for review and approval. ESMC will also consolidate the findings and observations of the OE. ESMC will rely on its site level E&S staffs.

If the Contractor or his employees fail to implement the ESMMP, the PMO can have the Contractor's representative or any employee(s) removed from the site or stop work or suspended until the matter is remedied.

External consultants should also be hired on annual basis to track the performance of the ESMS implementation, including the ESMMP implementation and E&S status of the Project. These reports should be shared with the PMO and lenders and action taken based on the same to meet the gaps.

6. ESHS TRAINING

Training is one common method of supplying individuals with additional skills and knowledge. To be successful, training programs need to be thought out carefully and systematically. A robust social, environmental, health, and safety training plan is important for effective implementation of an ESMS.

An annual training calendar must be developed by the E&S manager and approved by the PMO for external trainings. Sector specialists from within the organization or from the EPC/O&M contractors or OE organization may provide the training. Training records will be maintained by the ESMC, especially internal trainings, and by NWEDC’s Human Resource department, which will keep track of both internal and external trainings.

6.1. E&S-RELATED CAPACITY BUILDING FOR THE SITE-LEVEL ESMC STAFF

The ESMC staff, especially site-level staff, is required to undergo training for capacity buildings. The same should be done through both in-house and external trainings. This will ensure that they have adequate capacity for implementation of the ESMMP.

6.2. EHS-RELATED TRAINING FOR THE EPC AND O&M WORKERS/STAFF

The SEO, along with relevant personnel in the EPC/O&M team, will ensure that EHS induction and job-specific training are identified based on the existing capacity of project personnel, relevant site activities, and job assigned to an individual. The EPC/O&M SEO will also be in charge of ensuring that the trainings are provided as required and records of the same are maintained if required for review. Table 3 provides a list of trainings that should be carried out on routine basis.

Table 3: Project Operations Training Requirements

SN	Type of Training	Implementation Authority	Frequency	Documentations
1	Workshops to integrate ESMS requirements, including ESMMP with contractors’ work plan	EPMC with EPC Contractor	Prior to site mobilization for construction activities	The outcome should be to clearly define the requirements/ frequencies from the EPC: Plans, SOPs, records, reports, etc., to be developed/ maintained by EPC
		EPMC with O&M Contractor	Prior to site mobilization for O&M	The outcome should be to clearly define the requirements/ frequencies from the EPC: Plans, SOPs, records, reports, etc., to be developed/ maintained by O&M.
2	Induction Trainings related to EHS and site	EPC Contractor with SEO	Prior to start of construction with quarterly refreshers as staff gets inducted	Records of person inducted and training provided
		O&M Contractor with SEO	Prior to start of O&M and as staff gets inducted and quarterly refreshers	Records of person inducted and training provided

SN	Type of Training	Implementation Authority	Frequency	Documentations
3	Job-specific safety training	EPC Contractor with SEO and relevant department	On the job prior to start of work	Records of type of training
		O&M Contractor with SEO and relevant department	On the job prior to start of work	Records of type of training
4	Environment, occupational health and safety, including PPE, fire safety, etc.	EPC Contractor and SEO	Regularly (bi-monthly) during construction	Records of training
		O&M Contractor with SEO	Monthly during operations phase	Records of training
5	Emergency response preparedness	EPC Contractor with SEO and ESMC	Regularly (bi-monthly) during construction	Records of trainings, mock drills, etc.
		O&M Contractor with SEO and ESMC	Quarterly during operations phase	Records of trainings, mock drills, etc.
6	Ecology/biodiversity conservation training	EPC contractor with SEOs and ESMC	Quarterly during construction	Records of training
		O&M contractor with SEOs and ESMC	Six- monthly during operation phase	Records of training
7	Handling community engagements and grievances	SEO, EPC and ESMC with HR	Quarterly during construction	Records of training
		SEO, O&M and ESMC with HR	Six- monthly during operation phase	Records of training
8	Training for security staff	EPC contractor with SEOs and ESMC	Quarterly during construction	Records
		O&M contractor with SEOs and ESMC	Six- monthly during operation phase	Records of training
9	Driver training	EPC contractor with SEOs and ESMC	Quarterly during construction	Records of training
		O&M contractor with SEOs and ESMC	Six- monthly during operation phase	Records of training
10	Operational trainings	O&M Contractor with SEO	Operations phase	Annual calendar with type of trainings planned
11	Environmental and social management training	EST	Throughout construction and operation phases.	Records
12	Internal training for capacity building of ESMC staff	Corporate E&S manager and personnel from relevant department	As decided	Records
13	External training for capacity building of ESMS staff	External agencies	As decided	Records
14	Others as identified			

ESMC = Environmental and Social Management Cell; EPC = engineering, procurement, and construction; O&M = operations and maintenance; PPE = personal protective equipment; SEO = Safety and Environmental Officer

Any other applicable training will be identified and implemented during the project life cycle as part of mitigation measure and also capacity building of the staffs. Also, general environmental awareness will be increased among the Project team and workers to encourage the implementation of environmentally sound practices and compliance requirements of the Project. This will help in minimising adverse environmental impacts, ensure compliance with the applicable regulations and standards, and achieve performance beyond compliance. The same

level of awareness and commitment will be imparted to the contractors and subcontractors prior to the commencement of the project. To ensure the competency of the employees, the Contractor will establish and maintain procedures to ensure that employees and workers are aware of the following:

- The significant environmental aspects and safety risks, actual or potential, of their work activities and consequences and the benefits of improved personal performance;
- Their role and responsibility in meeting policy and procedure requirements and health, safety, and environmental arrangements, including emergency preparedness and response requirements; and
- The potential consequences if operating procedures are not followed.

7. REPORTING AND MONITORING

The E&S Manager will overlook the reporting and monitoring program of the Project. The objective of the reporting and monitoring program will be:

- To track performance of the project and compare it against the established benchmarks or requirements as set in the ESMS;
- To record information to track performance and establish relevant operational controls;
- To establish key quantitative and qualitative measures for social, environment, ecology, health, and safety indicators;
- To verify compliance against the applicable reference framework and progress towards the desired outcomes; and
- To identify any necessary preventive and corrective actions that will need to be updated into the ESMS.

The E&S Manager will receive periodic performance reviews of the effectiveness of the ESMS from the ESST on site. Based on the results, the ESMC will take necessary actions to ensure effectiveness of the ESMS. The ESMC will be presenting these reports in the ESMS committee on a monthly basis.

7.1. INTERNAL AND THIRD-PARTY REPORTING PROTOCOL

An internal reporting system shall be established to periodically monitor the effective implementation of the ESMS. Inspection and audits finding or any other informational requirements from the project shall be communicated by the SEO of EPC/O&M Contractor to the site-level ESMC on a regular basis. The site-level ESMC staff will report to the E&S Manager, who will then discuss these reports with the PMO in the ESMS committee meeting. As mentioned in Section 1.3.2, the PMO will also work as the corporate-level ESMS committee with inclusion of the E&S Manager.

The communication from the project level will be obtained by the site-level ESMC staff from the different SEOs of the seven EPC Contractors: access road construction, dam construction, hydro-mechanics, transmission line, etc.

The on-site activities will be monitored through the following mechanisms:

- SEOs of the EPC/O&M contractors;
- Site-level ESMC personnel;
- CSE/OE along with its EHS personnel during the construction Phase;
- E&S Manager/ESMC;
- Overall supervision and decision making by ESST; and
- PMO (through ESMC, EST as well as CSE/OE).

The reporting mechanisms are discussed below.

7.1.1. Contractor's Reporting Protocol

The Contractors and subcontractors on-site will be required to follow the environmental and social specifications as mentioned in the management plans for the construction and operation phases of the Project. The activities carried out will be supervised by the SEO and EHS personnel of CSE/OE and any deviations/noncompliances reported to ESMC and further to ESST and PMO.

The EPC Contractor's SEO will report directly to the CSE/OE during the construction phase and the O&M contractor's SEO will directly report to the ESMC. The contractor will be required to provide regular reports to the CSE/OE and ESMC regarding the following:

- Weekly/daily safety meeting and activities undertaken;
- Attendance for EHS trainings undertaken;
- Details and activities undertaken as part of the monthly environmental meetings;
- Attendance sheet on-site;
- Status report on ESMMP implementation;
- All the above might be consolidated into weekly/Monthly EHS monitoring report from contractor;
- Any major accident/incident on site and steps undertaken to manage it (these reports need to be submitted within 24 hours); and
- Collect and report on data as requested by ESMC;

7.1.2. CSE/OE Reporting Protocol

The CSE/OE is in charge of supervising the various construction works such as civil work, electric installation work, etc. The EHS personnel of OE/CSE will also monitor the

implementation of the environmental, health and safety measures as specified in the management plans. The CSE/OE will review and approve the SOPs to be used by the Contractors during the construction activities of the Project. Any monitoring reports/checklists prepared by the CSE/OE will be reviewed by the ESMC before being sent to PMO.

Additionally, the CSE/OE will supervise and head monthly environmental meetings to discuss any major environmental and social issues that have been faced during the project development. The CSE/OE will maintain a record of the topics discussed during these meetings and any corrective actions taken based on the outcome of the meeting discussion. The CSE/OE will provide the following reports to the PMO and Corporate E&S Manager who will be presenting it to corporate ESMS committee (including all PMOs):

- Monthly/periodic status report of E&S aspects on site covering only key issues and findings from reviewing and supervision activities;
- The OE shall also collect and report on data as requested by the PMO/ESMC;
- Immediate information on any incidents/ major deviations from the SOPs;
- Analysis of any incidents/major deviations within an agreed time frame;
- At the end of the commissioning, the OE/CSE shall prepare a final report summarizing the key findings from their work, the number of infringements, resolutions, etc., as well as advice and guidance for how such assignments should be conducted in the future.

7.1.3. Environmental and Social Management Cell's Reporting Protocol

As a minimum the ESMC shall prepare the following written reports and submit to the E&S Manager, ESMC.

Site Level

- Weekly report of non-compliance issues;
- Summary monthly report of key issues and findings from auditing activities;
- Summary monthly report of key issues arising from CSE/OE supervision activities during construction phase;
- Consolidated summary report from Contractor's monthly report; and
- Collect and report on data as requested by corporate ESMS committee;

Corporate Level

- Monthly summary of the E&S status on site to PMO; and
- Final report summarizing Project's environmental performance as desired by corporate ESMS committee.

7.1.4. Environmental and Social Supervision Team’s Reporting Protocol

The ESST will meet once a month during the construction phase and quarterly during the operations phase, and in case of any emergencies as required:

- Minutes of meeting to corporate ESMS committee highlighting any key issues with respect to ESMMP implementation and E&S performance;
- Any decisions/approvals required from corporate ESMS committee; and
- Analysis of any incidents/major deviations within an agreed time frame especially during operations phase;

A list of records to be maintained by the ESST is included in Table 4.

Table 4: List of Environmental and Social Records to be Maintained during Construction Phase

Category	Record
General	<ul style="list-style-type: none"> • Environmental training records (e.g. attendance records for environmental awareness training, topics covered) • Environmental permits and licenses • Site inspection records • Construction program and schedule • Records identified to be maintained in the SOPs prepared by EPC/O&M • Records as per requirements under various E&S Management Plans; • Equipment maintenance and repair records • Correspondence with concerned parties and other parties in relation to environmental matters • HIV/AIDS information • Meeting minutes
Noise control	<ul style="list-style-type: none"> • Updated list of powered mechanical equipment currently on site • Details of examination periods and the results if any environmental sensitive receivers such as local schools, hospitals, resident villages may be affected. • Records of noise levels near sensitive receptors
Water pollution control	<ul style="list-style-type: none"> • Records of quantities of collected spent bentonitic slurries and/or drilling mud for reuse, reconditioning and disposal • Records of maintenance and cleaning schedules for sediment and oil/grease traps • Records of toilet sewage disposal (where connection to existing sewer is not undertaken) • Records of the wastewater final discharge quantity and the pollutants concentration • Plans of construction site drainage
Waste management	<ul style="list-style-type: none"> • Copies of relevant valid licenses as provided by employed waste haulers and waste collectors • Records of quantities of reused and recycled waste • Waste disposal records
Atmosphere	<ul style="list-style-type: none"> • Route and the program of the construction material transportation • Mitigation measures on the atmosphere effect such as sprinkling • The monitoring results of the atmosphere quality
Culture property	<ul style="list-style-type: none"> • Drawings of the identified culture property sites (if any) • Log of construction near culture property sites (if any) • Records of discoveries during construction (if any)

Category	Record
Land contamination	<ul style="list-style-type: none"> • Preliminary analysis results of materials suspected to be contaminated (if any)
Ecological resources	<ul style="list-style-type: none"> • Records of sensitive ecological resources locations and associated protection plan
Storage of explosives, chemicals, and hazardous substances	<ul style="list-style-type: none"> • Drawings of storage facilities • Logs of inventory and consumption • Material data sheets of all substances kept on site
Emergency/accident/incident	<ul style="list-style-type: none"> • Emergency accident/incident records • Investigation Reports
Grievance	<ul style="list-style-type: none"> • Records of Grievance registered
Corrective and preventive action plan	<ul style="list-style-type: none"> • Corrective and preventive action request records and forms
Other records	<ul style="list-style-type: none"> • As per regulatory requirement from different authorities

E&S = environmental and social; EPC = engineering, procurement, and construction; O&M = operations and maintenance

7.2. EXTERNAL REPORTING FOR REGULATORY COMPLIANCE

The main regulatory bodies for obtaining permits/approvals/licenses during the Project lifecycle include:

- The Ministry of Science, Technology and Environment
- Ministry of Energy/Department of Electricity
- Ministry of Forest and Soil Conservation
- Department of Forest and its district offices

The ESMC will be responsible for obtaining the required environmental, ecological, and social (mainly land) approvals and licenses from the regulatory authorities. They will prepare any necessary documents that need to be submitted on a regular basis, such as air/noise/water monitoring results to assess the performance of the project against environmental and social parameters. The ESMC will also be responsible for organising any visits to the site or consultations with the local communities if required by the regulatory authority.

The ESMC team should consolidate list of reports to be maintained as part of the Regulatory compliances and submit the same to the regulatory authorities as per the desired frequencies. The data for the same may be taken from the EPC/O&M contractors as relevant.

Some of the reports that can be maintained internally by the project team for review of project performance are shown below in Table 5.

Table 5: Reporting Matrix

Key Report to be Generated	Reporting To	Responsibility for Report Preparation	Frequency
<i>Internal and Third-Party Reporting</i>			
EHS Monitoring report with details regarding: Safety meetings; EHS Training details; ESMMP Implementation status report.	ESMC	EPC SEO	Weekly/monthly
		O&M SEO	
Accident/incident report	ESMC	EPC SEO	As applicable
		O&M SEO	

Key Report to be Generated	Reporting To	Responsibility for Report Preparation	Frequency
Report on noncompliance issues	ESMC Manager	ESMC	Weekly
Key issues and findings report	ESMC Manager	ESMC	Monthly
Summary of Contractor report	ESMC Manager	ESMC	Monthly
Summary of E&S Status	ESMC Manager	ESMC	Monthly
Minutes of environmental meeting	PMO	ESST	Monthly during construction phase and quarterly during operation phase
Accident/incident analysis	PMO	ESST	As applicable
Summary E&S status reports of the supervision activities	PMO and Corporate E&S Manager	OE/CSE	Monthly/as agreed
Immediate information on any incidents/ major deviations from the SOPs	PMO and Corporate E&S Manager	OE/CSE	As applicable
Analysis of any incidents/major deviations within an agreed time frame;	PMO and Corporate E&S Manager	OE/CSE	As applicable
Final report summarizing the key findings from their work, the number of infringements, resolutions, etc., as well as advice and guidance for how such assignments should be conducted in the future.	PMO and Corporate E&S Manager	OE/CSE	At the end of commissioning
<i>External Reporting for Regulatory Compliance</i>			
Compliance reports: As per Project approvals/permits as per regulatory requirements from Ministry of Science, Technology and Environment Ministry of Energy/Department of Electricity, Ministry of Forest and Soil Conservation/ Department of Forest and its District Office/Other government authorities as relevant	Relevant authorities	ESMC	As required by the regulatory authority
<i>Lender's Reporting Requirements</i>			
Environmental and Social Performance Reports, which will summarise: <ul style="list-style-type: none"> • Environmental and social impacts observed and progress as per the ESMP, RAP, or any other management plans under implementation; • Any areas of noncompliance or other issues; • Performance review of the effectiveness of the ESMS; • Any new/unreported environmental, ecological or social impacts observed on-site; and • Reports of any third party audits/studies. 	Lenders	PMO	Based on the frequency as agreed upon with the Lenders

7.3. LENDER'S REPORTING REQUIREMENTS

The ESMS committee will review, approve, and submit environmental and social performance reports at the frequency agreed upon with Lenders, with respect to the project operations. The reports will be sent to the ESMS committee by the E&S Manager of the ESMS team. These reports will summarize the following:

- Environmental and social impacts of projects observed by the project proponent, including progress as per the Environmental and Social Management plan, Resettlement Action Plan, or any other similar management plans under implementation;
- Any areas of non-compliance or other issues arising from the implementation of the suggested environmental and social safeguards;
- Performance review of the effectiveness of the ESMS ;
- Any new/unreported environmental, ecological or social impacts observed on-site and which need to be included in the ESMS; and
- Reports of any third party audits/studies.

8. CONTRACTOR MANAGEMENT

Contractors refer to the teams appointed by NWEDC to undertake the construction activities as well as O&M for the Project. The Contractor(s), its subcontractor(s), and employees shall minimise impacts that may result from Project construction and operational activities, and comply with the mitigation measures set forth in the ESMMP to prevent harm and nuisances to local communities. The duties of the contractor(s) and subcontractor(s) include but are not limited to:

- Compliance with relevant legislative requirements governing environment, public health and safety;
- Work within the scope of contractual requirements and other tender conditions;
- Comply with the ESMMP requirements as mentioned in the ESIA;
- Organise representatives of the construction team to participate in the joint site inspections undertaken by the ESMC;
- Carry out any corrective actions as instructed by the ESMC, OE/CSE, and/or ESST;
- Provide and update information to the OE/CSE and ESST regarding works activities that may result in adverse environmental conditions;
- In case of noncompliances/discrepancies, carry out investigation and submit proposals on mitigation measures, and implement remedial measures to reduce environmental impacts;
- Stop construction activities which generate adverse impacts upon receipt of instructions from the OE/CSE, ESMC, or ESST;
- Propose and carry out corrective actions and implement alternative construction/operational method, if required, to minimize environmental impacts; and
- Major noncompliance by the Contractor will be cause for suspension of works and other penalties until the noncompliance has been resolved to the satisfaction of the ESMC and OE/CSE.

8.1. MINIMUM ENVIRONMENTAL AND SOCIAL STANDARDS TO BE MET BY CONTRACTOR

The contractor must comply with the minimum environmental and social standards presented in the Attachment 2 Minimum E&S Standards to be met by the Contractor, for the Project.

9. MANAGEMENT OF CHANGE

The procedures provided here will be applicable for instances when there are changes to the facilities (equipment, operation procedures, materials, and operating conditions) as well as changes to the organisational structure or designated person due to operational necessity. To ensure that the ESMS is adaptive to the changes that will be faced during the Project lifecycle, the following actions will need to be implemented by the ESMC and monitored by the PMO:

- The ESMMP will be reviewed and amended in accordance to the Project design and status as it evolves. Key information about changes to the Project design will be regularly reviewed and site visits will be undertaken by the ESMC staff in coordination with SEOs and relevant personnel to ensure the same and to identify any environmental, social or ecological impacts to the Project.
- The ESMC and PMO will have the authority to select the staff to oversee the environmental and social activities of the Project. During change in management of the Project, the new staff will obtain the induction training, that will cover, but not be limited to, the following aspects:
 - General health and safety training;
 - Briefing on the E&S performance of the Project;
 - Training regarding the project policies and objectives;
 - Regular audits that need to be conducted; and
 - Reporting protocol to be followed.
- The ESMMP implementation will be monitored regularly throughout the lifecycle of the Project to assess its effectiveness during project operations. Evaluation will be undertaken through continuous communication with the relevant stakeholders, namely contractors, subcontractors, workers, community, etc. Additionally, this will be supported through the data obtained from the monitoring audits and reviews conducted on a regular basis.
- The ESMMP will be changed or updated based on the feedback obtained from the contractors as well as from the data obtained through reviews and audits. The areas of improvement will be identified and mitigation measures for the same will be integrated into the ESMS, after approval from the PMO and lenders.

ATTACHMENT 1

NWEDC Environmental and Social Policy Statement

ATTACHMENT 2

Minimum E&S Standards to be met by the Contractor

The contractor should develop plans, SOPs, formats, maintain records, and submit reports as agreed upon with the Nepal Water and Energy Development Company. These should be set out clearly and agreed upon during pre-mobilization workshops for construction and operations and maintenance phase. The following table indicates a list of minimum environmental and safety standards to be met by the contractor.

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
Unemployment of local labour	Villagers shall not be disadvantaged by the influx of outside workers	<ul style="list-style-type: none"> • Have a Human Resources Policy • Hire local labour as much as possible • Encourage women to work in the Project
Workers intruding on village life and disrespecting traditional cultural values.	Workers shall respect local traditions and culture	<ul style="list-style-type: none"> • Education and orientation of outside workers to local culture and social norms before the start of work • Have an environmental training program for workers
Health issues	Contractor to present a Health Management Plan	<ul style="list-style-type: none"> • The Health Program shall be made available to the communities • Implement a vaccination program • Provide education program on sexually transmitted diseases HIV/AIDS, tuberculosis and other illnesses • Provide periodical health check to construction workers • Implement measures against malaria if applicable
<i>Workers' Camps and Work Sites</i>		
Water supply affecting ecology or village water supply	Camp to provide its own water supply that does not affect village water supply	<ul style="list-style-type: none"> • Any water supply sources should be located so that it does not adversely affect the villages supply • The intake of water from streams for water supplies should leave residual flows in the watercourses • Storage tanks should be used to buffer water supplies
Wastewater discharges affecting water quality	Wastewater to be treated prior to discharge	<ul style="list-style-type: none"> • Sewage disposal methods should be designed to the standards outlined by the Nepalese government
Solid waste polluting the environment and causing health hazards	No waste to be burnt or buried on site	<ul style="list-style-type: none"> • All solid waste shall be removed from site and disposed of at a municipal landfill or at an approved disposal site
Camps using local services and resources, at the expense of villagers	Camps shall not affect local resources, infrastructure, utilities	<ul style="list-style-type: none"> • Locations of camps shall be approved by ESMC and local authorities • Provide adequate housing to outside workers with potable water and proper medical and sanitary facilities • Camps shall be self- sufficient in resources and services • Camps to be secure and discourage workers from leaving the camp

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Village Impacts</i>		
Deterioration of current quality of life and traditional livelihoods	Villagers should have the ability to communicate issues to ESMC, EST, SEO, and Contractors. Villagers have the expectation that issues will be addressed and resolved by negotiation. Meetings shall be undertaken to ensure villager's concerns are recorded and addressed. Villagers shall be adequately informed of all potential hazards to health and safety.	<ul style="list-style-type: none"> • Set up a communication network for discussing issues with ESMC, EST, SEO, Contractors. Complaints should be directed to the ESMC full-time safeguards staff • ESMC to manage a grievance mechanism, and have staff on site at all times to manage grievances • The Contractor's Health Management Plan shall be made available to the communities • Developing village protocol that could serve as a guideline for outside workers • A complaints record shall be kept of all issues raised by villagers in response to construction activities as well as the remedial actions taken and the turnaround time for the response and actions noted
Health and safety risks from such activities as increased traffic, blasting, operation of heavy machinery, etc.; traffic causing safety risks to villagers	Safety risks shall be minimised. Villagers have the expectation that issues will be addressed and resolved by negotiation.	<ul style="list-style-type: none"> • OHS management in Chapter 11
Nuisance issues such as noise, dust and vibration	Nuisances shall be minimised. Villagers have the expectation that issues will be addressed and resolved by negotiation.	<ul style="list-style-type: none"> • Noise management in Chapter 11
Sediment affecting river water uses	Sediment discharges to the river shall be minimized	<ul style="list-style-type: none"> • Erosion and sediment control in Chapter 11
<i>Construction Issues</i>		
Construction of access roads can affect cultivated areas, sensitive areas and cause noise, dust and erosion	New access roads should not disrupt village life and affect ecosystems, and agricultural land	<ul style="list-style-type: none"> • Design and location of access roads shall be approved by a road engineer and ESMC • Follow erosion and sedimentation procedures, and noise and dust procedures as explained below • Avoid constructing access roads in sensitive areas and agricultural land. • Build an appropriate drainage system
Erosion and sedimentation caused by the construction activities	Erosion and sedimentation have to be maintained to a minimum to avoid changes in water flow patterns, loss of productive land, landslides, and destruction of surface vegetation	<ul style="list-style-type: none"> • Protect all areas susceptible to erosion by installing necessary temporary and permanent erosion and sediment control structures. • Conserve as much vegetation as possible • Initiate revegetation after completion of construction works

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
Noise and vibration associated with construction activities, excavation and blasting	Noise must not unreasonably intrude on traditional village life	<ul style="list-style-type: none"> • Keep a current list of all noise and vibration producing machinery • Machinery operation to occur only during designated hours (to be confirmed by Contractor in agreement with villagers) • Blasting to occur at the same time each day, and / or a warning siren should sound prior to blasting • Use of complaints register and procedures to address issues as they arise • Work to be carried out in daylight, in typical working hours • Concrete batching plants and other noisy equipment to be located as far as practical from villages
Dust generation from construction activities	Dust must not cause a hazard or nuisance to village life	<ul style="list-style-type: none"> • Dust generating operations to occur only during designated hours (to be confirmed by contractor in agreement with villagers) • Use of complaints register and procedures to address issues as they arise • Concrete batching plants and other dusty equipment to be located as far as practical from villages
Increased utilization of roads by traffic associated with construction activities	There should be no significant increased risk to local populations from traffic associated with the Project	<ul style="list-style-type: none"> • Road upgrades, including signage, speed humps, re-grading • Wetting of roads to reduce dust during the dry season, and as necessary • Training of locals regarding the hazards of traffic • Training of vehicle drivers regarding the driving risks through villages and along remote roads • Use of complaints register and procedures to address issues as they arise
Pollution risk activities occurring on site	Develop appropriate storage, transport and use practices for storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers. There shall be no solid or liquid waste disposal directly or indirectly to any water course (whether flowing or not).	<ul style="list-style-type: none"> • Keep a current list of all potentially • Contaminating materials used onsite • Develop and implement appropriate storage, transport and use practices to recognized standards • Solid waste disposal shall be taken off site

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Clearing, Revegetation and Restoration of Construction Sites</i>		
Loss of productive land, disturbance of soil profile, loss of habitats for animals. Lack of appropriate compensatory planting at the end of construction or use of non-native species	Clearing activities shall allow the existing usage of land to continue as long as is practicable. Avoid discharging sediments and vegetation material into watercourses cultivated land, an irrigation canals. Initial revegetation of exposed areas as soon as possible.	<ul style="list-style-type: none"> • Clearing shall take place in a phased matter to retain vegetative cover as much as possible • Areas not approved for clearing shall be kept undisturbed and demarcated by construction fencing • Save as much topsoil as possible • Appropriate local native species of vegetation shall be selected for the compensatory planting and restoration of the natural landforms. • Establish a method for timber salvage with participation of local communities • All affected areas should be landscaped and any necessary remedial works should be undertaken without delay including revegetation and reforestation.
<i>Earthworks, Fill Slopes, Cuts, Borrow Pits, Quarries, Disposal Sites, Stockpiles</i>		
Generation of suspended solids from bare ground and runoff into watercourses	Construction activities should not give rise to storm water containing elevated suspended solids. Provide treatment to achieve 75% reduction in suspended solids.	<ul style="list-style-type: none"> • No direct discharge of sediment laden water without treatment • Earthworks and land clearance should be minimized and phased • Storm water should be diverted around exposed areas • Any discharges to watercourses should occur during high flow and / or discharged as close to the outfall as possible to maximize mixing • Stockpiles, borrow pits, quarries, disposal sites should be located at least 50 metres from a watercourse and avoid sensitive areas • Timing of works around the drier seasons where possible • Provision of storm water cut off drains wherever possible
Introduction of invasive species	Fill material should not contain invasive species.	<ul style="list-style-type: none"> • The use of imported fill shall be minimized • Machinery should be cleaned prior to working on site to reduce the opportunity of the spread of weeds
Disturbance of natural habitats for spoil alluvial material.	Soils should be reused where possible in the development – to reduce the need for spoil sites and the need to import fill.	<ul style="list-style-type: none"> • Limit extraction of material to approved and demarcated quarries and borrow pits • Stockpile and reuse soils before excavating new soils / alluvium • Stockpiles should be compacted as much as practical and not be exposed for extended periods • Stockpiles should be reused as soon as practicable • Storm water should be diverted around stockpiles
Efficiency of control measures over time	Control measures should continue to work appropriately throughout the construction period	<ul style="list-style-type: none"> • Earthworks control measures should be inspected and maintained in efficient operating condition over the construction period

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Work in Watercourses</i>		
Sediment discharges arising from working in and near the river	Work in the wetted area of the riverbed should be minimized, and only in relation to the construction of the power house, weir and intake structure or to insert culverts for stream crossings	<ul style="list-style-type: none"> • Stabilize works at the end of each working day and prior to storm events • Do the work during low flow periods • Works shall be minimized • Diversion of the river around the work area where possible • Culverts shall be placed in access tracks where they cross streams more than 3 metres wide and 0.5 metre deep
<i>Tunnels</i>		
Contaminants in water discharged from tunnels during construction	No direct discharges of tunnels water to any water course. Provide treatment prior to discharge to achieve 75% reduction in suspended solids.	<ul style="list-style-type: none"> • Settlement ponds and /or sediment infiltration devices • Monitoring immediately upstream and 50 metres downstream of the discharge with a clarity tube to estimate any effects on clarity; for nutrients to detect explosives residue and for pH • Any discharges to watercourses should occur during high flow and / or discharged as close to the outfall as possible to maximise mixing • Spill kits and emergency procedures should be used for spills of chemicals, fuels and oils and staff trained
<i>Concrete, Cement</i>		
Contaminants in water discharged from concrete manufacturing, including a rise in pH	No direct discharges of concrete batching water to any water course. Provide treatment prior to discharge to achieve 75% reduction in suspended solids.	<ul style="list-style-type: none"> • Settlement ponds and / or sediment infiltration gallery • Monitoring immediately upstream and 50 metres downstream of the discharge with a clarity tube to estimate any effects on clarity; for pH to detect alkali discharges • Any storm water discharges to watercourses should occur during high flow and / or discharged as close to the outfall as possible to maximise mixing • Water to be reused where possible in the process • Procedures for handling of unhydrated cement material and wet cement to avoid spills
Community nuisances	Noise and dust must not unreasonably intrude on traditional village life	<ul style="list-style-type: none"> • Concrete batching plants and other noisy / dusty equipment to be located at least 100 metres from villages
<i>Material Handling, Use and Storage</i>		
Pollution risk associated with the storage and use of fuels, chemicals, explosives, hazardous substances	No oil, lubricants, fuels or containers should be drained or dumped to ground or waterways. Accidental spills shall be minimized, and procedures put in place to clean up the environmental damage.	<ul style="list-style-type: none"> • Keep a current list of all chemical and hazardous substances stored on site • Keep the Safety Data Sheet of all hazardous materials used on site • Develop appropriate storage, transport and use practices to recognized standards • Explosives, chemicals and hazardous substances to be handled by authorized personnel • Diesel to be stored in truck tankers or in overhead tanks to a maximum of 5,000 litres • Diesel to be stored on flat ground and 50 metres from a waterway

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
		<ul style="list-style-type: none"> • Dikes to capture 100% of fuel must be placed around fuel storage areas • All refuelling of vehicles and plant to be done on flat ground • All significant vehicle and plant maintenance shall be undertaken offsite where possible • Spill kits and emergency procedures should be used and staff trained • There shall be no deliberate discharge of oil, diesel, petrol or other hazardous materials to the surrounding soils and waterways
<i>Maintenance of Construction Equipment and Working Areas</i>		
<p>Reduction of air quality due to emission from poorly maintained equipment and vehicles</p> <p>Risk of pollution of vegetation and watercourses due to improper disposal of used lubricants and fuels</p>	<p>Equipment and vehicles shall not reduce air quality. No oil, lubricants, fuels used for the maintenance of equipment should be drained or dumped to ground or waterways. Construction debris shall be disposed at approved disposal sites</p>	<ul style="list-style-type: none"> • Maintain all equipment in good working conditions • Establish spill prevention procedures • Ensure that maintenance activities are carried out in approved areas • Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for debris • Onsite burning of debris and wastes shall be prohibited
<i>Safety Issues</i>		
<p>Health and safety risks from such activities as increased traffic, blasting, operation of heavy machinery, etc.</p>	<p>Health and safety risks to villagers and workers shall be minimized</p>	<ul style="list-style-type: none"> • Provide personal protective equipment and clothing (goggles, gloves, dust masks, hard hats, steel-toed boots, etc.) for construction workers and enforce their use • Follow national regulation on blasting • Inform villages one week in advance of the blasting event blasting is prohibited during night-time hours • Establish a methodology to be followed in case of fire • Remove workers from tunnels and underground construction in case a hazardous gas is present • Respond to emergencies in a prompt matter
<p>Traffic causing safety risks to road users</p>	<p>Construction traffic will be managed to minimize the impact on existing road users</p>	<ul style="list-style-type: none"> • Signage to be used to identify current risks to road users • EST and Contractors to discuss major traffic issues with village representatives • Establish pedestrian routes • Heavy traffic to avoid the hours when school children walk to and from school
<i>Archaeological and cultural site disturbance</i>		
<p>Finding and disturbance of previously unknown sites</p>	<p>No sites shall be disturbed once identified</p>	<ul style="list-style-type: none"> • Chance find procedure in Chapter 11

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Flora and Fauna</i>		
Wildlife populations may be adversely affected by direct losses of individuals (e.g.: mortality, injury) or modification of habitat. Destruction of native vegetation and land outside proposed working areas.	Sufficient trainings on ecological protection and mitigation measures shall be provided to construction workers and site management staff	<ul style="list-style-type: none"> • Demarcate natural habitats for sensitive, rare, threatened and/or endangered species before the commencement of construction activities • Ensure that no hunting, fishing, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place • Delineate with temporary construction fencing the vegetation to be preserved • Ensure that the vegetation to be preserved is kept undamaged • Prohibit use of fire wood and the burning of vegetation • Install sediment control measures to prevent siltation of water courses

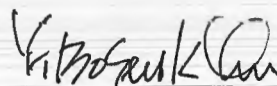
ESMC = Environmental and Social Management Cell; EST = Environmental Supervision Team; SEO = Safety and Environmental Officer

Environmental and Social Policy Statement

Nepal Water & Energy Development Company Pvt. Ltd. (NWEDC) declares that a core value in the management of our company is environmental protection and social responsibility. NWEDC commits to comply with national and good international industry practices in the hydropower industry in the construction and operation of all our projects, and further commits to:

- ◆ Comply with all applicable environmental and social regulations and World Bank Group Performance Standards on Environmental and Social Sustainability without compromise;
- ◆ Promote a working environment to provide women with opportunities for gainful employment and advancement in the workplace;
- ◆ Provide a safe and healthy working environment to all employees and contract workers;
- ◆ Adopt mitigation strategies to avoid, reduce, or compensate environmental degradation, pollution and adverse social impacts, and adapt to the impact of climate change of our projects;
- ◆ Provide benefits to the communities affected by our projects that promote the enhancement of their livelihoods;
- ◆ Identify, avoid or actively manage all project related risks to the health, safety and security of affected communities;
- ◆ Minimize land acquisition and involuntary resettlement and ensure that affected households are fairly compensated and actively assisted to restore and improve their livelihoods and living conditions;
- ◆ Foster biodiversity conservation and sustainable management of living natural resources, minimize our environmental footprint, and reduce the depletion of bio-diversity and ecosystem services by applying the latest technology in combination with local knowledge and practice;
- ◆ Recognize the values of indigenous peoples living within the areas of influence of our projects and take appropriate actions to address and satisfy their concerns;
- ◆ Understand and respect the culture, heritage and religious beliefs of the communities living within the areas of influence of our projects;
- ◆ Disclose all relevant project information to stakeholders in a timely and Inclusive manner and to maintain open lines of communication with stakeholders throughout the life of a project; and
- ◆ Organize, train and equip our project management teams to identify and address environmental and social issues throughout the life of a project.

NWEDC is committed to continuous improvement in the management of the environmental and social impacts of our projects through monitoring, evaluation and implementation of appropriate corrective actions whenever needed. The Management of NWEDC understands that responsible environmental and social performance is a priority for our company.



Bo Seuk Yi
Chief Executive Officer



19.12.2016

ATTACHMENT 2

Minimum E&S Standards to be met by the Contractor

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The contractor should develop plans, SOPs, formats, maintain records, and submit reports as agreed upon with the Nepal Water and Energy Development Company. These should be set out clearly and agreed upon during pre-mobilization workshops for construction and operations and maintenance phase. The following table indicates a list of minimum environmental and safety standards to be met by the contractor.

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
Unemployment of local labour	Villagers shall not be disadvantaged by the influx of outside workers	<ul style="list-style-type: none"> • Have a Human Resources Policy • Hire local labour as much as possible • Encourage women to work in the Project
Workers intruding on village life and disrespecting traditional cultural values.	Workers shall respect local traditions and culture	<ul style="list-style-type: none"> • Education and orientation of outside workers to local culture and social norms before the start of work • Have an environmental training program for workers
Health issues	Contractor to present a Health Management Plan	<ul style="list-style-type: none"> • The Health Program shall be made available to the communities • Implement a vaccination program • Provide education program on sexually transmitted diseases HIV/AIDS, tuberculosis and other illnesses • Provide periodical health check to construction workers • Implement measures against malaria if applicable
<i>Workers' Camps and Work Sites</i>		
Water supply affecting ecology or village water supply	Camp to provide its own water supply that does not affect village water supply	<ul style="list-style-type: none"> • Any water supply sources should be located so that it does not adversely affect the villages supply • The intake of water from streams for water supplies should leave residual flows in the watercourses • Storage tanks should be used to buffer water supplies
Wastewater discharges affecting water quality	Wastewater to be treated prior to discharge	<ul style="list-style-type: none"> • Sewage disposal methods should be designed to the standards outlined by the Nepalese government
Solid waste polluting the environment and causing health hazards	No waste to be burnt or buried on site	<ul style="list-style-type: none"> • All solid waste shall be removed from site and disposed of at a municipal landfill or at an approved disposal site
Camps using local services and resources, at the expense of villagers	Camps shall not affect local resources, infrastructure, utilities	<ul style="list-style-type: none"> • Locations of camps shall be approved by ESMC and local authorities • Provide adequate housing to outside workers with potable water and proper medical and sanitary facilities • Camps shall be self- sufficient in resources and services • Camps to be secure and discourage workers from leaving the camp

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Village Impacts</i>		
Deterioration of current quality of life and traditional livelihoods	Villagers should have the ability to communicate issues to ESMC, EST, SEO, and Contractors. Villagers have the expectation that issues will be addressed and resolved by negotiation. Meetings shall be undertaken to ensure villager's concerns are recorded and addressed. Villagers shall be adequately informed of all potential hazards to health and safety.	<ul style="list-style-type: none"> • Set up a communication network for discussing issues with ESMC, EST, SEO, Contractors. Complaints should be directed to the ESMC full-time safeguards staff • ESMC to manage a grievance mechanism, and have staff on site at all times to manage grievances • The Contractor's Health Management Plan shall be made available to the communities • Developing village protocol that could serve as a guideline for outside workers • A complaints record shall be kept of all issues raised by villagers in response to construction activities as well as the remedial actions taken and the turnaround time for the response and actions noted
Health and safety risks from such activities as increased traffic, blasting, operation of heavy machinery, etc.; traffic causing safety risks to villagers	Safety risks shall be minimised. Villagers have the expectation that issues will be addressed and resolved by negotiation.	<ul style="list-style-type: none"> • OHS management in Chapter 11
Nuisance issues such as noise, dust and vibration	Nuisances shall be minimised. Villagers have the expectation that issues will be addressed and resolved by negotiation.	<ul style="list-style-type: none"> • Noise management in Chapter 11
Sediment affecting river water uses	Sediment discharges to the river shall be minimized	<ul style="list-style-type: none"> • Erosion and sediment control in Chapter 11
<i>Construction Issues</i>		
Construction of access roads can affect cultivated areas, sensitive areas and cause noise, dust and erosion	New access roads should not disrupt village life and affect ecosystems, and agricultural land	<ul style="list-style-type: none"> • Design and location of access roads shall be approved by a road engineer and ESMC • Follow erosion and sedimentation procedures, and noise and dust procedures as explained below • Avoid constructing access roads in sensitive areas and agricultural land. • Build an appropriate drainage system
Erosion and sedimentation caused by the construction activities	Erosion and sedimentation have to be maintained to a minimum to avoid changes in water flow patterns, loss of productive land, landslides, and destruction of surface vegetation	<ul style="list-style-type: none"> • Protect all areas susceptible to erosion by installing necessary temporary and permanent erosion and sediment control structures. • Conserve as much vegetation as possible • Initiate revegetation after completion of construction works

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
Noise and vibration associated with construction activities, excavation and blasting	Noise must not unreasonably intrude on traditional village life	<ul style="list-style-type: none"> • Keep a current list of all noise and vibration producing machinery • Machinery operation to occur only during designated hours (to be confirmed by Contractor in agreement with villagers) • Blasting to occur at the same time each day, and / or a warning siren should sound prior to blasting • Use of complaints register and procedures to address issues as they arise • Work to be carried out in daylight, in typical working hours • Concrete batching plants and other noisy equipment to be located as far as practical from villages
Dust generation from construction activities	Dust must not cause a hazard or nuisance to village life	<ul style="list-style-type: none"> • Dust generating operations to occur only during designated hours (to be confirmed by contractor in agreement with villagers) • Use of complaints register and procedures to address issues as they arise • Concrete batching plants and other dusty equipment to be located as far as practical from villages
Increased utilization of roads by traffic associated with construction activities	There should be no significant increased risk to local populations from traffic associated with the Project	<ul style="list-style-type: none"> • Road upgrades, including signage, speed humps, re-grading • Wetting of roads to reduce dust during the dry season, and as necessary • Training of locals regarding the hazards of traffic • Training of vehicle drivers regarding the driving risks through villages and along remote roads • Use of complaints register and procedures to address issues as they arise
Pollution risk activities occurring on site	Develop appropriate storage, transport and use practices for storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers. There shall be no solid or liquid waste disposal directly or indirectly to any water course (whether flowing or not).	<ul style="list-style-type: none"> • Keep a current list of all potentially • Contaminating materials used onsite • Develop and implement appropriate storage, transport and use practices to recognized standards • Solid waste disposal shall be taken off site

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Clearing, Revegetation and Restoration of Construction Sites</i>		
Loss of productive land, disturbance of soil profile, loss of habitats for animals. Lack of appropriate compensatory planting at the end of construction or use of non-native species	Clearing activities shall allow the existing usage of land to continue as long as is practicable. Avoid discharging sediments and vegetation material into watercourses cultivated land, an irrigation canals. Initial revegetation of exposed areas as soon as possible.	<ul style="list-style-type: none"> • Clearing shall take place in a phased matter to retain vegetative cover as much as possible • Areas not approved for clearing shall be kept undisturbed and demarcated by construction fencing • Save as much topsoil as possible • Appropriate local native species of vegetation shall be selected for the compensatory planting and restoration of the natural landforms. • Establish a method for timber salvage with participation of local communities • All affected areas should be landscaped and any necessary remedial works should be undertaken without delay including revegetation and reforestation.
<i>Earthworks, Fill Slopes, Cuts, Borrow Pits, Quarries, Disposal Sites, Stockpiles</i>		
Generation of suspended solids from bare ground and runoff into watercourses	Construction activities should not give rise to storm water containing elevated suspended solids. Provide treatment to achieve 75% reduction in suspended solids.	<ul style="list-style-type: none"> • No direct discharge of sediment laden water without treatment • Earthworks and land clearance should be minimized and phased • Storm water should be diverted around exposed areas • Any discharges to watercourses should occur during high flow and / or discharged as close to the outfall as possible to maximize mixing • Stockpiles, borrow pits, quarries, disposal sites should be located at least 50 metres from a watercourse and avoid sensitive areas • Timing of works around the drier seasons where possible • Provision of storm water cut off drains wherever possible
Introduction of invasive species	Fill material should not contain invasive species.	<ul style="list-style-type: none"> • The use of imported fill shall be minimized • Machinery should be cleaned prior to working on site to reduce the opportunity of the spread of weeds
Disturbance of natural habitats for spoil alluvial material.	Soils should be reused where possible in the development – to reduce the need for spoil sites and the need to import fill.	<ul style="list-style-type: none"> • Limit extraction of material to approved and demarcated quarries and borrow pits • Stockpile and reuse soils before excavating new soils / alluvium • Stockpiles should be compacted as much as practical and not be exposed for extended periods • Stockpiles should be reused as soon as practicable • Storm water should be diverted around stockpiles
Efficiency of control measures over time	Control measures should continue to work appropriately throughout the construction period	<ul style="list-style-type: none"> • Earthworks control measures should be inspected and maintained in efficient operating condition over the construction period

Issues	Key Principle / Mitigation Standard	Minimum Mitigation Method
<i>Work in Watercourses</i>		
Sediment discharges arising from working in and near the river	Work in the wetted area of the riverbed should be minimized, and only in relation to the construction of the power house, weir and intake structure or to insert culverts for stream crossings	<ul style="list-style-type: none"> • Stabilize works at the end of each working day and prior to storm events • Do the work during low flow periods • Works shall be minimized • Diversion of the river around the work area where possible • Culverts shall be placed in access tracks where they cross streams more than 3 metres wide and 0.5 metre deep
<i>Tunnels</i>		
Contaminants in water discharged from tunnels during construction	No direct discharges of tunnels water to any water course. Provide treatment prior to discharge to achieve 75% reduction in suspended solids.	<ul style="list-style-type: none"> • Settlement ponds and /or sediment infiltration devices • Monitoring immediately upstream and 50 metres downstream of the discharge with a clarity tube to estimate any effects on clarity; for nutrients to detect explosives residue and for pH • Any discharges to watercourses should occur during high flow and / or discharged as close to the outfall as possible to maximise mixing • Spill kits and emergency procedures should be used for spills of chemicals, fuels and oils and staff trained
<i>Concrete, Cement</i>		
Contaminants in water discharged from concrete manufacturing, including a rise in pH	No direct discharges of concrete batching water to any water course. Provide treatment prior to discharge to achieve 75% reduction in suspended solids.	<ul style="list-style-type: none"> • Settlement ponds and / or sediment infiltration gallery • Monitoring immediately upstream and 50 metres downstream of the discharge with a clarity tube to estimate any effects on clarity; for pH to detect alkali discharges • Any storm water discharges to watercourses should occur during high flow and / or discharged as close to the outfall as possible to maximise mixing • Water to be reused where possible in the process • Procedures for handling of unhydrated cement material and wet cement to avoid spills
Community nuisances	Noise and dust must not unreasonably intrude on traditional village life	<ul style="list-style-type: none"> • Concrete batching plants and other noisy / dusty equipment to be located at least 100 metres from villages
<i>Material Handling, Use and Storage</i>		
Pollution risk associated with the storage and use of fuels, chemicals, explosives, hazardous substances	No oil, lubricants, fuels or containers should be drained or dumped to ground or waterways. Accidental spills shall be minimized, and procedures put in place to clean up the environmental damage.	<ul style="list-style-type: none"> • Keep a current list of all chemical and hazardous substances stored on site • Keep the Safety Data Sheet of all hazardous materials used on site • Develop appropriate storage, transport and use practices to recognized standards • Explosives, chemicals and hazardous substances to be handled by authorized personnel • Diesel to be stored in truck tankers or in overhead tanks to a maximum of 5,000 litres • Diesel to be stored on flat ground and 50 metres from a waterway

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<p>Reduction of air quality due to emission from poorly maintained equipment and vehicles</p> <p>Risk of pollution of vegetation and watercourses due to improper disposal of used lubricants and fuels</p>	<p>Equipment and vehicles shall not reduce air quality. No oil, lubricants, fuels used for the maintenance of equipment should be drained or dumped to ground or waterways. Construction debris shall be disposed at approved disposal sites</p>	<ul style="list-style-type: none"> • Maintain all equipment in good working conditions • Establish spill prevention procedures • Ensure that maintenance activities are carried out in approved areas • Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for debris • Onsite burning of debris and wastes shall be prohibited
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