DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

SUNWAL-HAKUI SUBSTATION SUBPROJECT

Parasi District, Lumbini Province

NEPAL ELECTRICITY AUTHORITY

DISTRIBUTION AND CONSUMER SERVICES DIRECTORATE

DISTRIBUTION SYSTEM UPGRADE AND EXPANSION PROJECT (DSUEP)

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NEPAL

AUGUST 2022

DATE	REVISION	PREPARED	APPROVED

“This Environmental and Social management Plan is a document of the Proponent. The views expressed herein do not necessarily represent those of EIB’s Board of Directors, Management, or Staff, and may be preliminary in nature.”

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ACRONYMS AND ABBREVIATIONS

AIS	Air Insulated Substation
CBOs	Community Based Organizations
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPA	Core Project Area
CSC	Construction Supervision Consultants
DCSD	Distribution and Consumer Service Directorate
DD	Data Deficient
DDR	Due Diligence Report
DHM	Department of Hydrology and Meteorology
DoS	Department of Survey
DSUEP	Distribution System Upgrade and Expansion Project
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMF	Electromagnetic Fields
EPA	Environment Protection Act
EPR	Environment Protection Regulations
ESIA	Environmental and Social Impact Assessment
ESM	Environmental and Social Monitoring
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMU	Environment and Social Management Unit
ESP	Environment and Social Policy
ESS	Environmental and Social Standards
EU	European Union
GHG	Green House Gas
GoN	Government of Nepal
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature and Natural Resources
LC	Least Concern
LPG	Liquid Petroleum Gas
MoEWRI	Ministry of Energy, Water Resources and Irrigation
NEA	Nepal Electricity Authority
NEAEC	NEA Engineering Company

OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
SPA	Surrounding Project Area
SWM	Solid Waste Management

WEIGHT AND MEASURES

%	Percent/ Percentage	LV	Low Voltage
cum	Cubic Meter	m	Meter
dB	Decibel	amsl	Above Mean Sea Level
g	Gram	mm	Millimeter
ha	Hectare	MVA	Mega Volt Ampere
Kg	Kilogram	MW	Megawatt
Km	Kilometer	NRs.	Nepalese Rupees
kV	Kilovolt	oC	Degree Celsius
kWh	Kilo Watt Hour	sq.m.	Square Meter
ltr	Liter		

EXECUTIVE SUMMARY

As required by the Environmental and Social Management Framework (ESMF) of DSUEP for "Category III" Subprojects, this Environmental and Social Management Plan (ESMP) has been prepared for Sunwal-Hakui Substation Subproject. This ESMP documents existing baseline conditions, concerns of local stakeholders, and recommends environmental and social management measures, monitoring and reporting requirements for the Subproject during the preconstruction, construction and operational phases.

The primary environment and social issues identified from the study are as follows:

i. The substation land lies in the Terai region's flat plain area, which is slightly depressed and adjoining the seasonal *Turiya Khola*. An estimated 85,203 cum of spoil is necessary for filling the depressed substation land as a part of land preparation for construction.
ii. During construction phase, issues of dust, noise and solid waste will arise but the impact expected is minimal.
iii. There are no significant biological issues within the Subproject footprint area.
iv. NEA owns the proposed substation land. However, previous titleholders are still cultivating the land and the crops might be affected by construction activities.

The primary mitigation measures proposed for this Subproject are:

i. Local people will be prioritized for employment and construction materials will be purchased from the local market as far as possible.
ii. Boundary wall, retaining wall and embankment work adjoining to *Turiya Khola*, compaction of spoil, adequate drainage system along Parasi Road and sediment control traps and ditches will be constructed to control erosion and inundation.
iii. Income restoration activities (skill development training) along with additional assistance will be provided to the existing land users.
iv. Advance notice of one month will be given to the land users to harvest their crops.
v. Loss of standing crops will be compensated.
vi. Additional financial assistance will be given to the previous titleholders.
vii. Avoidance of child labor, provision of equal wages for men and women, and employment priority to socially backward community are advised.
viii. Preparation and execution of Environmental, health and safety plan by the Contractor is recommended to address occupational hazard and safety related issues.
ix. Use of insulation, guarding, grounding, electrical protective devices, and industry-standard safe work practices are advised.

NRs. 71,18,870.00 is estimated to implement associated E&S mitigation measures and monitoring activities. This ESMP along with DDR is considered sufficient to meet the environmental and social requirements for the Subproject at present design conditions.

1. INTRODUCTION

1.1 Project Background

The proposed Distribution System Upgrade and Expansion Project (DSUEP) is expected to enhance and expand the electricity distribution system to improve the reliability (voltage level and reduction in power loss) and coverage of electricity supply in the Sudhurpaschim, Karnali and Lumbini Provinces. Upgradation of system efficiency and expansion of coverage area will improve quality of life in the region, enhance economic activities, and reduce dependency on petroleum and wood fuel. DSUEP will expand distribution lines of 33kV and 11kV in the three provinces as part of Government of Nepal (GoN)'s program "to achieve affordable electricity fulfilling the demands at the local levels for all the households by 2022".

The European Investment Bank (EIB) has provided loan finance to 13 Subprojects under DSUEP. Of these 13 Subprojects, based on the geographical locations, NEA has clustered nine Subprojects in six districts of Lumbini Province, and five Subprojects in three districts of Sudhurpaschim Province. The project will construct 13 new 33/11kV substations, and 133 km long 33kV distribution lines along with the installation of transformers.

The Sunwal-Hakui Substation Subproject (hereafter referred to as "the Subproject") is one of the 13 Subprojects being constructed under DSUEP. The Subproject is located in Parasi district; approximately 246 Km through Prithivi Highway and East-West Highway in southwest of Kathmandu.

1.2 Scope of ESMP

Within the Environmental and Social Management Framework (ESMF) of DSUEP, the scope of ESMP is to identify environmental and social issues (including potential impact of the Subproject), recommend measures for environmental and social management, and recommend monitoring and reporting requirements for the Subproject.

Specifically, the construction of 33/11kV substation (including guardhouse, staff quarter, office building, control building inner service road & drainages facilities, storage yards) is within the scope of ESMP. The scope does not include the construction of 33kV distribution line for this Subproject.

1.3 Objectives of ESMP

In accordance to the EIB's safeguard standards and GoN's legislative requirements, the objective of the ESMP is to recommend a structured list of actions to maximize the positive impacts and avoid/minimize the negative impacts of the Subproject. The objectives of this ESMP are to;

- Document the indicators of existing physical, biological, and socio-economic environmental components of the Subproject impact area.
- Document the concern of local stakeholders and address them as appropriate.

- Identify, predict, and assess the potential adverse and beneficial environmental impacts of the Subproject during preconstruction, construction, operation and maintenance phases.
- Recommend environmental and social mitigation measures to enhance positive impacts and avoid/minimize negative impacts of the Subproject.
- Recommend monitoring plan, institutional arrangement, and suggest capacity-building activities for the effective implementation of ESMP.

1.4 Description of Subproject

General and technical features of the Subproject are presented briefly in the following table.

Table 1-1: Technical Description of the Proposed Subproject

Description	Features
Proponent	Nepal Electricity Authority
Project	Distribution System Upgrade and Expansion Project (DSUEP)
Subproject	Sunwal-Hakui Substation Subproject
Funding Agency	EIB
Project Location	Ramgram Municipality, Parasi, Lumbini Province
Substation	
Location	Ramgram Municipality 16, Hakui, Parasi
Land Ownership	Owned by NEA
Voltage Level	33/11kV
Substation Capacity	8 MVA
Number, and Capacity of Transformer	1 no., 6/8 MVA
Type of Transformer	3 Phase, ONAN, Mineral Oil
Type of Substation	AIS (33kV), and Indoor (11kV)
Number of 33kV Line Bays	1
Number of 33kV Transformer Bays	1
Number of 11kV Feeders	4
Approximate Area of Substation	25,651.29 sq. m. (2.565 ha)

Source: Feasibility Study Report, 2021

1.4.1 Location of Subproject

The Subproject lies in Ramgram Municipality, Ward-16, of Parasi District of Lumbini Province. The Substation area lies at latitude 27°30'59.29"N, longitude 83°36'11.89"E.

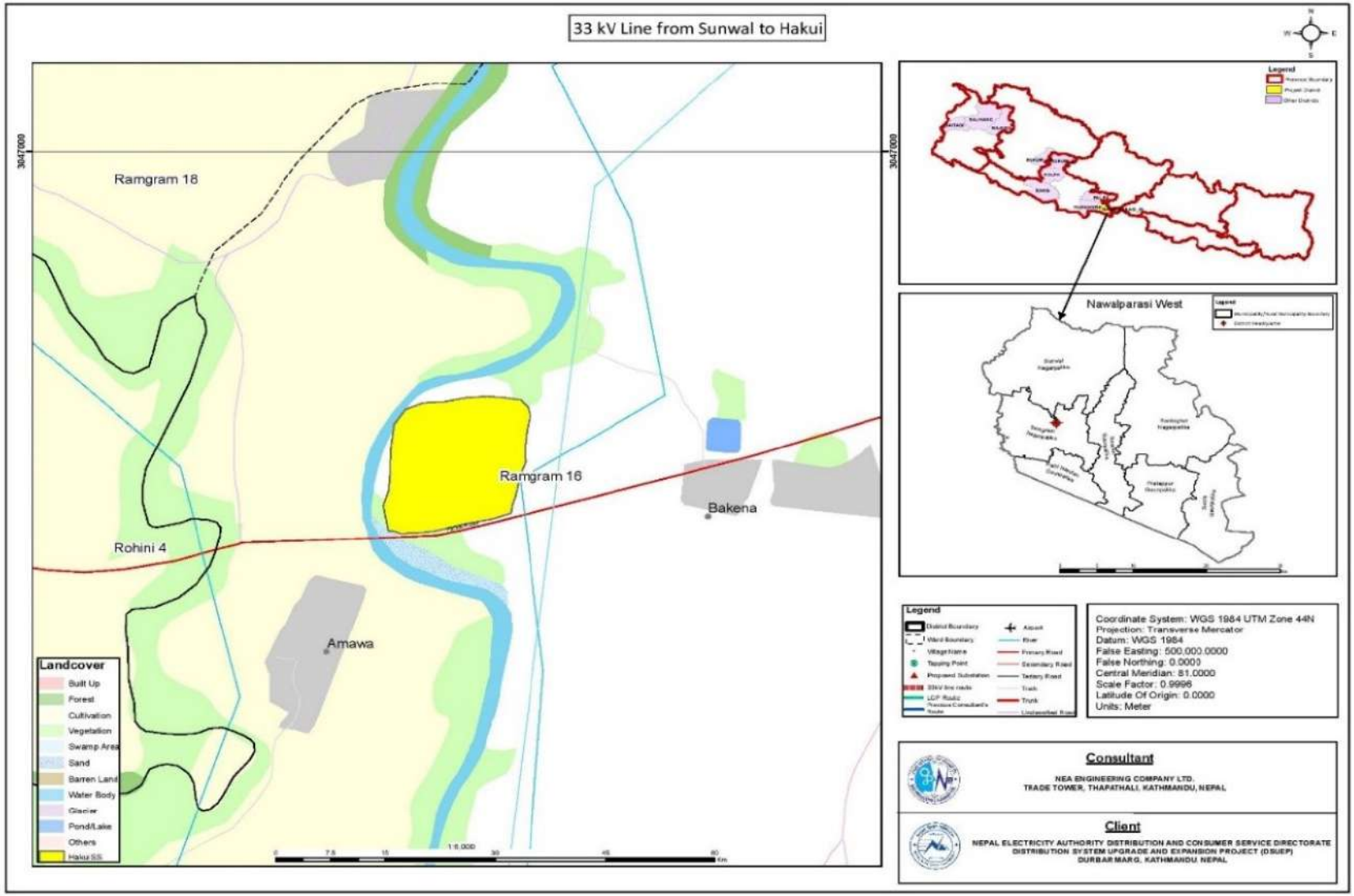


Figure 1-1: Layout and Location Map of Subproject

Source: Digital Data from Department of Survey, 2021 and Field Study, 2021

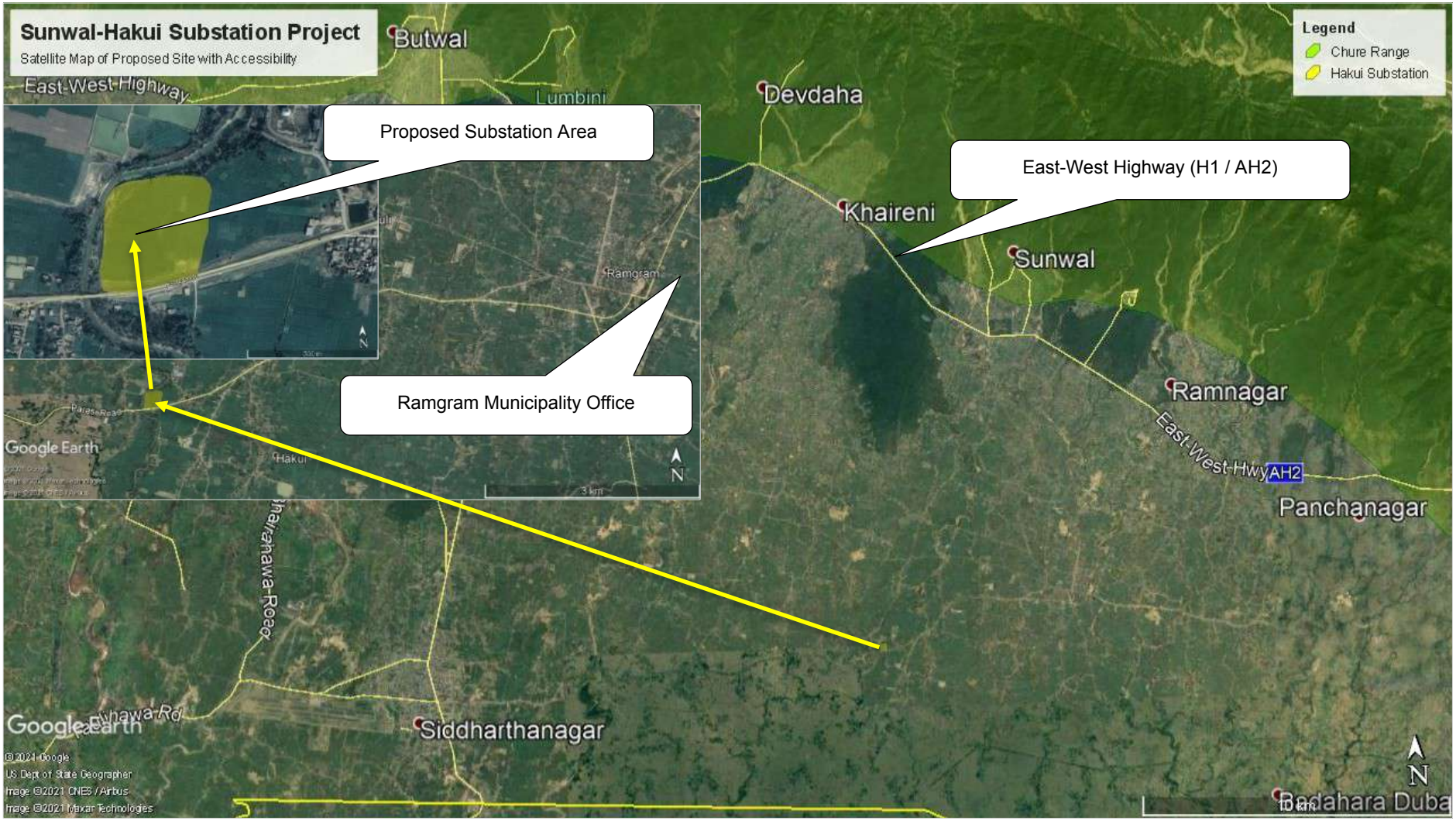


Figure 1-2: Bird-Eye View of Subproject in Satellite Map

Source: Google Map, 2021 and Field Study, 2021

1.4.2 Accessibility to the Subproject Site

The Subproject site is approximately 246Km through Prithivi Highway, Narayanghat-Mugling Highway, and East-West Highway in south-west of Kathmandu. It is easily accessible from Sunwal (a town - nearly 230 kilometers from Kathmandu – along the East-West Highway) through Sunwal-Parasi Road (F9) to Ramgram (9Km distance), and then through Parasi Road (F130) at a distance of 7Km from Ramgram up to the proposed substation.

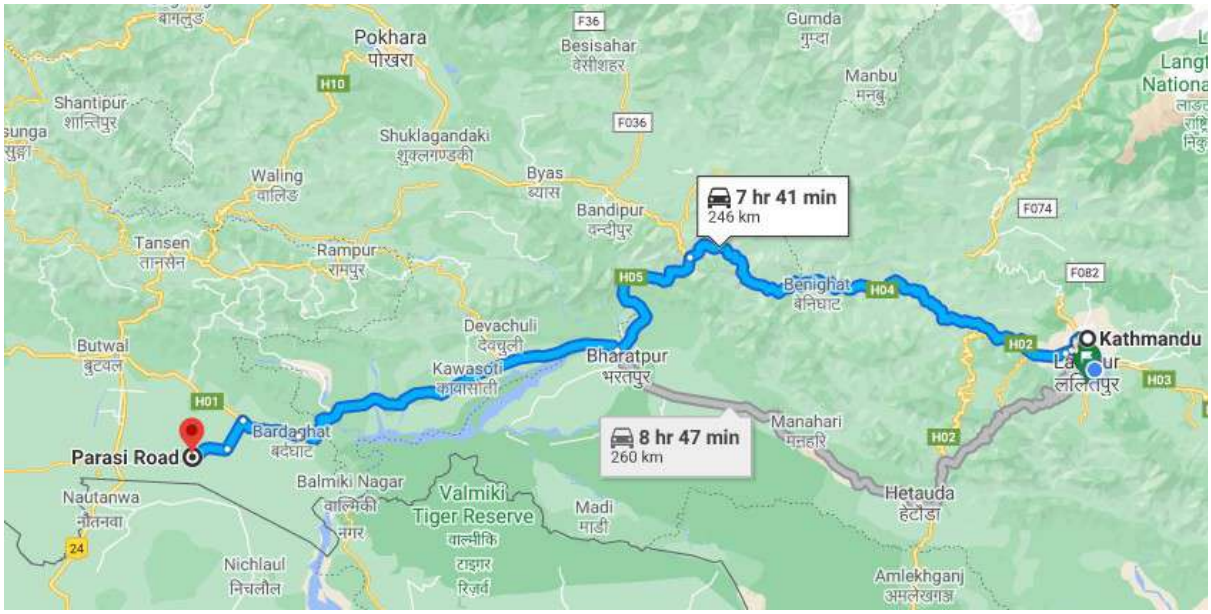


Figure 1-3: Accessibility to the Proposed Site

Source: https://maps.google.com/ on 2/13/2022

1.4.3 Subproject Components

Major component of the Subproject is 33/11 kV substation. The structures of the Subproject are briefly described below.

Substation

The proposed substation 33/11 kV is of capacity 24 MVA. The major component of the substation is power transformer, which is supported by the switchgear components and Civil Structures. Map, layout, pictures of substation components and other facilities are shown in ANNEX 1.

Transformers: Transformer is the major component of the substation. Power Transformers are used for 33/11 kV substations. These transformers are mineral oil based with ONAN/ONAF (Oil Natural Air Natural/Oil Natural Air Forced) cooling mechanisms. In existing practice, the transformers used for 33/11 kV substation in Nepal are typically of 1 MVA, 3 MVA, 8 MVA and 16 MVA depending upon the load supplied by the substation. This Subproject comprises of power transformer of 8 and 16 MVA ONAN type.

Electrical Switchgear: Electrical Switchgear comprises of equipment including Circuit Breaker, Earth Switch, Current Transformer, Potential Transformers installed in the substation. Electric Switchgear facilitates power conversion.

Civil Structures: A control building will be constructed for operation of the substation. It houses the operating station, along with battery systems. Guard House and Staff Quarter will also be constructed for smooth operation of the substation.

Switchyard, Boundary, Roads, Drainage and Essentials: The outdoor civil structure in the proposed substation includes the boundary wall, main entrance gates and Switchyard. The power transformer and components of power system are laid in the switchyard based on the prudent engineering practice. Steel structures are used to support the components as per requirements. Roads are paved within the boundary as essential for the transport of power transformer and other components. The substation location also serves as site store for storage of distribution system components.

1.4.4 Construction Work and Resource Requirement

- The substation land proposed (2.565ha) has already been acquired by NEA (refer to ANNEX 2 for land ownership certificate).
- During the implementation of Subproject, nearly 41 people will be deployed for construction works on daily basis.
- The major equipment used are Excavator (1), Roller (1), Drilling Machine (1), and Crane (1).
- For construction power, 1 Grid Supply- 120kVA Distribution Transformer and 2 Diesel Generators (50kVA each) as alternate supply will be required.
- The construction schedule is estimated to be 24 Months after awarding the tender.

1.4.5 Major Construction Activities in the Subproject

i. **Preconstruction phase**: The activities to be carried out before the construction phase are:
   - Demarcation of proposed substation land area
   - Receive public opinion
   - Permanent clearance of the substation land

ii. **Construction phase**: The activities to be carried out during the construction phase are:
   - Transportation of construction materials
   - Leveling of land area for the proposed substation
   - Construction of substation structures
   - Installation of equipment

iii. **Operation phase**: The activities to be carried out during the operation phase are:
   - Operation of the Substation
   - Maintenance of Substation facilities and equipment.

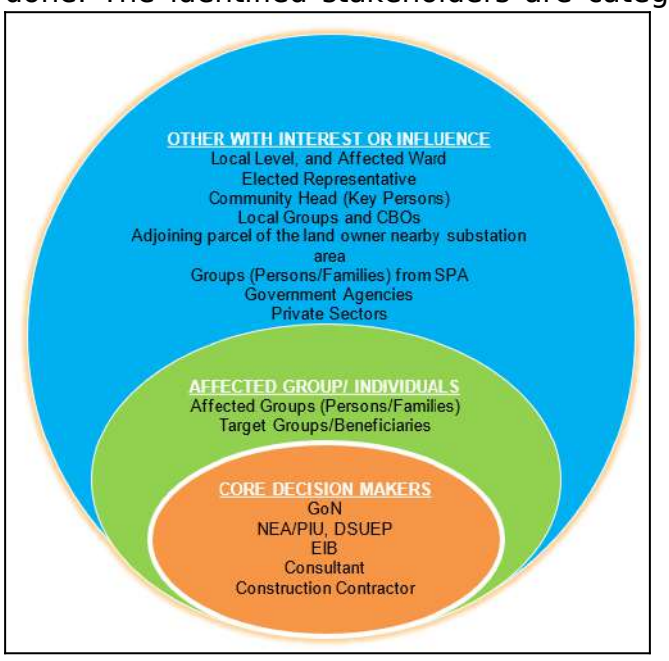
1.5 Legal Requirement for ESMP

Based on the Environmental Screening Criteria and Social Screening Criteria defined in ESMF of DSUEP, "Environmental and Social Screening Report of Sunwal-Hakui Substation Subproject" concluded that this Subproject requires preparation of ESMP along with DDR.

1.6 Methodology and Approaches of ESMP Preparation

Following methodology and approaches were adopted to prepare this ESMP.

1. **Review of Literature:**
   The study started with the review of previous relevant reports, EIB's Environmental and Social Safeguard documents, ESMF for DSUEP and SES (NEA), feasibility study reports, and relevant social safeguard documents prepared by the NEA and consultant.
2. **Site Inspection and Field Visit:**
   After approval of inception and screening report, ESMP study team visited the site (refer to ANNEX 3 for field photographs) from 2078/06/05 to 2078/06/12 (21-28 September 2021). The necessary baseline data/information of physical, biological, socio-economic, and cultural environment was collected through site observation, testing (air/noise/water[1]), walk-through survey, consultative meeting/discussion with concerned stakeholders within the Subproject footprint area.
3. **Stakeholder Identification:**
   Prior to stakeholder consultation, stakeholder identification and analysis were done. The identified stakeholders are categorized in following three groups **(**



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[1] *The air quality data was monitored by Temtop Airing-1000 PM Detector, noise by UNI-T UT 353 Mini Sound Meter (dB) and water quality by EXTECH ExStik II DO600.*

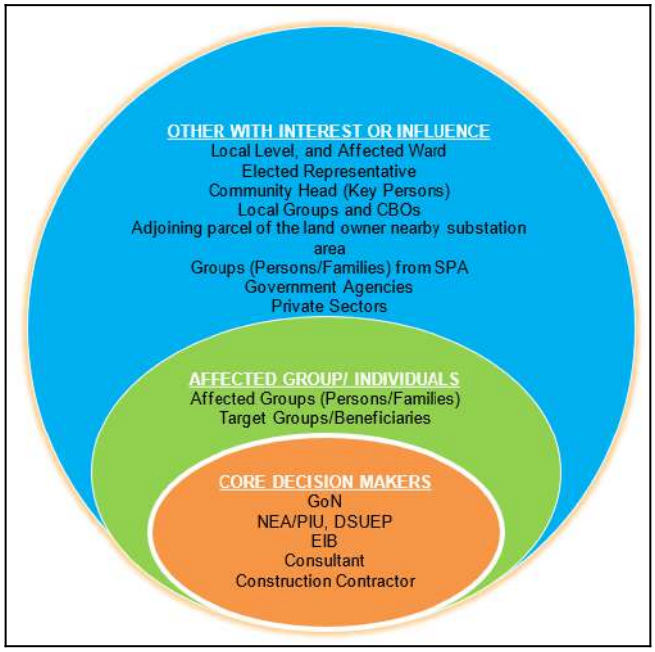


Figure 1-4: Identified Stakeholder from Identification Process[2]

4. Public Consultation:

Local level stakeholders including the land users were notified through a notice (**ANNEX 4**) from NEA consisting of objectives of consultation, venue, and time requesting their presence in the consultation meeting. The notice was pasted in Ward office and proposed substation area. The proof of notice pasting is attached in **ANNEX 5**. The consultation meeting was conducted at the Bakenawa, Ramgram Municipality-16 on 2078/06/07 (23 September 2021). Hard copies of Subproject features and activities in Nepali language were shared at the time of consultation. Each of the components, activities and possible environmental-social issues during Subproject implementation was briefed. The views/consent, concerns, recommendations/suggestions, and demands of the participants were documented in the form of minutes. The summary of consultation meeting minutes is given in table below and the copy of minutes is attached in **ANNEX 6**.

Table 1-2: Summary of Issues, Comments and Suggestions Received

Date	Location	Participants	Points from the Minutes
2078-06-07 (23rd	**Ramgram Mun. -16, Bakenawa**	Stakeholders Female: 5 Male: 8 Study Team:5 Total: 18	The experts from NEA Engineering Company briefed us about the Subproject.
			The experts from NEA Engineering Company briefed us about the Subproject.
			Though we have electricity in our area, we are facing problem of voltage drop. Therefore, we demand quick implementation of this project.
			We inform that NEA has already acquired the land of proposed Substation.
			However, we (previous land titleholders) are cultivating the land; we happily express our consent to stop

[2] *Referenced Meaningful stakeholder engagement: a joint publication of the MFI working group on environmental and social standards / Reidar Kvam, PP-19, 2019. (Retrieved from https://publications.iadb.org/publications/english/document/Meaningful_Stakeholder_Engagement_A_Joint_Publication_of_the_MFI_Working_Group_on_Environmental_and_Social_Standards_en.pdf, January 2022) for stakeholder mapping process.*

Date	Location	Participants	Points from the Minutes
September			cultivation once the project informs us of the start of construction of the Subproject.
			We (local people and stakeholders) express our commitment to fully support to the construction of the Subproject.
			We inform that there will not be any negative impact to the culture and livelihood of Tharu/Chaudhary, Muslims, Janajati and other community by the construction of the Subproject.

Source: Field Study, 2021

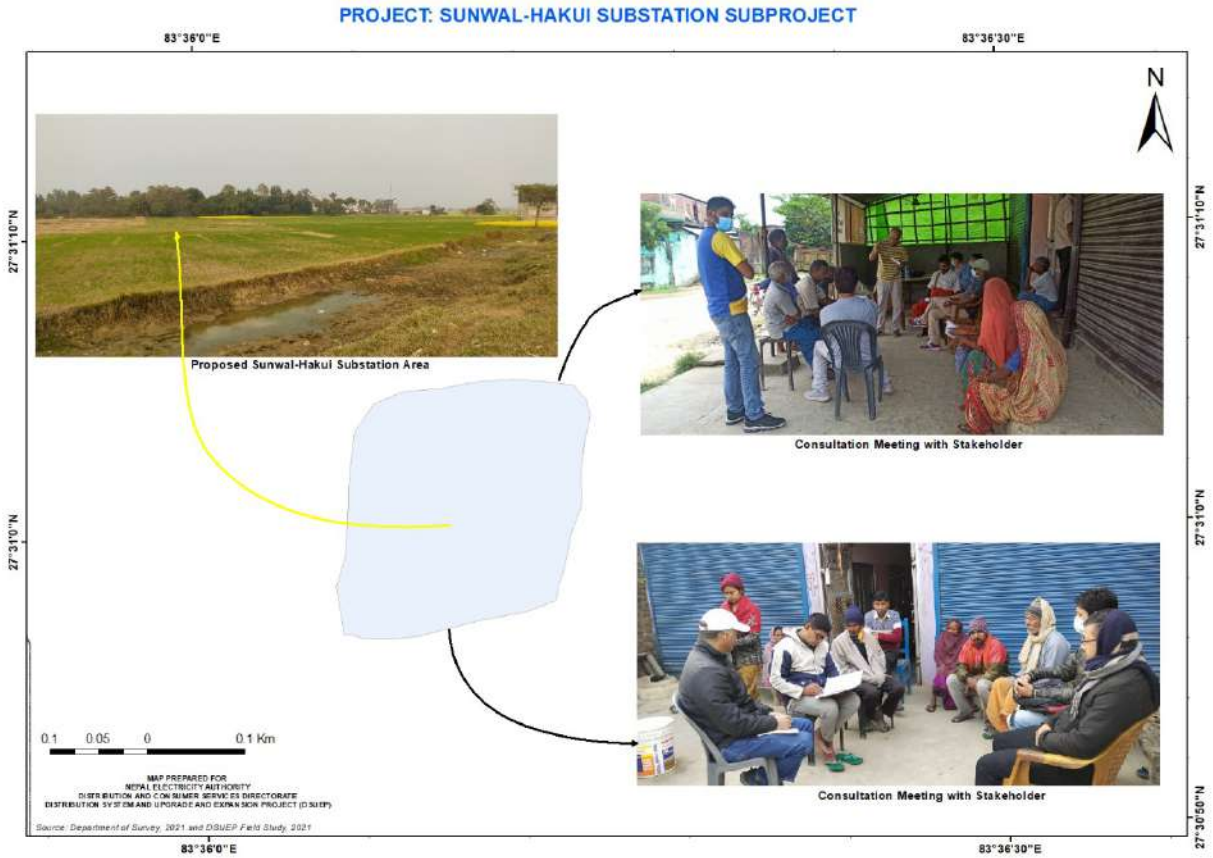


Figure 1-5: Consultation with Stakeholders and Communities in the Subproject Area

Source: Digital Data from Department of Survey, 2021, World Base Map, 2021 and Field Study, 2021

5. Third Party Verification:

The DSUEP Project had requested the Ward offices of concerned local level for the verification of consultations undertaken by study team during the field visit. The Ward chairperson[3] had made recommendations the DSUEP Project with

[3] *Ward is the bottom level unit under Government of Nepal. The Ward Chairman is an elected representative of ward responsible for planning and budgeting at ward level, collecting and maintaining data of households, maintaining records of public property, conducting child and environment-friendly programs, carrying out market monitoring and ensuring smooth*

letters that the needful and meaningful consultations have been undertaken during the project consultation and the views of local people are recorded as evident in the minutes annexed (**ANNEX 6**) in this report.

6. **Data Analysis:**

All potential subproject impacts on physical, biological, socio-economic and cultural resources were integrated and assessed using best practices of Multilateral Development Banks, as well as compliance with national requirements. The Geographic Information System and SW Maps were used for the field assessment and analysis of the Subproject area data and presentation of the maps in the ESMP report.

7. **Impacts Identification, Prediction and Evaluation:**

After field visit, the data, and feedback were put together to identify the associated impacts, their magnitude, extent and duration which was further ranked based on matrix of National EIA Guidelines – 2050 (Table 1-3: Impact Ranking Matrix as per National EIA Guidelines - 2050). Based on impact ranking, their respective mitigation measures were proposed.

Table 1-3: Impact Ranking Matrix as per National EIA Guidelines - 2050

Magnitude	Score	Extent	Score	Duration	Score	Significance	Score
High	60	Regional	60	Long Term	20	Insignificant Impact	<44
Moderate	20	Local	20	Medium Term	10	Significant Impact	45-74
Low	10	Site Specific	10	Short Term	05	Very Significant Impact	>75

8. **Report Preparation:**

The draft report was prepared after incorporating all the comments and suggestions obtained from local stakeholders based on field assessment, impact identification, prediction and evaluation.

9. **Disclosure of ESMP Report:**

The final ESMP report will be disclosed on NEA and EIB's web portal. At affected local level, ESMP reports will be shared with concerned local level (municipality) along with Ward office for disclosure to the authorities and stakeholders.

1.7 Classification of Impact Area

The National Environment Impact Assessment Guidelines (GoN, 2050) has defined the "Core Project Area", and "Surrounding Project Area" based on proximity and magnitude of the impacts due to construction and operation of the proposed project. For the scope of this ESMP impact area has been classified as:

Core Project Area: Core Project Area (CPA) refers to the permanent and temporary land used for the proposed Subproject construction activities. CPA is considered the project footprint area and is highly impacted.

Surrounding Project Area: Immediate vicinity of the project footprint location of the proposed Subproject site is considered the Surrounding Project Area (SPA). SPA is considered a moderate and indirect impact area. For this Subproject, whole area of the concerned Ward is defined as SPA.

supply of essential goods and services, issuing letter of recommendation and certifying various documents related to personal incidents, land, house, citizenship, etc.

2. EXISTING ENVIRONMENTAL CONDITIONS

2.1 Physical Environment

1. Topography, Geomorphology and Land Use

The Subproject area is located in the Southwestern region at the foothill of the Chure region in Parasi District of Lumbini Province. It is situated at 27°31'0.35"N latitude, and 83°36'9.32"E longitude, with an elevation of 111 meters above mean sea level (amsl).

Geomorphologically, the area is located in depressed land in the flat Terai Region, which is made up of sediments of Quaternary to Recent deposit. A seasonal river (*Turiya Khola)* flowing towards the South surrounds the Substation area from North and West sides while Parasi road passes through the Southern side. There is agricultural land on the Eastern side.

2. Erosion from Flooding

According to the flood vulnerability classification of Parasi District, the proposed Subproject area comes under the moderate flood vulnerability region[4].

Figure 2-6: Proposed Site, and Nearby Hydrological Feature

The adjoining seasonal river *Turiya Khola* is meandering and seasonal in nature. The proposed site is depressed with respect to *Turiya Khola* and the road. Therefore, there is a high chance of flooding during the monsoon.

3. Climatic Condition

The proposed Subproject area belongs to the lower-tropical climatic zone. As there is no meteorological station within the Subproject area, data recorded at the nearest station, i.e., Bhairahawa Airport was taken as reference. The minimum temperature recorded is 8.88°C in January, while the maximum

[4] *https://un.info.np/Net/NeoDocs/View/6759, Retrieved on 29/05/2021.*

temperature recorded is 36.86°C in April (DHM, 2021). The area receives the highest rainfall in July. The summer monsoon is prevalent from May up to September. The average rainfall is 1,566.65 mm.

4. Air and Water Quality, and Noise Level

The major air polluting sources recorded are industry emission, vehicular emission and dust problem from plying of vehicles. Noise polluting sources noted at the time of field study are similar with the air polluting sources. The air quality of the CPA was found within the range of national ambient air quality standard while average noise level at substation was found above noise quality standard. Following table shows the real-time quality of air and noise level during field study.

Table 2-4: Ambient Air and Noise Quality Parameter Measurement

SN	Location/ Chainage	**Air Quality**[5]-*Temtop Airing-1000 PM Detector (µg/m³)*					**Noise Level** -*UNI-T UT 353 Mini Sound Meter (dB)*		
		PM 2.5	***Level***	***PM 10***	***Level***	***Average Time of Measurement***	***Measured***	***Ref.***[6]	***Area***
1.	Substation	*63.7*	100	89.2	200	1-hour	68.4	55	Urban Residential Area

Source: Field Visit, 2021

The water quality of the *Turiya Khola* (stream) was found to be within the limit of acceptance for the aquatic life in the stream as per Nepal Water Quality Guidelines for the Protection of Aquatic Ecosystem.

Table 2-5: Physical Parameter of Water of Turiya Khola

SN	DL/SS	Name River	Flooding width Left-Right (m)	Distance from River/ Stream	**Parameter-** *EXTECH ExStik II DO600*					
					Temp. *(°C)*	***Ref.***[7]	***pH***	***Ref.***	***EC*** *(µc/cm)-*	***Ref.***
1.	Substation	Turiya Khola	35	Adjoining	32.1	*<40° C*	6.1	*5.5 - 9.0*	912	*1500*

Source: Field Visit, 2021

5. Geology and Seismic Risks

The Subproject site is composed of Quaternary to Recent alluvium deposit. It consists of alluvium boulders, gravels, sands and clays, which are loosely deposited and uncemented.

[5] *National Indoor Air Quality Standard, 2009*
[6] *National Ambient Sound Quality Standard, 2012*
[7] *Nepal Water Quality Guidelines for the Protection of Aquatic Ecosystem, 2019*

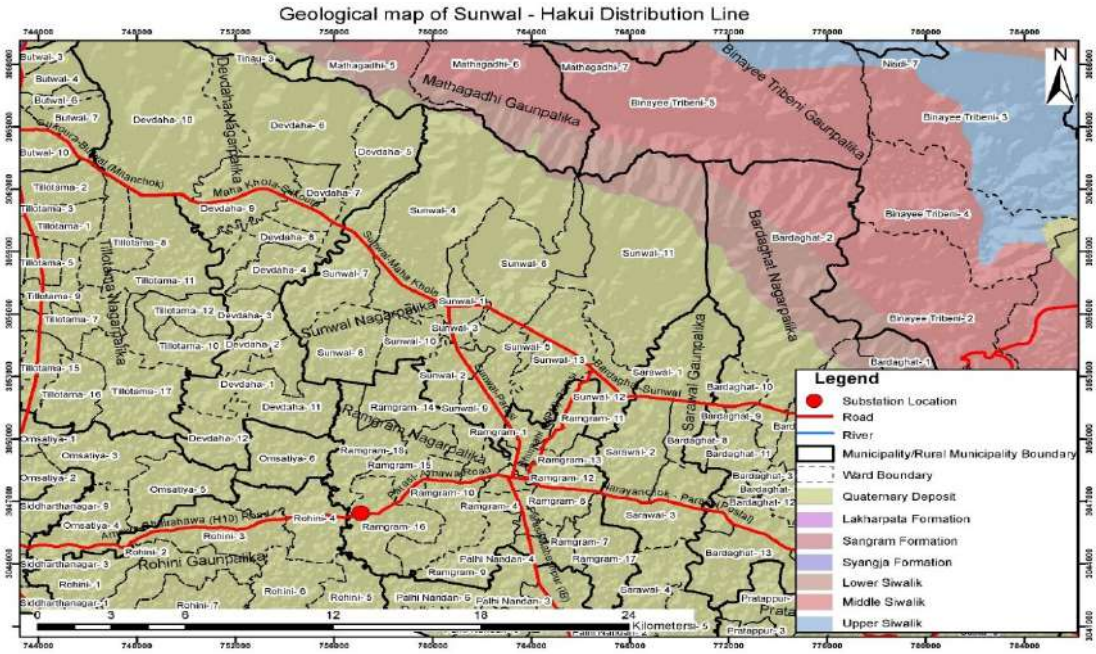


Figure 2-7: Geological Map of Proposed Project[8]

The seismic hazard map shows that the horizontal seismicity coefficient of the Subproject area is 100gal, which is equal to 0.06g. The seismic information shows that the site is less susceptible to earthquake hazard.

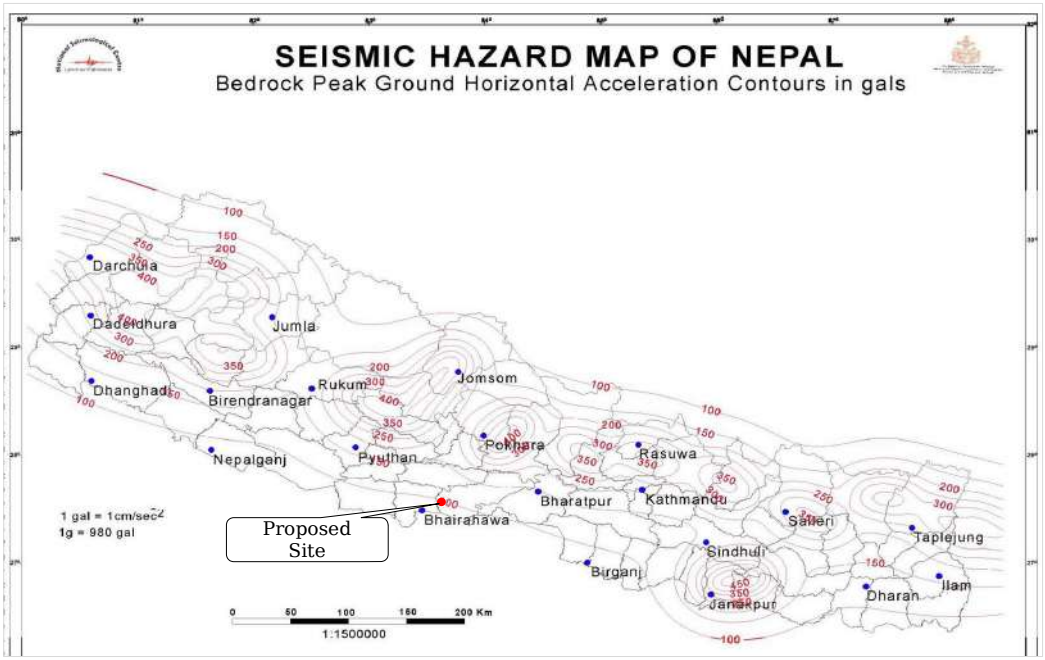


Figure 2-8: Seismic Hazard Map of Nepal Showing Proposed Project Site[9]

6. Solid Waste Management

The proposed Substation lies in semi-urban area. The waste was found littered in front of houses, shops and business area near substation and Ramgram Bazar

[8] *Department of Survey (DoS) 2020*

[9] *Department of Mines, and Geology, http://seismonepal.gov.np/publications, Retrieved on 2078/03/06(6/20/2021)*

areas. The nature of waste comprised of plastics (bottles, bags and packaging), textiles, and metal cans. Organic waste was observed littered in few areas. People nearby the substation area have been practicing decomposition of biodegradable waste within the household premises. They sell the recyclable waste (for large quantity) to the scrap collector.

2.2 Biological Environment

The Subproject lies in lower tropical bioclimatic zone (less than 500amsl). The proposed Subproject site does not lie within any protected areas and ecologically sensitive areas. The site is 26.40Km far from the nearest protected area, i.e., Chitwan National Park.

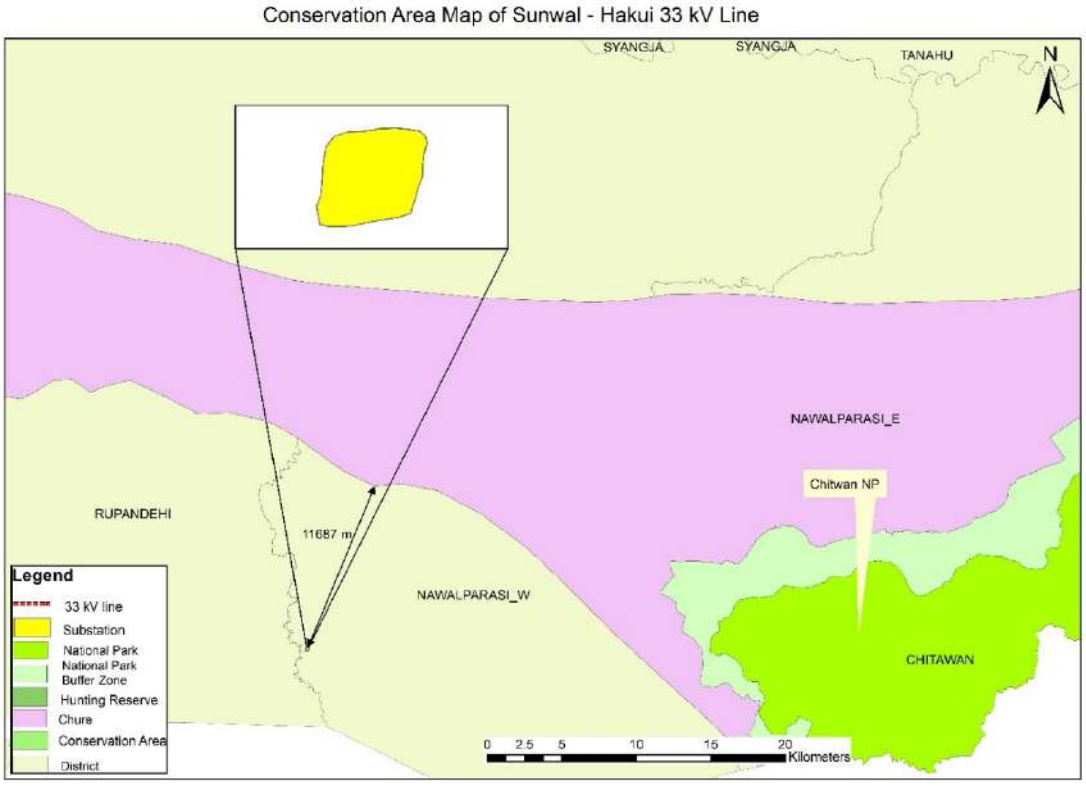


Figure 2-9: Location of Subproject area with respect to Nearby Protected Areas

During field visit, ten species of birds were recorded at project site, and its peripheral area.

Table 2-6: List of Birds recorded within the Project Area

S.N.	Common/ Local Name	Scientific Name	GoN	IUCN	CITES
1.	Ghar Kaag (House Crow)	*Corvus splendens*		LC	
2.	Dangre (Jungle Myna)	*Acridotheres fuscus*		LC	
3.	Gauthali (Swallow)	*Hirundo rustica*		LC	
4.	Dhukur (Spotted Dove)	*Streptopelia chinensis*		LC	
5.	Chil (Black Kite)	*Milvus migrans*		LC	II
6.	Bhangera (House sparrow)	*Passer domesticus*		LC	
7.	Jureli (Black Bulbul)	*Hypsipetes leucocephalus*		LC	

S.N.	Common/ Local Name	Scientific Name	GoN	IUCN	CITES
8.	Suga (Rose-ringed parakeet)	*Psittacula krameri*		LC	
9.	Fisto (Common tailorbird)	*Orthotomus sutorius*		LC	
10.	Parewa (Pigeon)	*Columba livia*		LC	

Source: Field Visit, 2021
Note: Least Concern (LC)

A total of seven species of herpetofauna were recorded during field visit, which includes five species of reptiles, and two species of amphibian.

Table 2-7: List of Herpetofauna Found in the Project Area

S.N.	Common/ Local Name	Scientific Name	GoN	IUCN	CITES
1.	Karet sarpa (Common Krait)	*Bungarus caeruleus*		LC	
2.	Chhipkali (Common House Gecko)	*Hemidactylus frenatus*		LC	
3.	Goman (Indian Cobra)	*Naja naja*		LC	II
4.	Chheparo (Oriental Garden Lizard)	*Calotes versicolor*		LC	
5.	Paani sarpa/ Water Snake	*Xenochrophis sanctijohannis*		LC	
6.	Bhyaguta (Asian Common Toad)	*Duttaphrynus melanostictus*		LC	
7.	Bhyaguta (Indian Bullfrog)	*Hoplobatrachus tigerinus*		LC	II

Source: Field Visit, 2021
Note: Least Concern (LC), and Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.

2.3 Socio-Economic, and Cultural Environment

The Subproject site lies in Ward 16 of Ramgram Municipality. According to the municipal profile of Ramgram Municipality[10], total population of this municipality is 59,455 living in 10,855 households. Total male population is 29,132, and female population is 30,323. The population density of this municipality is 825 per sq. Km. The total population of Ward 16 is 6,627 among which 3,185 are male, and 3,442 are female living in 1,096 households. The majority ethnic composition nearby the Subproject area are from Tharu/Chaudhary along with Chhetri/Brahmin. Similarly, the main occupation of people in the area is agriculture based with nearly 80% contribution followed by small trade and business/enterprises and services.

The major health issues found are headache, Backache, Upper Respiratory Tract Infection (URTI), Presumed Non-Infectious Diarrhea, Fungal Infection, Gastritis,

[10] *https://ramgrammun.gov.np/en/node/40, Retrieved on 2077/01/21 (04/05/2021).*

ARI/Lower Respiratory Tract Infection (LRTI), Refractive Error, Conjunctivitis, and cataract. The nearest and easily accessible health facility is at Bhairahawa located at 23–30 minutes driving distance.

The Substation area is under NEA entitlement and it does not consist of private or public property, which needs relocation. Nevertheless, still, previous titleholders (from whom NEA purchased the land) are cultivating the land. There will be chance of loss of agricultural crops. However, the users have agreed to stop cultivating crops (Table 1-2 and **ANNEX 6**) once the Substation construction starts. The physical activities proposed for the Subproject (substation) construction will not require land acquisition and resettlement.

3. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS, AND MITIGATION MEASURES

This chapter identifies the possible environmental and social impacts in the Subproject site that will arise during the construction and operation phase. All the relevant environmental and social impacts associated with this Subproject are sequentially illustrated in subsequent sub-headings along with their mitigation measures.

3.1 Beneficial Impacts

A. Construction Phase

1. Increased Economic Opportunities for Local People

Impacts

Altogether, about 41 people (2 Engineer, 4 Supervisor, 5 Foreman, 5 Skilled Lineman/Electrician, 15 Labor and 10 Helper) will be deployed in the normal day basis during construction phase for construction of 33/11kV substation over the implementation period of 24 months. It will create employment for local people as well. Working together with technical experts, local people will be able to enhance their technical skills in construction work. The construction activities require different construction materials like aggregate, sand, cement, steel, etc., which can be supplied from local market.

Impact Rating: Very Significant (Table 3-1)

Augmentation Measures

- While employing work force, local people within the Subproject area will be given priority based on qualification and skills.
- The construction material, if available, shall be brought from the locally available legally operating market near Ramgram.

B. Operation Phase

1. Enhancement in Rural Electrification

Impacts

Intermittent tripping and voltage drop problem nearby the area will be reduced. The local economy will benefit through improved reliability of electricity supply,

which is a necessary condition for economic growth. Different industries within/nearby the proposed subproject area will be established. It will promote the use of new types of home appliances, use of electric motors for irrigation, and establishment of small and large industries.

Impact Rating: Very Significant (Table 3-1)

Augmentation Measures

- Proper and timely maintenance of the Substation will be done to maintain reliable power supply.

2. Reduction in Green House Gas (GHG) emissions

Impacts

Net Green House Gas (GHG) emissions resulting from the subproject area are expected to decrease as the distribution lines will improve and expand electricity supply which will trigger change in energy use pattern to electricity from GHG emitting traditional sources like Guitha (made from cow dung), firewood and timber along with Kerosene for cooking/lighting, heating and diesel for water pumping.

Impact Rating: Very Significant (Table 3-1)

Augmentation Measures

- Proper and timely maintenance of the Substation will be done to maintain reliable power supply so that people will keep continuing the use of electricity.

3.2 Potential Adverse Impacts

1. Physical Environment

A. Construction Phase

1. Impact due to Erosion from Flooding

Impacts

The proposed site lies adjoining *Turiya Khola,* is depressed and shall be filled up as part of ground preparation for construction. The site is susceptible to high erosion from flooding during the rainy season as it might erode the surface layer of filled spoil.

Impact Rating: Insignificant (Table 3-1)

Mitigation/Enhancement Measures

- A boundary wall will be constructed before filling the depressed area up with spoil. This will also help in restricting river floods entering into the substation area during the monsoon season.
- Adequate site drainage system along Parasi Road side will be constructed around stockpiled materials, campsites and the foundation work area.
- Embankment management in Turiya Khola along Substation boundary.
- Spoil filled within the substation boundary will be compacted through simultaneous sprinkling of water and compaction from the roller.

2. Impact due to Air and Noise Pollution

Impacts

The impact on air quality during the construction period is expected to be insignificant, as site clearance, excavation, haphazard stockpiling of construction materials, waste burning at campsites and equipment installation are localized and short term. Transportation of the materials and movement of construction

crews and equipment will cause minor impact on air quality. Construction-related noise will be limited to vehicular movement and inside-the-fence construction activities at substation sites; construction related noise is not expected to exceed acceptable levels.

Impact Rating: Insignificant (Table 3-1)

Mitigation/Enhancement Measures

- Contractors' vehicles and equipment should meet Nepali vehicle emissions standards.
- Dust emission will be controlled with water sprays on earthen roads nearby settlements in substation area.
- Open burning of wastes should be strictly prohibited.
- Construction workers should use face masks at all times.
- All dust generating loads carried in open trucks should be covered.
- Contractors shall monitor noise during the construction as well as use the standard construction equipment.
- Personal Protective Equipment (PPE) such as earplugs, earmuffs, etc. shall be provided to the workers in high noise areas.

3. Impact due to Spoil Filling

Impacts

As substation ground level is very low, filling of spoil will be necessary in huge quantity i.e., nearly 85,203 cum. This might cause adverse impact to the nearby receiver environment if not properly managed.

Impact Rating: Insignificant (Table 3-1)
Mitigation/Enhancement Measures

- Spoil required for filling will be purchased from the nearby authorized burrowing sites under local government.
- Spoil shall be covered with tarpaulin while transporting from borrowing areas to the substation.
- Simultaneous water sprinkling and compaction of spoil shall be done using the roller.

4. Impact due to Solid Waste

Impacts

The waste generated during construction within the subproject area are cement bags, iron bars, and other leftover construction materials, and waste generated in the labor camp. Biodegradable wastes generated from labor camp may give foul smell, and attract rodents. It will cause adverse impact, if not properly managed.

Impact Rating: Insignificant (Table 3-1)
Mitigation/Enhancement Measures

- Source segregation of organic and inorganic wastes in different storage areas or facilities in the designated location shall be done.
- Waste generated from the campsite shall be properly managed without littering to nearby *Turiya Khola*, and other open ground outside the substation boundary.
- The biodegradable waste generated from the campsite shall be managed through constructing a ground pit, and covered by the sufficient thick layer of soil on daily basis.
- Reusable waste like debris, broken brick pieces, sand, stone, waste cement, and sand mix shall be used as refills for making ground leveling.
- The packing materials used for casing components should be recyclable, and non-hazardous.
- Recyclable wastes like left out/non-usable reinforcement bars and packing materials shall be sent or sold to scrap vendors.
- Chemical waste generated from transformer shall be collected in leakage proof, corrosion free, and specially designed container and sealed carefully.
- Effective coordination shall be done with local level government for proper waste management during construction period.

B. Operation Phase

1. Issues Related to Electric and Fire Hazard

Impacts

Employees performing servicing or maintenance of substations may be exposed to electric shock, burns and injuries from unexpected energization or release of energy stored in the equipment.

Impact Rating: Significant (Table 3-1)
Mitigation/Enhancement Measures

- Shutdown shall be taken during maintenance work.
- Use of insulation, guarding, grounding, electrical protective devices, and safe work practices is advised.
- Boundary walls and security fences around substation are must to prevent unauthorized access.

- Only trained and authorized personnel shall be allowed for electrical works.
- Warning signs shall be installed.

2. Biological Environment

The proposed Subproject avoids the forestland or other sensitive biodiversity areas. Hence, there will be no significant impact to biological environment because of construction of substation in the area.

A. Construction Phase

1. Loss of Habitat

Impacts

No loss of forest or significant impact on biodiversity is expected.

Impact Rating: Insignificant (Table 3-1)

Mitigation/Enhancement Measures

- No specific mitigation measures necessary.

B. Operation Phase

1. Bird Electrocution and Collision

Impacts

The Subproject area is located in semi-urban area and there is no presence of important habitat of avian fauna. Although the electrocution can cause a risk to bird species which perch on power line infrastructures (Substation).

Impact Rating: Insignificant (Table 3-1)

Mitigation/Enhancement Measures

- Provision of bird guards above the poles and white spirals in the conductors to improve visibility (refer to ANNEX 1 for sample pictures).

3. Socio-Economic, and Cultural Environment

The anticipated impacts on the socio-economic and cultural environment associated with the Subproject are discussed below:

A. Construction Phase

1. Impacts Associated with Transformation of Land

Impacts

The Subproject requires about 2.565ha of land for the placement of the substation. The land belongs to NEA. The construction activities of the subproject will not involve any private land instead could loss the standing crops cultivated by the previous land users. There will be no land acquisition, and thus no resettlement issues.

Impact Rating: Insignificant (Table 3-1)

Mitigation/Enhancement Measures

- Proper demarcation of the Substation area shall be done before initiating construction activities to avoid potential conflict with local people.
- Advance notice of three month will be provided to users' to harvest their crops.
- Loss compensation of standing crops will be provided based on market rate.
- Special assistance for income restoration activities will be conducted.

2. Issues Related to Child Labor and Gender

Impacts

During the Subproject construction, people will be employed on daily/monthly wages for excavation, transportation of construction materials, and other construction-related works. There might be discrimination on women and vulnerable groups while hiring the worker and they might be provided less wage

than men might have. Contractors might use child labor for the shake of economic benefits. This is harmful to the child's health or physical, mental, moral or social development. There is a chance that children, woman and socially backward communities are exploited.

Impact Rating: Very significant (Table 3-1)

Mitigation/Enhancement Measures

- Provide equal wage to male and female for similar nature of work
- People from socially backward community should be given priority
- Restrict use of children below 16 years of age in labor work (or as per government and ILO guidelines).
- Provide gender friendly construction environment with separate cabins and toilet for women in the camp.
- Suitable work assignment for women.

3. Socially Undesirable Activities

The workers may use alcohol and other forms of intoxication, gambling, quarrel with locals, disrespect local culture and religion, and may promote socially undesirable activities in and around the project area.

Impact Rating: Insignificant (Table 3-1)

Mitigation/Enhancement Measures

- Organization of awareness programs on gender based violence risks for the Subproject workers.
- Restrict movement of workers out of camp after certain hours in the night time.
- Restrict use of alcohol and gambling in the camp.
- Supply water, daily consumable items, communication facility in the camp so as not to create additional pressure on the local services
- Orient workers to show respect to local tradition and culture;
- Prepare a code of conduct for all project staff, orient them and monitor that these are effectively followed by all;
- Assign a Community Liaison Officer (CLO) by the project to keep close and regular consultation and coordination with local communities;
- Regular monitoring of worker's behavior and take appropriate actions against rule violators.

4. Occupational Hazards and Safety

Impacts

Occupational health hazard and safety of staff is a major issue during the construction period. Primary victims are the construction workers. In addition, the pedestrian might also be injured.

Impact Rating: Very significant (Table 3-1)

Mitigation/Enhancement Measures

- Contractor shall prepare the Environmental, Health and Safety plan and take approval from the Client before implementation. Safety officer should be employed during construction period.
- All employees shall be provided with necessary training, and safety equipment as required for their responsibilities and duties. The Contractor will adhere to labor Act 2074 and Labor Rules 2075.
- The basic facilities of drinking water, sanitation & clean resting place, canteen, and first aid are required for the campsite.
- All the workers shall have health insurance over the period of construction.

- Installation of warning signs (High Voltage, Fire Safety Signs, and Emergency Signs) as shown in **Annex-9.**
- NEA will be responsible to supervise the EHS performance of the construction Contractor, and workers health and safety.

B. Operation Phase

1. Hazards and Safety

Impacts

Employees working in operation and maintenance of the electric components might get exposed to electric shock, electrocution, fires and explosions.

Impact Rating: Significant (Table 3-1)

Mitigation/Enhancement Measures

- There will be the use of insulation, guarding, grounding, electrical protective devices, and industry-standard safe work practices.
- Boundary walls and / or security fences around substations to prevent unauthorized access.
- Only trained and authorized personnel will be allowed for the electrical works.
- Establishment of warning signs.
- Shutdown shall be taken during work on DL route.

2. Electric and Magnetic Field Effect

Electric power distribution lines create electric and magnetic field together, referred to as electromagnetic fields (EMF). Electrical flux density declines in inverse proportion to the square of the distance and magnetic fields decline in inverse proportion to the cube of the distance; there will be no impact outside of the substation boundaries[11]. Research on the long-term effects of EMF associated with distribution lines is inconclusive with respect to health risks. As noted in the World Bank EHS guidelines for transmission and distribution systems, there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and equipment.

Impact Rating: Insignificant (Table 3-1)

[11] *E.g., at a distance of 10 meters from a single distribution line or conductor, electrical flux density drops to 1% of the field strength at a distance of 1 meter from the conductor: 1/ (10*10) = 1%. Likewise, the magnetic field drops to 0.1% of the field strength at the conductor: 1/ (10*10*10) = 0.1%.*

Table 3-8: Impact Identification and Evaluation Matrix

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
3.1	**Beneficial Impacts**						
A	**Construction Phase**						
1	Increased Economic Opportunities for Local People	41 people (2 Engineer, 4 Supervisor, 5 Foreman, 5 Skilled Lineman/Electrician, 15 Labor and 10 Helper) will be deployed in a normal day during construction phase for the construction of 33/11kV substation over the implementation period of 24 months. The construction activities require different construction materials like aggregate, sand, cement, steel, etc., which can be supplied from local market.	D	H (60)	L (20)	ST (05)	VSI (85)
B	**Operation Phase**						
1	Enhancement in Rural Electrification	The local economy will benefit through improved reliability of electricity supply, which is a necessary condition for economic growth.	I	H (60)	L (20)	ST (05)	VSI (85)
2	Reduction in Green House Gas (GHG) emissions	Net Green House Gas (GHG) emissions resulting from the subproject area are expected to decrease as the construction of distribution lines will improve and expand electricity supply which will help reduce the use of fossil fuels.	I	H (60)	L (20)	LT (20)	VSI (100)
3.2	**Adverse Impacts**						
1	**Physical Environment**						
A	**Construction Phase**						
1	Impact due to Erosion from Flooding	The proposed site adjoining to *Turiya Khola*, is depressed and shall be filled up as part of ground preparation for construction. The site is susceptible to high erosion from flooding during the rainy season, which might erode the surface layer of filled spoil.	I	M (20)	SS (10)	ST (05)	II (35)
2	Impact due to Air, and Noise Pollution	Construction activities such as site clearance, ground leveling, excavation of the building foundation, spoil	D	L (10)	SS	ST (05)	II (25)

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
		management work, waste burning, haphazard stockpiling of construction materials, vehicular movement will generate dust, emission and noise.			(10)		
3	Impact due to Spoil Filling	As substation ground level is very low, filling of spoil will be necessary in huge quantity i.e., nearly 85,203 cum. This might cause adverse impact to the nearby receiver environment if not properly managed.	D	L (10)	SS (10)	ST (05)	II (25)
4	Impact due to Solid Waste	The waste generated during construction within the subproject area are cement bags, iron bars, and other leftover construction materials, and waste generated in the labor camp. Biodegradable wastes generated from labor camp may give foul smell, and attract rodents.	D	L (10)	SS (10)	ST (05)	II (25)
B	**Operation Phase**						
1	Issues Related to Electric and Fire Hazard	Employees servicing or maintaining the substation may be exposed to electric shock, burns and injuries from unexpected energization or release of energy stored in the equipment.	I	M (20)	SS (10)	LT (20)	SI (50)
1	**Biological Environment**						
A	**Construction Phase**						
1	Loss of Habitat	No loss of forest or significant impact on biodiversity is expected.	D	L (10)	SS (10)	ST (05)	II (25)
B	**Operation Phase**						
1	Bird Electrocution and Collision	Habitat of any avian fauna is not identified. However, the electrocution can cause a risk to bird species which perch on power line infrastructures (Substation).	I	L (10)	SS (10)	LT (10)	II (30)
1	**Socio-Economic and Cultural Environment**						
A	**Construction Phase**						
1	Impacts Associated with Transformation	The Subproject requires about 2.565 ha of land for the placement of the substation. Standing crops might be	D	M (20)	SS (10)	ST (05)	II (35)

S.N.	Issues	Impacts	Impact Rating				
			Nature	Magnitude	Extent	Duration	Rating
	of Land	affected from Subproject construction.					
2	Issues Related to Child Labor and Gender	Potential discrimination against women and vulnerable groups while hiring the worker, not providing minimum wages, and potential use of child labor.	D	H (60)	SS (10)	ST (05)	VSI (75)
3	Socially Undesirable Activities	The workers may use alcohol and other forms of intoxication, gambling, quarrel with locals, disrespect local culture and religion, and may promote socially undesirable activities in and around the project area.	I	L (10)	SS (10)	ST (05)	II (25)
4	Occupational Hazards and Safety	Occupational health hazard and safety of staff is a major issue during the construction period.	D	H (60)	SS (10)	ST (05)	VSI (75)
B	**Operation Phase**						
1	Hazards and Safety	Employees working in operation and maintenance of the electric components might be exposed to electric shock, electrocution, fires and explosions.	D	M (20)	SS (10)	LT (20)	SI (50)
2	Electric and Magnetic Field Effect	Electric power distribution lines create electric and magnetic field together, referred to as electromagnetic fields (EMF).	I	L (10)	SS (10)	LT (20)	II (40)

Note: Direct (D), Indirect (I), High (H), Moderate (M), Low (L), Regional (R), Local (L), Site Specific (SS), Long Term (LT), Medium Term (MT), Short Term (ST), Insignificant Impact (II), Significant Impact (SI), Very Significant Impact (VSI)

3.3 Management Specifications for the Construction and Operational Phases

The overall Environmental and Social Management Plan of the subproject along with mitigation and management measures is presented in table below. This ESMP will be implemented in three stages: (i) pre-construction (ii) construction, and (iii) operations and maintenance. This ESMP is a living document and will be updated and modified under the supervision of Environmental and Social Management Unit (ESMU) of the Project Implementation Unit (PIU) as necessary based on field conditions, construction Contractor's performance, and stakeholders' feedback.

Table 3-9: Construction and Operational Management Specifications

Environmental Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
			Implementation	Supervision
1. Beneficial Augmentation Measures				
A. Construction Phase				
1. *Increased Economic Opportunities for Local People*	• Local people within the Subproject area will be prioritized based on qualification and skills. • Construction materials, if available, shall be bought from the locally available legally operating market near Ramgram.	Embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP)
B. Operation Phase				
1. *Enhancement in Rural Electrification*	• Proper and timely maintenance of the Substation will be done to maintain reliable power supply.	-	NEA Transmission Operations units and Distribution Service Center(s)	-
2. *Reduction in Green House Gas (GHG) emissions*	• Proper and timely maintenance of the Substation will be done to maintain reliable power supply so that people can continue the use of electricity.	-	NEA/PIU (DSUEP)	-
2. Adverse Mitigation/ Enhancement Measures				
1. Physical Environment				
A. Construction Phase				
1. *Impact due to Erosion from Flooding*	• A boundary wall will be constructed before filling the depressed area up with spoil. This will also help in restricting river floods entering into the substation area during the monsoon season. • Adequate site drainage system along Parasi Road side will be constructed around stockpiled materials, campsites and the	Embedded within Contract Document including	Construction Contractor	NEA/PIU (DSUEP)

Environmental Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
			Implementation	Supervision
	foundation work area. • Embankment management in Turiya Khola along Substation boundary. • Spoil filled within the substation boundary will be compacted through simultaneous sprinkling of water and compaction from the roller.	* Drainage canal construction along Parasi Road in Subproject foot print area and embankment management work-14,00,000.00		
2. *Impact due to Air and Noise Pollution*	• Contractors' vehicles and equipment should meet Nepali vehicle emissions standards. • Dust emission will be controlled with water sprays on earthen roads nearby settlements in substation area. • Open burning of wastes should be strictly prohibited. • Construction workers should use face masks at all times. • All dust generating loads carried in open trucks should be covered. • Contractors shall monitor noise during the construction as well as use the standard construction equipment. • Personal Protective Equipment (PPE) such as earplugs, earmuffs, etc. shall be provided to the workers in high noise areas.	* Air Quality Monitoring-1,50,000.00 * Sprinkling Water (Dust Management) 3,00,000.00 * Noise Level Monitoring: 50,000.00 * Provision of PPE and other cost will be embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP)
3. *Impact due to Spoil Filling*	• Spoil required for filling will be purchased from the nearby authorized burrowing sites under local government. • Spoil shall be covered with tarpaulin while transporting from borrowing areas to the substation. • Simultaneous water sprinkling and compaction of spoil shall be done using the roller.	Embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP) and Ramgram Municipalit

Environmental Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
			Implementation	**Supervision**
				y
4. *Impact due to Solid Waste*	• Source segregation of organic and inorganic wastes in different storage areas or facilities in the designated location shall be done. • Waste generated from the campsite shall be properly managed without littering to nearby Turiya Khola, and other open ground outside the substation boundary. • The biodegradable waste generated from the campsite shall be managed through constructing a ground pit, and covered by the sufficient thick layer of soil on daily basis. • Reusable waste like debris, broken brick pieces, sand, stone, waste cement, and sand mix shall be used as refills for making ground leveling. • The packing materials used for casing components should be recyclable, and non-hazardous. • Recyclable wastes like left out/non-usable reinforcement bars and packing materials shall be sent or sold to scrap vendors. • Chemical waste generated from transformer shall be collected in leakage proof, corrosion free, specially designed container and sealed carefully. • Effective coordination shall be done with local level government for proper waste management during construction period.	Solid Wastes Management: 1,00,000.00 and other cost will be embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP) and Ramgram Municipality
B. Operation Phase				
1. *Issues Related to Electric and Fire Hazard*	• Shutdown shall be taken during maintenance work. • Use of insulation, guarding, grounding, electrical protective devices, and safe work practices is advised. • Boundary walls and security fences around substation are must to prevent unauthorized access. • Only trained and authorized personnel shall be allowed for	-	NEA Transmission Operations units and Distribution Service	NEA

Environmental Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
			Implementation	**Supervision**
	electrical works. • Warning signs shall be installed.		Center(s)	
2. Biological Environment				
A. Construction Phase				
1. *Loss of Habitat*	• No specific mitigation measures necessary.	-	Construction Contractor	NEA/PIU (DSUEP)
B. Operation Phase				
1. Bird Electrocution and Collision	• Provision of bird guards above the poles and white spirals in the conductors to improve visibility (**ANNEX 1).**	Embedded within Contract Document	NEA Transmission Operations units and Distribution Service Center(s)	NEA
3. Socio-Economic, and Cultural Environment				
A. Construction Phase				
1. *Impacts Associated with Transformation of Land*	• Proper demarcation of the Substation area shall be done before initiating construction activities so as to avoid potential conflict with local people. • Advance notice of three month will be provided to users' to harvest their crops. • Loss compensation of standing crops will be provided based on market rate. • Special assistance for income restoration activities will be conducted.	Embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP) and Ramgram Municipality
2. *Issues Related to Child Labor and Gender*	• Provide equal wage to male and female for similar nature of work • People from socially backward community should be given priority • Restrict use of children below 16 years of age in labor work (or	Embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP) and Ramgram

Environmental Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
			Implementation	Supervision
	as per government and ILO guidelines). • Provide female friendly construction environment with separate cabins and toilet for women in the camp. • Suitable work assignment for women.			Municipality
3. *Socially Undesirable Activities*	• Organization of awareness programs on gender based violence risks for the Subproject workers. • Restrict movement of workers out of camp after certain hours in the night time. • Restrict use of alcohol and gambling in the camp. • Supply water, daily consumable items, communication facility in the camp so as not to create additional pressure on the local services • Orient workers to show respect to local tradition and culture; • Prepare a code of conduct for all project staff, orient them and monitor that these are effectively followed by all; • Assign a Community Liaison Officer (CLO) by the project to keep close and regular consultation and coordination with local communities; • Regular monitoring of worker's behavior and take appropriate actions against rule violators.	-	Construction Contractor	NEA/PIU (DSUEP)
4. *Occupational Hazard and Safety*	• Contractor shall prepare the Environmental, Health and Safety plan (**ANNEX 8**) and take approval from the Client before implementation. Safety officer should be employed during construction period. • All employees shall be provided with the necessary training, and safety equipment as required for their responsibilities and duties. The Contractor will adhere to labor Act 2074 and Labor Rules 2075. • Basic facilities of drinking water, sanitation & clean resting place, canteen, and first aid are required for the campsite. • All the workers shall have health insurance over the period of	* EHS Awareness Trainings: 1,50,000.00 and other cost will be embedded within Contract Document	Construction Contractor	NEA/PIU (DSUEP)

Environmental Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
			Implementation	Supervision
	construction. • Installation of warning signs (High Voltage, Fire Safety Signs, and Emergency Signs) (**ANNEX 9**). • NEA will be responsible to supervise the EHS performance of the construction Contractor, and workers health and safety.			
B. Operation Phase				
1. *Health and Safety*	• Use of insulation, guarding, grounding, electrical protective devices, and industry-standard safe work practices. • Boundary walls and / or security fences around substations to prevent unauthorized access. • Only trained and authorized personnel will be allowed for the electrical works. • Establishment of warning signs. • Shutdown shall be taken during work on DL route.	-	NEA Transmission Operations units and Distribution Service Center(s)	NEA

Note: The provision of environment and social management cost should be included in the project cost making each item visible in BOQ of bidding document for the safeguard compliance by the construction contractor.

3.4 Livelihood Support Activities

The majority of community people living outside of footprint area (SPA) are from Tharu/Chaudhary with Chhetri/Brahmin (Terai). There are 23 land plots under the name of 15 owners/users family who have transferred the ownership of their land to NEA (ANNEX 2). Following table shows the livelihood support activities for the users affected by the Subproject.

Table 3-10: Livelihood Support Activities

Type of Loss	Scope	Who is Entitled	Entitlement	Responsible for the Delivery of the Entitlement	Remarks
A. Income Restoration Activities	Special assistance for income restoration activities	Support for land owners (households) loosing income sources based on agriculture at Subproject footprint area and other people from SPA area	At least one-person from each affected user (households if interested) will be considered for income generating vocational training and skill improvement options as per their choice expressed during consultation *(such as, building electricians and tailoring training)* and the people from SPA area	Training cost will be addressed by NEA	The NEA/PIU and PSC will facilitate to this support for organizing skill development training.
B. Additional assistance to land users	Household income affected as a result of Subproject construction	Land users (households) cultivating agricultural crops	One-time financial assistance equivalent to 90[12] days of wage to be computed based on district wage rates for each landowner under special assistance.	Assistance cost will be addressed by NEA	The NEA/PIU and PSC will ensure timely payment to the users
C. Loss of Standing Agricultural Crops	Land acquired for a Subproject related activity	Land Owner/ Users	Advance notice of three month to be provided to users' to harvest their crops. Cash compensation for loss of agricultural crops at current market value of crops (if destroyed)	Cash compensation based on the crops loss types and market rates NEA will address all the cost.	The NEA/PIU will ensure that the payment of compensation is made prior to construction of Subproject. PSC will facilitate for this loss estimation and procedural works

[12] *NEA, 2019: Environment and Social Management Framework (ESMF) for Distribution System Upgrade & Expansion Project (DSUEP), Kathmandu, Nepal; "Annexure 3 Entitlement Matrices".*

Table 3-11: Crop Loss Estimation from Area Affected for Cultivation and Estimated Production

Municipality	Area in Kattha	Area in Hectare (ha)	Productivity Per Kattha (Kg.)	Productivity Per Hectare (Kg.)	Three Seasons Production (Kg.)	Rate/ Kg (NRs.)	Amount (NRs.)
Ramgram Municipality	75.750	2.565	90.000	2,657.700	20,452.500	108.00	2,208,870.00
Total	**75.750**	**2.565**	**90.000**	**2,657.700**	**20,452.500**	**108.00**	**2,208,870.00**

Source: Field Visit, 2022

3.5 Institutional Arrangement

The Ministry of Energy, Water Resources and Irrigation (MoEWRI) is responsible for planning and execution of the plans for the overall development of water and energy sector in Nepal. Nepal Electricity Authority (NEA) under MoEWRI is the responsible agency for the implementation of the DSUEP. The project comes under Distribution and Consumer Services Directorate (DCSD) of NEA. Project Implementation Unit (PIU) under DSUEP is the implementing unit of the project. Environment and Social Management Unit will be within PIU. All the resources needed for the EMP implementation for the construction and operation phase will be provided by the PIU. The site offices under PIU will have the supervision consultant with environmental and social safeguard specialist, who will be responsible for compliance monitoring during the construction phase. S/he will also provide technical support in preparing the monitoring report.

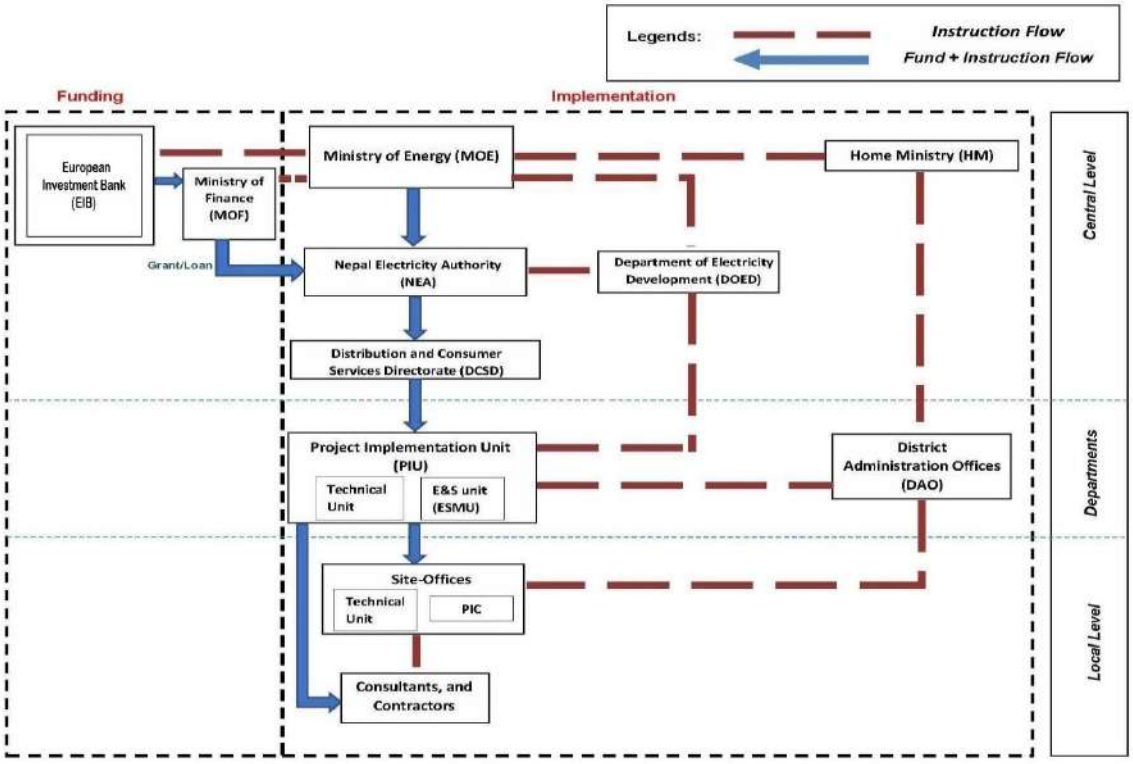


Figure 3-10: Institutional Arrangement for Environmental and Social Management

Source: ESMF-DSUEP

Contractor shall have the main responsibility to ensure the compliance. The Contractor shall prepare an Environment, Health and Safety (EHS) report that would be approved by DSUEP before field mobilization. They need to strictly follow the EHS plan requirements. Contractor shall urgently comply with corrective actions for any noncompliance as instructed by PIU. The ESMU of PIU will provide safeguard and ESMP compliance orientation to all environment monitors and safeguard team of the Contractor.

3.6 Grievance Redress Mechanism

The Grievance Redress Mechanism (GRM) has been established to receive, evaluate, and facilitate the resolution of affected people's concerns, complaints, and grievances about the social and environmental related issues at the subproject level. The GRM is designed to be simple, transparent and responsive. GRM shall address only the concerns arising due to the project implementation activities, mainly during construction stage.

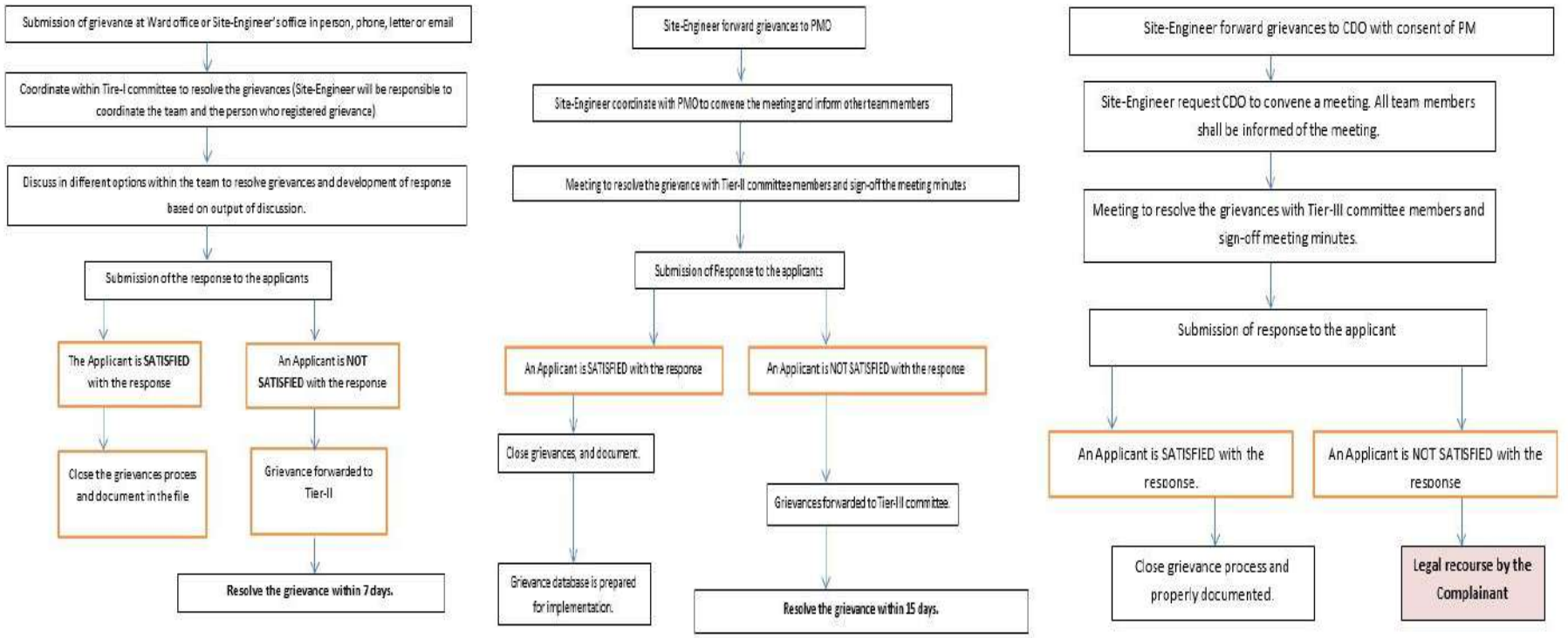
This process entails the concerned party submitting a grievance either in-person, or via phone, letter, or email to the Site-Engineer or the concerned Municipality Chief or the concerned Ward Chair. The Site-Engineer will record such complaint. In cases where Ward Chair has received such grievance, s/he should forward the grievance to the Site-Engineer. The Site-Engineer shall notify the committee members of Tier-I and arrange meeting to resolve the received grievances. If not resolved, such grievances will be forwarded to Tier II and Tier III. The three level of GRM will work on time-bound schedules as mentioned in Table 3-12. The Subproject will hold regular meetings for Tier-I, to follow up if any grievances are received or not and to resolve the grievances received and update its status to PIU. Figure 3-11 describes the Workflow Diagram of GRM for the Subprojects.

Table 3-12: Levels of Grievance Redress Mechanism

Provisions	**Levels of Grievance Redress Mechanism**					
	First Level (Tier-I)		**Second Level (Tier-II)**		**Third Level (Tier-III)**	
Level	Local Level		Project Manager Office (PMO) headed by the Project Manager (PM) at Project Implementation Unit (PIU)		District Level	
Supervisory	NEA Site-Engineer		PMO		Chief District Officer (CDO)	
Assistance	Chief/Mayor of Concerned Local Level and Chairperson/ Representative of Ward, Construction Contractor's (CC) Representative and Project Supervision Consultant's (PSC) Safeguards Officer		NEA Site-Engineer and PSC's Social Expert, and Construction Contractor		PMO, affected persons, representative from Rural Municipality/Municipality, Site-Engineer, PSC's Social Expert. *If deemed necessary, representative from Forest Office, representative from Land Revenue Office, and representative from Land Survey Office are invited.*	
Days for Resolving Complain	7 days of receipt of a complaints/ grievance		15 days of complaints forwarded by Site-Engineer		15 days	
Committee Members	**Committee Member**	**Designation**	**Committee Member**	**Designation**	**Committee Member**	**Designation**
	Ward Chair	Coordinator	Project Manager	Coordinator	Chief District Officer (CDO)	Chair
	Site-Engineer-NEA	Member secretary	Site-Engineer	Member Secretary	Project Manager	Coordinator
	Community Liaison Officer from PSC	Member	Mayor/ Chair of municipality	Member	Site-Engineer	Member Secretary
	Contractor engineer	Member	Community Relations Manager from PSC	Member	Municipality Chief/Ward Chair	Member
	Affected person (one male and one female)	Member	Contractor Engineer	Member	Community Relations Manager from PSC	Member
	Women Member of Ward committee	Member	Representative from affected people (at least 2, one male and one female)	Members	Contractor Engineer	Member
	One IP member (if IPs are affected)	Member	Women Member of Municipality	Member	Representatives from affected people (at least 2,	Members

Provisions	Levels of Grievance Redress Mechanism					
	First Level (Tier-I)		Second Level (Tier-II)		Third Level (Tier-III)	
			committee		one male and one female)	
			One IP member (if IPs are affected)	Member	Women Member of Municipality committee	Member
					One IP member (if IPs are affected)	Member

Figure 3-11: Workflow Diagram for GRM from NEA[13]



[13] *Grievance Redress Mechanism (GRM) Prepared for the sub-projects financed by European Investment Bank (EIB) under Distribution System Upgrade and Expansion Project (DSUEP), Nepal Electricity Authority (NEA), August 2021.*

* Affected People (AP) have the right to refer the grievances to appropriate courts of law if not satisfied with the redress at any stage of the process i.e., the AP will have the choice to approach country's judicial system.

3.7 Compliance with Environmental Laws and Regulations

During the ESMP report preparatory phase, different legal instruments (constitution, acts, policy, plan, rules and international conventions/agreements) have been reviewed. Key provisions of those legal documents that might be relevant to this project have been summarized in tabulated form and given in **ANNEX 10,** which will guide the NEA, EIB, consultant and the construction Contractor to effectively and efficiently implement ESMP maintaining the international and national standard.

4. MONITORING AND REPORTING MECHANISM

4.1 Environmental and Social Monitoring

Environmental and Social Monitoring (ESM) is undertaken to collect data/information of the Subproject environment and social aspect to assess the compliance concerning regularity standards, planning documents, and effectiveness of the implementation of Environmental and Social Protection Measures recommended in ESMP. It involves the assessment of physical, biological, and socioeconomic, and cultural variables associated with activities, and stages. To ensure effective implementation of ESMP, PIU/NEA (DSUEP) and Project Supervision Consultant (PSC) will be responsible for undertaking monitoring the Subproject.

The main objectives of the environmental monitoring plan are listed below,

- To ensure that the Subproject baseline conditions were adequately documented such that a comparative evaluation of the Subproject baseline before, and after commencement of the Subproject could be made precisely for impact evaluation.
- To ensure that the mitigation commitments by the NEA for the minimization of adverse impacts, and enhance the beneficial impacts, and the mitigation measures, and enhancement program are complied, and implemented in time, and with sincerity.
- To confirm that the Subproject impacts are within the limits of the impact prediction or not, and to minimize unpredicted impacts that occurred during Subproject construction and operation.

Table 4-13: Environmental Monitoring Plan[14]

SN	Environmental Component	Indicators	Monitoring Methods	Location	Schedule	Responsibility
1.	Budget allocation for implementation of mitigation measures	Budget heading and amount in figures in contract documents	Review of Subproject documents, and records, and inquires with Subproject staff	-	Once, during pre-construction	NEA/PIU (DSUEP)
2.	Employment for Locals	Job placement ToR, notice of vacancies published in local media/notice board	Appointment document, and job announcement	Project area	Once, after vacancy announcement	Construction Contractor/ NEA/PIU (DSUEP)
Physical Environment						
1.	Alteration of Land	Demarcation of land for substation	Field observation, Meeting minutes with stakeholders	Substation area	Early Subproject Implementation Phase	Construction Contractor under the supervision of PIU Safeguard Officers/Local Level
2.	Stability and Erosion Issues	Backfilling in excavated part after construction, subsidence/sliding and erosional evidence, damages to adjoining entities, pit hole and its foundation materials compaction, design and working framework	Direct Site Inspection and records	Project area	Early Subproject Implementation Phase and Monthly	Construction Contractor under the supervision of PIU Technical Team
3.	Spoil Management	Excavation and filling as per design, compaction and watering facility	Observation, records and contract documents	Construction site	Early Subproject Implementation Phase and Monthly	Construction Contractor under the supervision of PIU Safeguard Officers
4.	Air quality	Emission and Dust around Subproject area, Foul smell, suspended particulate matter, State of vehicles used	Observation, and taking records for spraying water and vehicle log book of maintenance work	Construction site	Quarterly	Construction Contractor under the supervision of PIU Safeguard

[14] *Nepal Electricity Authority 2019: Environment, and Social Management Framework (ESMF) for Distribution System Upgrade & Expansion Project (DSUEP), Kathmandu.*

SN	Environmental Component	Indicators	Monitoring Methods	Location	Schedule	Responsibility
						Officers
5.	Noise pollution	Noise level dB(A) of Construction vehicles and construction schedule	Observation, and measurement using digital sound meter	Construction site	Quarterly	Construction Contractor under the supervision of PIU Safeguard Officers
6.	Water quality	Pollution source, and physical parameter like Temp., pH and EC	Observation, and measurement	Construction site	Quarterly	Construction Contractor under the supervision of PIU Safeguard Officers
7.	Solid Waste Management	Solid waste segregation, collection and management mechanism, adherence to waste management practices	Direct Site Observation and practices	Construction site	Quarterly	Construction Contractor under the supervision of PIU Safeguard Officers
8.	Electric, and Fire Hazard	Evidence of workforce skill development training, installation of warning signs, electrical, mechanical insulation, and guarding system	Incident Record, and Direct Site Inspection	Construction site	Daily	NEA
Biological Environment						
1.	Habitat Loss	Not Applicable				Construction Contractor
2.	Bird Collision	Preventive measures included Subproject infrastructure, incidence of an accident, and causes	Carcasses count to test the efficacy of preventative measures	Project area	Every 3 Month[15]	NEA
Social, and Cultural Environment						
1.	Subproject's Assistance	Number of land owners/users received assistance from NEA and people's active participation during training program	Notice from NEA/PIU for a call to users to receive assistance (crop loss and additional assistance) and	Subproject Area	Before and during construction phase	NEA/PIU and PSC

[15] *Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N., Carbone, G. (2021). Mitigating biodiversity impacts associated with solar, and wind energy development. Guidelines for project developers. Gland, Switzerland: IUCN, and Cambridge, UK: The Biodiversity Consultancy. (https://portals.iucn.org/library/sites/library/files/documents/2021-004-En.pdf)*

SN	Environmental Component	Indicators	Monitoring Methods	Location	Schedule	Responsibility
			associated documents, training proposal, training minutes/attendances, receipts, photographs, visual evidences			
2.	Workers, Labor Camp Location, and Management	Number of workers from Subproject area, and its surrounding settlement, Basic facilities within the camps as suggested in ESMP, and Inclusiveness of marginalized, and indigenous groups people as workers	FGD with local people, Direct Site Inspection and verification	Project area	Weekly during construction; Monthly during operation	Construction Contractor
3.	Child, and Gender issues	Engagement of child in any form (direct/indirect or on/off-site), wage discrimination among male, and female workers, basic facilities for females as per recommended in ESMP, psychological, and physical assault evidence (recorded/verbal complain)	Direct Site Observation, Direct Consultation with the (Female) workers, Consultation with local people nearby the Subproject area,	Construction site	Weekly/Daily as per nature of indicator	Construction Contractor under the supervision of PIU Safeguard Officers
4.	Occupational Hazard and Safety	No. of toolbox talk/ safety orientation to workers, No. of accidents registered, use of the personal protective instrument by the workers	Direct Site Observation, Official records	Construction site	Daily during construction, Monthly during operation	Construction Contractor under the supervision of PIU Safeguard Officers
5.	Grievance Redressing Mechanisms	Committee formation records, GRC Meeting minutes, issue settlement records on the campsite, Gender, social, and others associated with Project.	Review of official records of GRC	Project area	Monthly	Construction Contractor under the supervision of PIU/PSC

4.2 ESMP Implementation and Monitoring Cost

The cost estimates for the ESMP are shown in Table 4-14. These estimates cover the basic monitoring activities and the mitigation measures to be complied from the contractor's side. The ESMP cost estimated for this Subproject is NRs 71,18,870.00.

Table 4-14: ESMP Implementation and Monitoring Cost

SN	Budget Items	Estimated Lump Sum Amount for Monitoring (NRs)
1	**Compliance with Environment Plan**	**3,00,000.00**
1.1	Air Pollution Monitoring *(at Substation)*	1,50,000.00
1.2	Noise Pollution Monitoring *(at Substation)*	50,000.00
1.3	Water Quality Testing	1,00,000.00
2	**Mitigation Measures and Compliance to EHS Plan**	**5,50,000.00**
2.1	Sprinkling of water, covering during transportation and proper storage of construction material	3,00,000.00
2.2	Segregation and management of Solid Waste	1,00,000.00
2.3	EHS Awareness raising trainings to the labors	1,50,000.00
3	**Meeting of Safeguard Desk and Grievance Redress Committee at Field Level**	**3,50,000.00**
4	**Income Restoration Activities** *(Skill Development Training)*	**15,00,000.00**
5	**Additional Assistance Cost for Land Users**[16]	**8,10,000.00**
6	**Drainage system along Parasi Road and embankment management in Turiya Khola**	**14,00,000.00**
7	**Crop Loss Compensation**	**22,08,870.00**
Total		**71,18,870.00**

[16] Calculated based on wage rate for unskilled worker (Man-days/Day) = NRs. 600.00 [Approved District Rate of Nawalparasi (Bardaghat Susta West), DAO Nawalparasi, 2079 – Retrieved from https://daonawalparasiwest.moha.gov.np/upload/ae46aadf6d62d202d6e69722dd0f2de5/files/High_Quality_Jilla_Dar_Rate_FY079_80.pdf].

5. CONCLUSION

Potential environmental impacts of the Subproject are not diverse, mainly relating to construction, and are all site-specific being confined to the Core Project Area i.e., within the substation area. Civil works will cause temporary impacts on air, noise and water, and occupational and community health and safety, in particular related to working with electricity and crop losses. Key impacts during operation and maintenance include safety risks related to the presence of electricity infrastructure and associated risks at the substation. The potential environmental impacts of the Subproject are identified and deemed to be mitigated through adherence to national requirements and international good practice measures and standards as specifically recommended in ESMP and DDR. The implementation of ESMP and DDR is to be supervised and monitored by PIU, supported by Project Supervision Consultant. The total ESMP and DDR cost estimated for this Subproject is NRs. 71,18,870.00. This ESMP along with DDR is considered sufficient to meet the environmental and social requirements for the Subproject at present design conditions.

REFERENCES

CBS. (2017). Rural Municipality-Municipality Profile of Parasi District. Nawalparasi: Office of Statistics.

Cross, E. A. (2014). THE STRUCTURE, STRATIGRAPHY, AND EVOLUTION OF THE LESSER HIMALAYA OF. ARIZONA: THE UNIVERSITY OF ARIZONA.

DHM. (2017). Retrieved from https://www.dhm.gov.np/climate/

DHM. (2021). Retrieved from http://mfd.gov.np/city?id=26

Dobremez, J. (1976). Le Népal Ecologie et Biogeography, Editions du Centre National de la Recherche Scientifique,. Paris, France.

DoS. (2020). Data & Metadata. Retrieved from National Spatial Data Center : Geoportal: http://nationalgeoportal.gov.np

Environmental and Social Management Framework (DSUEP) NEA- November 2021

Environmental and Social Standards, European Investment Bank.

EPA. (2019). Environmental Protection Act. Kathmandu: Government of Nepal.

EPR. (2020). Environmental Protection Regulation. Kathmandu: Government of Nepal.

GoN. (2050). National Environmental Impact Assessment Guidelines. National Planning Commission Secretariat.

IPCC. (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. IGES, Japan. Retrieved from https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html

IUCN. (2000). NEPAL Iso-Potential Agro-Ecological Zone Map. HMG/DANIDA NARMSAP TISC, Kathmandu, Nepal.

Letcher, & Vallero. (2011). Waste: A Handbook for Management . London: Elsevier Inc.

LRMP. (1986). Land Utilization Report. Land Resources Mapping Project (LRMP). Government of Nepal and Government of Canada. Kenting Earth Sciences Limited.

MoF. (2020). Economic Survey 2019/20. Singh Durbar, Kathmandu: Government of Nepal, Ministry of Finance. Retrieved from https://www.worldbank.org: https://mof.gov.np/uploads/document/file/Economic%20Survey%202019_20201125024153.pdf

Shahi, D. K., Rijal, H. B., & Shukuya, M. (2019). Study on Household Energy Usage Patterns in Urban and Rural Areas. Journal of the Institute of Engineering, 15 (No. 3), 402-410. doi:https://doi.org/10.3126/jie.v15i3.32761

Stakeholder Engagement Strategy, DSUEP, NEA, 2019.

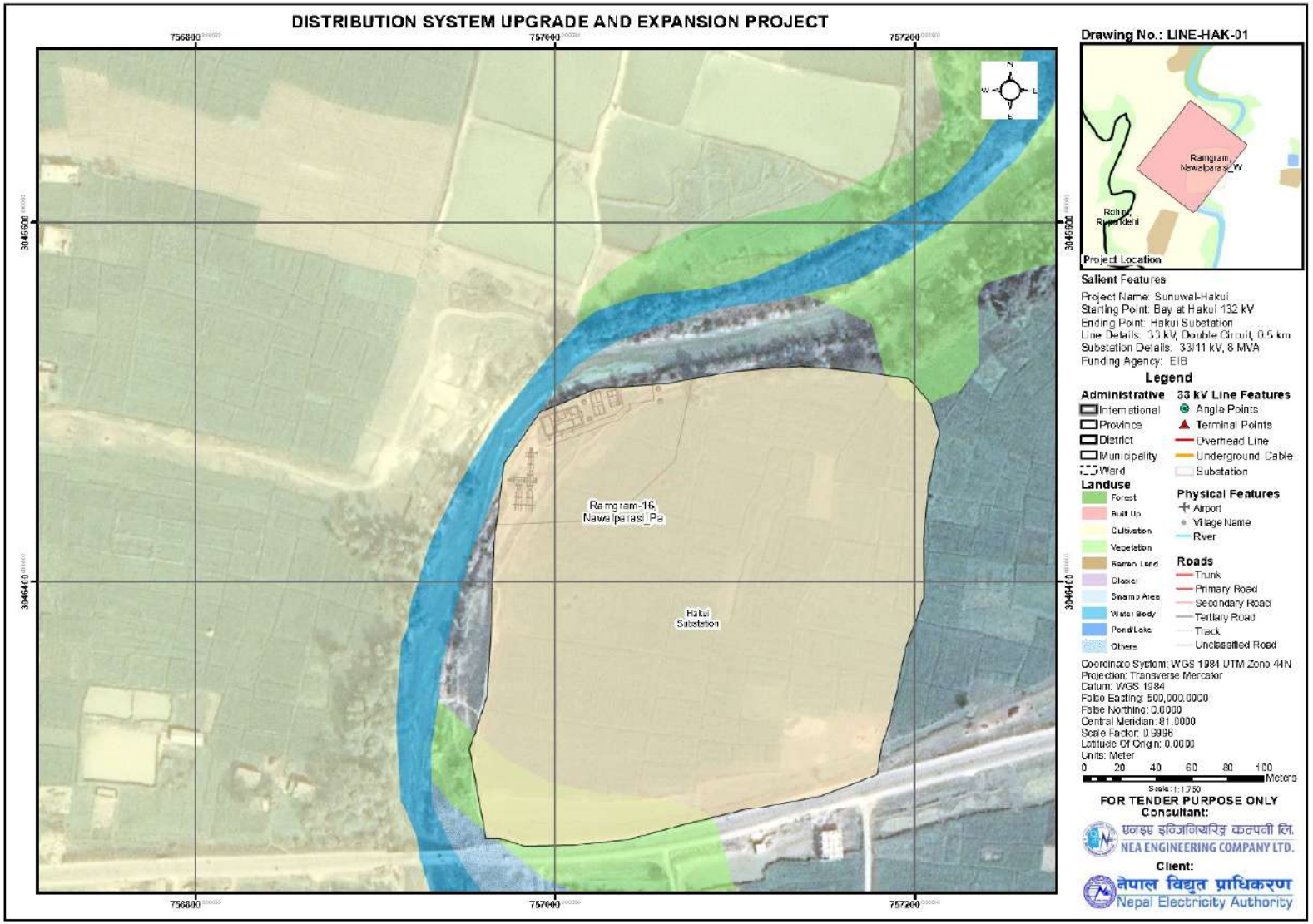
The White Paper. (2018). Energy, Water Resources and Irrigation Sector’s Status and Roadmap for the Future. Kathmandu: Government of Nepal.

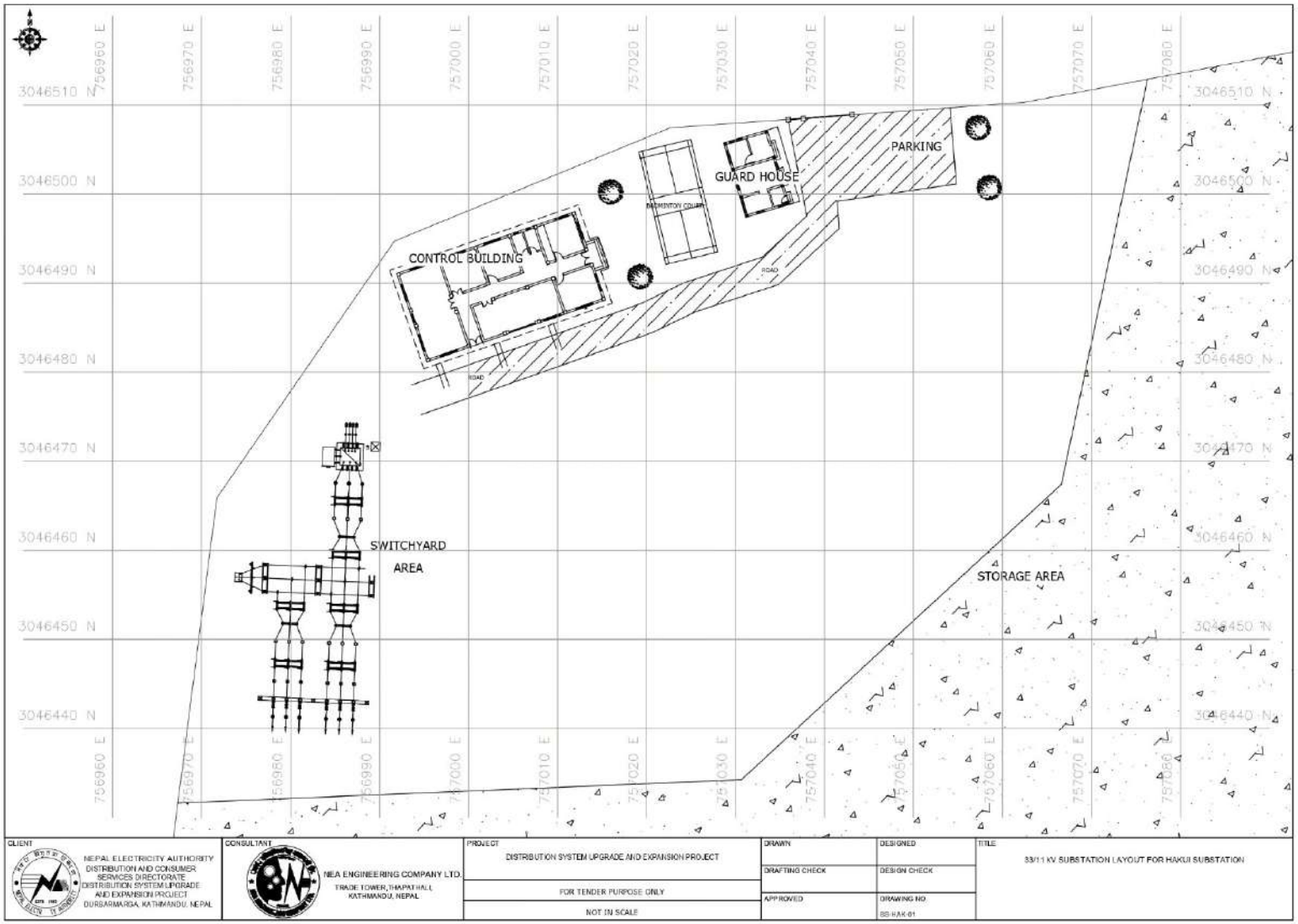
US EPA. (2016). Greenhouse Gas Inventory Guidance: Direct Emissions from Stationary Combustion Sources. U.S. EPA Center for Corporate Climate Leadership. Retrieved from www.epa.gov/climateleadership

WECS. (2014). Energy Data Sheet. Water and Energy Commission Secretariat. Retrieved from www.energyefficiency.gov.np/downloadthis/final_data_book__11_june_2014.pdf

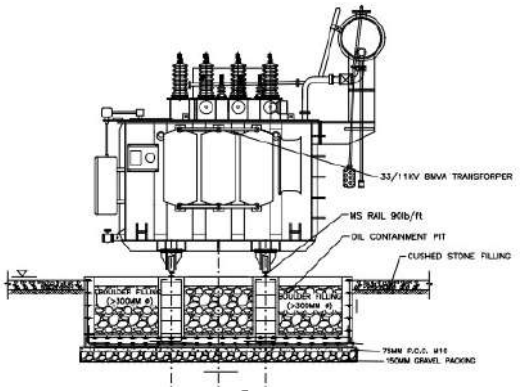
ANNEXES

ANNEX 1: MAP, LAYOUT, SUBSTATION COMPONENTS AND PHOTOGRAPHS OF ANCILLIARY FACILITIES

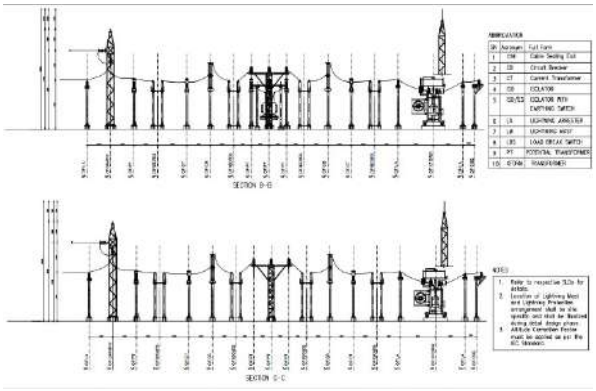




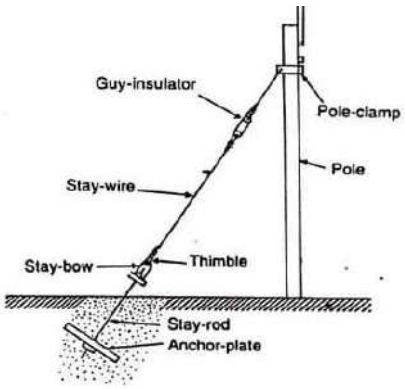
CLIENT: NEPAL ELECTRICITY AUTHORITY DISTRIBUTION AND CONSUMER SERVICES DIRECTORATE DISTRIBUTION SYSTEM UPGRADE AND EXPANSION PROJECT DURBARMARGA, KATHMANDU, NEPAL	CONSULTANT: NEA ENGINEERING COMPANY LTD. TRADE TOWER, THAPATHALI KATHMANDU, NEPAL	PROJECT: DISTRIBUTION SYSTEM UPGRADE AND EXPANSION PROJECT FOR TENDER PURPOSE ONLY NOT IN SCALE	DRAWN	DESIGNED	TITLE: 33/11 KV SUBSTATION LAYOUT FOR HAKUI SUBSTATION
			DRAFTING CHECK	DESIGN CHECK	
			APPROVED	DRAWING NO. SS-HAK-01	



Transformer

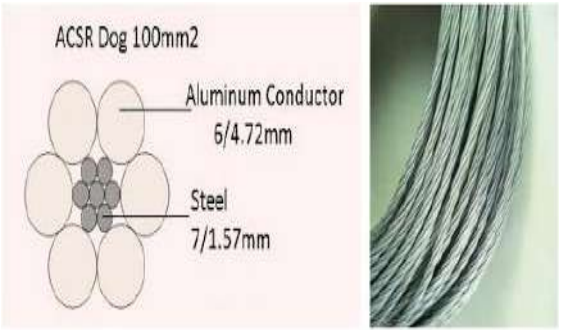


Switch Yard



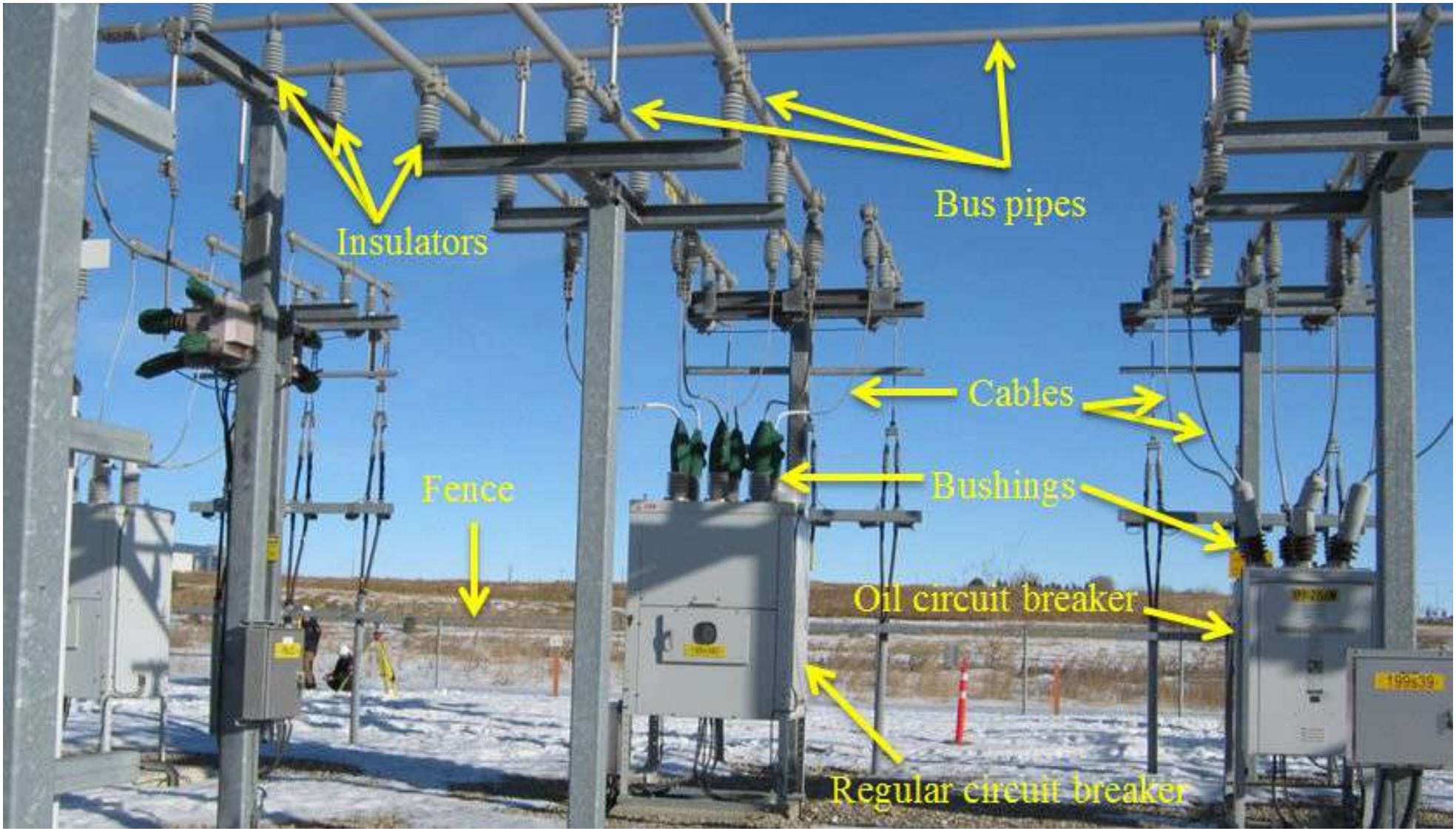
Stay/Guy Sets

Pin Insulator



ACSR DOG Conductor

Typical Diagram of Control Building, Office Building, Staff Quarter and Guard House



Component Location within 33 kV Substation

Bird Diverting Reflector

Wishbone Prevents Bird Landing on Wire

White Spiral in Wire Improves Visibility of Wire

Construction of Nest at Poles also divert Brid not sitting at Wires

ANNEX 2: CERTIFICATE OF LAND OWNERSHIP

नेपाल सरकार

भूमि व्यवस्था, सहकारी तथा गरिबी निवारण मन्त्रालय

भूमि व्यवस्थापन तथा अभिलेख विभाग

मालपोत कार्यालय........ भूमिसुधार तथा मालपोत कार्यालय परासी, नवलपरासी (बर्दघाट सुस्ता पश्चिम)

जग्गाधनी दर्ता प्रमाण पुर्जा

HL0000008

संस्थाको छाप प्रमाणित गर्नेको दस्तखत

संस्थाको नाम: नेपाल विधुत प्राधिकरण भुमही हकुइ १३२ केभि प्रसारण लाइन आयोजना

ठेगाना: जिल्ला: काठमाण्डौं गा.पा. / न.पा. / गा. वि. स.: काठमाण्डौं महानगरपालिका वार्ड नं.: ३०

दर्ता न.: ००

जारी गर्ने कार्यालय: नेपाल सरकार,

वेबसाइट: ईमेल:

दर्ता मिति (वि.स): २०७७/१२/०२

साविक कित्ता नं.	प्रमाण संकेत / कारोबार व्यहोरा	जिल्ला / गा. वि. स. / न. पा.	वार्ड नं./ नक्सा सीट नं.	कित्ता नं./ खण्डे नं.	विवरण (घर, आबादी, इत्यादि)	जग्गाधनीको हकहिस्सा	मोहीको नाम थर	किसिम वा वर्ग	क्षेत्रफल/ व.मि.	कैफियत	प्रमाणित गर्नेको दस्तखत
६३५,६३७,६३८,६४०,९२०,९५४,९५५,९५६,१०६४,१०६५, ११७२,११७३,११८१,११८२,१२०६,१२०७,१२०८,१२०९, १२२१,१२२७,१२२९,१२३१	२०७८/०५/१८ ML0000268 कित्ता एकीकरण हाल साबिक	नवलपरासी (बर्दघाट सुस्ता पश्चिम) हकुई	८ ६	१२३५ ०	आबादी रैकर निजी	एकलौटी		धनहर/ खेत सीम	३-१५-१५-० (बिघा) ०-२०-२०-[illegible] २५६४१.२९		

जम्मा क्षेत्रफल २५६४१.२९ वर्ग मिटर

नेपाल विधुत प्राधिकरण भुमही हकुइ १३२ केभि प्रसारण लाइन आयोजना

प्रिन्ट गर्नेको दस्तखत ....

प्रिन्ट गर्नेको नाम : वीर बहादुर नेपाली

प्रिन्ट मिति : २०७८/०५/१८

रुजु गर्नेको दस्तखत ....

०८८/८/१९२

नेपाल विद्युत प्राधिकरण, भुमही-हकुई १३२ के.भी प्रसारण लाईन आयोजनाको लागि नवलपरासी जिल्ला बर्दघाट सुस्ता पश्चिम रामग्राम नगरपालिका बकेनवा र आसपासको क्षेत्रमा करिब ४ बिगाह जग्गा स्थायी रुपमा प्राप्ति गर्ने सम्बन्धित प्रारम्भिक कारवाहीको प्रतिवेदन प्राप्त भएकोले जग्गा प्राप्ति ऐन २०३४ बमोजिमको समितिको बैठक यस नवलपरासी (बर्दघाट सुस्ता पश्चिम) जिल्लाको प्रमुख जिल्ला अधिकारी श्री सागर मणि पाठकज्यूको अध्यक्षतामा आज मिति २०७७।०४।०२ मा बसी तपसील बमोजिमको निर्णय गरियो ।

उपस्थितिः

१.संयोजक श्री सागर मणि पाठक , प्रमुख जिल्ला अधिकारी, जिल्ला प्रशासक कार्यालय, न.प.(बसुप)

२. सदस्य श्री सुरेन्द्र के.सि., प्रमुख, जिल्ला मालपोत कार्यालय, भूमि सुधार तथा मालपोत कार्यालय, न.प.(बसुप)

३. सदस्य श्री दीपक गौतम, आयोजना प्रमुख, भुमही-हकुई १३२ के.भी प्रसारण लाईन आयोजना

४.सदस्य श्री रुद्र प्रसाद रेग्मी, प्र.प्र.अ., रामग्राम नगरपालिका, न.प.बसुप

आमन्त्रित :

श्री जोरा सिंह माझी, स.प्र.जि.अ. जिल्ला प्रशासन नवलपरासी (बर्दघाट सुस्ता पश्चिम)

श्री खेमराज ओझा, प्रमुख कोष नियन्त्रक, को.ले.नि.का, नवलपरासी (बर्दघाट सुस्ता पश्चिम)

श्री सुग्रीव यादव, प्रमुख, नापी कार्यालय, नवलपरासी (बर्दघाट सुस्ता पश्चिम)

श्री श्रीप्रसाद गौतम, प्र.अ. . जिल्ला प्रशासन नवलपरासी (बर्दघाट सुस्ता पश्चिम)

श्री भगवान थारु, वडाध्यक्ष, वडा नं. १६ को कार्यालय रामग्राम न.पा.,नवलपरासी (बर्दघाट सुस्ता पश्चिम)

श्री राजेश कुमार शर्मा, लेखापाल, भुमही-हकुई १३२ के.भी प्रसारण लाईन आयोजना

श्री कमल अधिकारी, सुपरभाइजर, सुनवल १३२ के.भी सव स्टेशन आयोजना

श्री सुनिल दत्त कहाँर, क.अ. जिल्ला प्रशासन कार्यालय, न.प.बसुप

श्री कल्पना बर्देवा चिदी मगर, का.स. जिल्ला प्रशासन कार्यालय, न.प.बसुप

छलफल तथा निर्णयः

नवलपरासी (बर्दघाट सुस्ता पश्चिम) जिल्लामा थप विद्युत आपूर्ति गर्नको लागि नेपाल सरकारको लगानीमा निर्माण हुने भुमही-हकुई १३२ के.भी. प्रसारण लाईन आयोजना अन्तर्गत रामग्राम नगरपालिका बकेनवा र आसपासका क्षेत्रमा आवश्यक पर्ने करीव ४ बिगाहा जग्गा स्थायी रुपमा प्राप्त गर्न जग्गा प्राप्ती ऐन, २०३४ अनुसार दफा ८ बमोजिम प्राप्त प्रारम्भिक कारवाहीको प्रतिवेदन अध्ययन गरियो । सो प्रतिवेदन अनुसार आयोजनाको सवस्टेशन निर्माणको लागि आवश्यक जग्गा स्थायी रुपमा प्राप्त गर्न जग्गा प्राप्ती ऐन, २०३४ को दफा ९ को उपदफा १ को प्रयोजनार्थ सम्बन्धित सबैको जानकारीको लागि संलग्न सूचना प्रकाशित गर्ने, सोहि ऐनको दफा १० अनुसार सूचना प्रकाशित भएको मितिले २१ दिन भित्र सरोकारवाला व्यक्तिले मुआव्जा दावी गर्न आ-आफ्नो हकदैया वा भोगचलन सम्बन्धित सबुद, निस्सा तथा प्रमाण सहित रीतपूर्वक निवेदन यस कार्यालयमा दिन सूचित गर्ने र तोकिएको म्याद भित्र निवेदन नदिई म्याद गुजारेको खण्डमा कानून बमोजिम हुने समेत जानकारी गराउने निर्णय गरियो ।

प्राप्त गर्नु पर्ने जग्गाको विवरण:

नवलपरासी (बर्दघाट सुस्ता पश्चिम) जिल्ला,रामग्राम नगरपालिका-१६, साविक हकुई-८

सि.नं	कित्ता नं	साविक क्षेत्रफल (बिगाह-कठ्ठा-धुर)	अधिग्रहण गर्नु पर्ने बाँकी जग्गा (बिगाह-कठ्ठा-धुर)		जग्गा धनीको नाम थर	बाबु / पतिको नाम	बाजे / ससुराको नाम	कैफियत
			क्षेत्रफल	तर्फ				
१	११०९	३-२-१०	१-१०-५	उत्तर	साबरमल अग्रवाल	शिवभगवान अग्रवाल	कन्हैया अग्रवाल	
२	१११०	१-११-१२	०-१५-२	उत्तर र पूर्व	अतुल न्यौपाने	टिकाराम न्यौपाने	लिलाराम न्यौपाने	
३	९२०	०-२-५	पूरा					
४	९५४	०-०-१५	पूरा					
५	९५५	०-०-१५	पूरा					
६	९५६	०-०-१५	पूरा					
७	६३७	०-१-६	पूरा		सुमित्रा थारु	केदार थारु	झुर्रा थारु	
८	६४०	०-१-८	पूरा					
९	१२०६	०-०-१७	पूरा		पदम बहादूर चौधरी	राम कृष्ण थारु	झुर्रा थारु	
१०	१२०७	०-०-८	पूरा		धुरप नारायण चौधरी	राम कृष्ण थारु	झुर्रा थारु	
११	६३५	०-१-५	पूरा		आशा खवास	पशुराम धर्ती		
१२	१२०९	०-०-१८	पूरा		भोज बहादूर चौधरी	राम कृष्ण थारु	झुर्रा थारु	
१३	१२०८	०-०-१०	पूरा		धुरप नारायण चौधरी	राम कृष्ण थारु	झुर्रा थारु	
१४	६३८	०-१-७	पूरा		पवित्रा देवी थारु	मंगली थारु	फागू थारु	
१५	११७२	०-१-०	पूरा		गोरखनाथ चौधरी	तेजवली थारु	बुदि थारु	
१६	११७३	०-२-२	पूरा		तेजवली थारु,ओमकान्ती थारु	बद्री थारु	नोसई थारु	
१७	११८२	०-०-५	पूरा		सन्तोष कुमार चौधरी	तेजवली थारु	बद्री थारु	
१८	११४४	०-४-५.५	पूरा		हफि जुल्ला फकिर	मुनिर रुल्ला	मुतुर्जा फकिर	
१९	३६६	०-४-७	०-२-८	पश्चिम	बंश बहादूर कुर्मी	बासुदेव कुर्मी	कुर्ज बिहारी	
२०	१०६४	०-२-७	पूरा		अतुल न्यौपाने	टिकाराम न्यौपाने	टिकाराम न्यौपाने	
२१	१०६५	०-२-७	पूरा		ममता शर्मा	टिकाराम न्यौपाने	टिकाराम न्यौपाने	
२२	७५९	०-६-१२	०-३-१४	पश्चिम	अतुल न्यौपाने	टिकाराम न्यौपाने	लिलाराम न्यौपाने	
२३	५५७	०-४-१३	०-०-१०	पश्चिम	शोभा प्रसाद्र यादव	श्याम लाल यादव	छैन	

ANNEX 3: FIELD VISIT PHOTOGRAPHS

Expert Team during Field Study at Hakui Substation

Stakeholders during Public Consultation cum FGD Meeting at Bakenawa

Public Consultation Meeting at Bakenawa

ANNEX 4: NOTICE FOR PUBLIC CONSULTATION

नेपाल विद्युत प्राधिकरण

(नेपाल सरकारको स्वामित्व)

वितरण तथा ग्राहक सेवा निर्देशनालय

फ्याक्स: ०१-४११५३१४४
फोन नं : ०१-४११५३१४५
दरबारमार्ग, काठमाण्डौं।

नेपाल वितरण प्रणाली स्तरोन्नती तथा विस्तार आयोजना

नेपाल वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजनाको वातावरणीय तथा सामाजिक अध्ययन प्रतिवेदन तयारी सम्बन्धि सूचना

सूचना प्रकाशन मिति: २०६८।०५।०५

लुम्बिनी प्रदेश नवलपरासी बर्दघाट पुतला पश्चिम जिल्ला रामग्राम (नगरपालिका/गाउँपालिका/महानगरपालिका/उपमहानगरपालिका) मा यूरोपियन इन्भेस्टमेन्ट बैंकको ऋण सहयोग भएको नेपाल विद्युत प्राधिकरण, वितरण तथा ग्राहक सेवा निर्देशनालय, वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजना प्रस्तावक रही कार्यान्वयन गर्न लागिएको पुतला-इकुई विद्युत वितरण लाईन आयोजना कार्यान्वायन हुनुभन्दा अघि सो आयोजनाले त्यस क्षेत्रको वातावरण तथा सामाजिक पक्षहरुमा के-कस्तो प्रभाव पार्दछ भनि स्थानीय सरोकारवालाहरु सँग छलफल गर्न आयोजना क्षेत्रका सम्पूर्ण सबै सरोकारवालाहरुको निम्न स्थान तथा समय उपस्थितिका लागि यो सूचना प्रकाशित गरिएको छ।

सार्वजनिक छलफल हुने स्थान, मिति र समय:

स्थान: प्रस्तावित सबस्टेशन, इकुई

मिति: २०६८।०५।०६

समय: बिहान ११:००बजे

ANNEX 5: PROOF OF PUBLIC NOTICE PASTING

मिति २०७८/०६/०६ गते नेपाल विद्युत प्राधिकरण, नेपाल वितरण प्रणाली सुधार तथा विस्तार आयोजना अन्तर्गतको नवल परासी सुस्ता पश्चिम जिल्ला रामग्राम न.पा. वार्ड नं १६ मा निर्माण हुन लागेको हकुई सबस्टेसन निर्माण हुनु पुर्व सो आयोजना को वातावरण तथा सामाजिक अध्ययन कोलागी स्थानिय सरोकारवाला संग छलफल का लागी जानकारी दिन सोही कार्यालय को मिति २०७८/०४/२८ गतेको पत्रानुसारको सुचना हामी देहाय बमोजिम को उपस्थितीमा रामग्राम न.पा. वार्ड नं १६ स्थित (फेकेनवा) श्री प्रकाश चन्द्र गुप्ता को घर भित्ता मा टासी सो को व्यहोरा जानकारी गराउँदछौं।

सुचना टास मुचुल्का साक्षीहरुको नाम थर र दस्तखत

श्री प्रकाश चन्द्र गुप्ता - रामग्राम-१६ फेकेनवा ९८६६९७००२५
श्री भगिरथी यादव - ,, ९८०२६७३८४६
श्रीमती रामभाया गुप्ता - ,, ,,
श्री काशि प्रसाद हजिन ,, ,, ९८०६३८९३४०

रामग्राम नगरपालिका

१६ नं. वडा कार्यालय

हकुई, नवलपरासी

लुम्बिनी, प्रदेश, नेपाल

पत्र संख्या: ८१
चलानी नं.:

मिति: २०७८।८।१३

विषय: सुचना टाँस गरिएको बारे ।

श्री नेपाल विद्युत प्राधिकरण
नेपाल विद्युत प्रणाली स्तर उन्नती तथा विस्तार योजना

उपरोक्त विषयमा तहां कार्यालयको मिति २०७८।७।४ ५५ गते पत्र सं. १६ को पत्रानुसारको सुचना यस कार्यालयमा सुचना पाटीमा टाँसी एको व्यहोरा अनुरोध गरिन्छ।

(हस्ताक्षर)
२०७८।८।१३।१०

रामग्राम नगरपालिका
१६ नं. वडा कार्यालय
हकुई, नवलपरासी
लुम्बिनी प्रदेश, नेपाल

ANNEX 6: CONSULTATION MEETING MINUTES

रामग्राम नगरपालिका
१६ नं. वडा कार्यालय
हकुई, नवलपरासी (ब.सु.प.)
लुम्बिनी प्रदेश, नेपाल

प.सं. : २०७८/०७९
च.नं. : ९११९

मिति २०७९।३।१३:

श्री वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजना,
वितरण तथा ग्राहक सेवा निर्देशनालय,
नेपाल विद्युत प्राधिकरण,
दरबारमार्ग, काठमाण्डौं।

विषय: हकुई सब-स्टेशनको निर्माण-पूर्व गरिएको परामर्श बारे।

महोदय,

उपरोक्त विषयमा नेपाल विद्युत प्राधिकरण, वितरण तथा ग्राहक सेवा निर्देशनालय, वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजनाले यस रामग्राम नगरपालिका वडा नं. १६ (साबिकको हकुई नगरपालिका वडा नं. ८) मा ने.वि.प्रा. ले अधिग्रहण गरिसकेको जग्गामा निर्माण हुनगईरहेको ३३/११ के.भी. विद्युतीय सब-स्टेशनको निर्माण-पूर्व निर्माण क्षेत्रमा मिति २०७८/०६/०७ मा परामर्श/सार्वजनिक सुनुवाई गरेको र सो परामर्श/सुनुवाई हुने समय र स्थानको बारेमा यस वडा कार्यालय तथा अन्य सरोकारवालाहरुलाई पूर्व-सूचित गरिएको व्यहोरा प्रमाणित गरिन्छ।

२०७९।३।१३
विजय कुमार यादव
वडा अध्यक्ष

बर्दघाट

आज मिति २०७८ आश्विन ७ गते नवलपरासी सुस्ता पश्चिम जिल्ला रामग्राम नगरपालिका वडा नं. १६ हकुई (बैकुनवा) मा नेपाल विद्युत प्राधिकरण, वितरण तथा ग्राहक सेवा निर्देशनालय, वितरण प्रणाली सुदृढीकरण तथा विस्तार आयोजना अन्तरगत सुनवल हकुई विद्युतीकरण लाईन आयोजना को प्रस्तावित सबस्टेशन निर्माण पूर्व तथा ३३ के.भि लाईन विस्तार पूर्व गरिने सामाजिक तथा वातावरणीय अध्ययन प्रतिवेदन तयारी को लागि स्थानिय सरोकारवाला, आयोजना बाट प्रभावित जग्गाधनी तथा ने.वि.प्रा. आयोजना (DSUEP) का आयोजना प्रमुख, EIB का प्रतिनिधी र NEA Engineering company को विज्ञ समेत को देहाय बमोजिम को उपस्थिती मा देहाय बमोजिम का विषयमा छलफल तथा परामर्श भयो।

उपस्थिती

क्र.सं.	नामथर	ठेगाना	संपर्क नं.	हस्ताक्षर
१.	~~श्याम~~ भुवनरामण चौधरी	रा.न.पा.१६ हकुई जग्गाउपभोगकर्ता	[illegible]	[signature]
२	रिंकु कुमारी चौधरी	रा.न.पा १६ हकुई जग्गा उपभोगकर्ता		रिंकु
३	उमा कुमारी चौधरी	रा.न.पा १६ हकुई जग्गा उपभोगकर्ता		उमा
४	भागरथी यादव	"	[illegible]	भागिरथी
५	प्रकाश चन्द्र गुप्ता	रा.न.पा १६, स्थानिय	९८०२६००५५	प्रकाश
६	मगन मल्ला	"	९८२६१४१४९६	मगन
७	पवीत्रा देवी थारु	"		पवित्रा
८	तेजकली थारु	"		तेजकली
९	दया शंकर यादव	"	९८२६४८४३३१	
१०	हेमन्त कुमार पाण्डे	"	९८०७८३१२३१	[signature]
११	शिव पूजन मल्ला	"	९८२९३३८३०३	शिव पूजन
१२	चन्द्रीका भीहर	"		चन्द्रिका
१३	उमेश मल्ला	"	9812911505	उमेश
१४	विजय सेन खड्का	आयोजना प्रमुख	9841592698	[signature]
१५	शीत ढकाल	~~प्रतिनिधी~~ EIB, Consultant		[signature]
१६	सुवास चन्द्र घिमीरे	समाजशास्त्री -NEA-EC		[signature]
१७	दिवस अधिकारी	वातावरणविद -NEA-EC		[signature]
१८	कृष्ण कार्के	समाजशास्त्री -NEA EC	९८२३१९८५८६	[signature]

उल्लेखित उपस्थितीमा आयोजनाको बारेमा जानकारी दिदा निम्न बमोजिमका विषयमा राय सुझाव सहित छलफल गर्यौं ।

१ हामी सरोकारवाला बासिन्दा समुदाय संग छलफल गर्नका लागि आयोजनाको बारेमा जानकारी दिन आउनुभएका विज्ञ टोली बाट पूर्ण जानकारी प्राप्त गर्दै यस छलफल कार्यक्रममा उपस्थित गर्यौं ।

२ यस सुनवल - ककुई विद्युत वितरण लाईन आयोजनाको बारेमा NEA Engineering Company बाट आउनुभएका विज्ञबाट जानकारी प्राप्त गर्यौं ।

३ यस क्षेत्रमा वितरण लाईन नहुदा voltage drop को कारण विद्युत उपभोगमा निकै असुविधा रहेकाले यस आयोजना छिटै संचालन गर्न अनुरोध गर्दछौं ।

४ प्रस्तावित सब स्टेसन क्षेत्रको जग्गा नै.वि.प्रा ले यस अघि नै अधिग्रहण गरिसकेको व्यहोरा जानकारी गराउँछौं ।

५ हाल सब स्टेसनको जग्गामा हामी मालिकले जग्गा धनीले वालीनाली लगाउदै गरेकोमा आयोजनाले संरचना बनाउने जानकारी दिएपछी सो जग्गा खाली राख्न हामी खुसीसाथ मंजुर गर्दछौं ।

६ आयोजना निर्माणको क्रममा हामी स्थानियवासी तथा सरोकारवालाको पूर्ण साथ सहयोग रहने प्रतिबद्धता गर्दछौं ।

७ आयोजना निर्माण गर्दा हामी थारु, चौधरी समुदाय साथै मुस्लीम, जनजाती तथा अन्य समुदायको संस्कृति, जनजीविकामा कुनै पनि नकारात्मक प्रभाव नहुने व्यहोरा जानकारी गराउदछौं ।

DATE:

आज मिती २०७८/०३/१३ गते नेपाल विद्युत प्राधिकरण, वितरण प्रणाली स्तरोन्नती तथा विस्तार आयोजना अन्तरगत सुनवल हकुई विद्युत वितरणलाईन उपआयोजना को समग्राम न.पा. वडा नं. १६ वडेरवा मा निर्माण हुन गईरहेको सबस्टेसन निर्माण का क्रममा सबस्टेसन क्षेत्र भित्र आदिवासी जनजाती लाई पर्नसक्ने प्रभाव को बारेमा सरोकारवाला आदिवासी जनजाती संग सोही विषयमा देहायको उपस्थितीमा छलफल गरियो।

उपस्थिती:

नाम थर		
श्री भोजबहादुर चौधरी	- पूर्व जग्गा धनी (स्थानीय आदिवासी जातिका अगुवा)	९८४७०३८७८८
श्री तेजबाली चौधरी	- पूर्व जग्गा धनी	
श्री नंदबहादुर कुर्मि	- " "	
श्री भागिरथि यादव	- खेती उपभोग कर्ता	
श्रीमती- सुमित्रा थारु	- "	
श्री गोरख चौधरि	- "	९८४७८५०६६२

माथी उल्लेखित उपस्थितीमा आदिवासी जनजाती लाई पर्नसक्ने सम्भाव्य प्रभाव तथा हाल जग्गा उपभोग सम्बन्धमा ~~छलफल~~ पर्ने प्रभाव को विषयमा देहायको राय तथा सुझाव प्राप्त भयो।

१- आयोजना को बारेमा आयोजना का प्रतिनिधी तथा विज्ञ बाट आयोजना सम्बन्धी पूर्ण जानकारी प्राप्त भयो।

२- आयोजना प्रस्तावित (सबस्टेसन) निर्माण हुने जग्गा जमिन हामीले बिक्री वितरण गरिसकेको (नेपाल विद्युत प्राधिकरण लाई) र हाल सो जग्गा खाली रहेकोले हामी पूर्व जग्गाधनिले प्राधिकरण संग सोधी खेतीपाती गर्दै आएका थियौं अब प्राधिकरणले योजना कार्यान्वयन गर्ने जानकारी दिएकोले हामी ले खुसी राजीले खेतीपाती नलगाउने ~~सबै सोच्छौं~~ र सहयोग जानकारी गराउछौं।

३- आयोजनाबाट थारु आदिवासी जनजाती लाई पर्नसक्ने असरको बारेमा छलफल गर्दा आयोजना निर्माण तथा सञ्चालन गर्दा स्थानिय थारु समुदायको

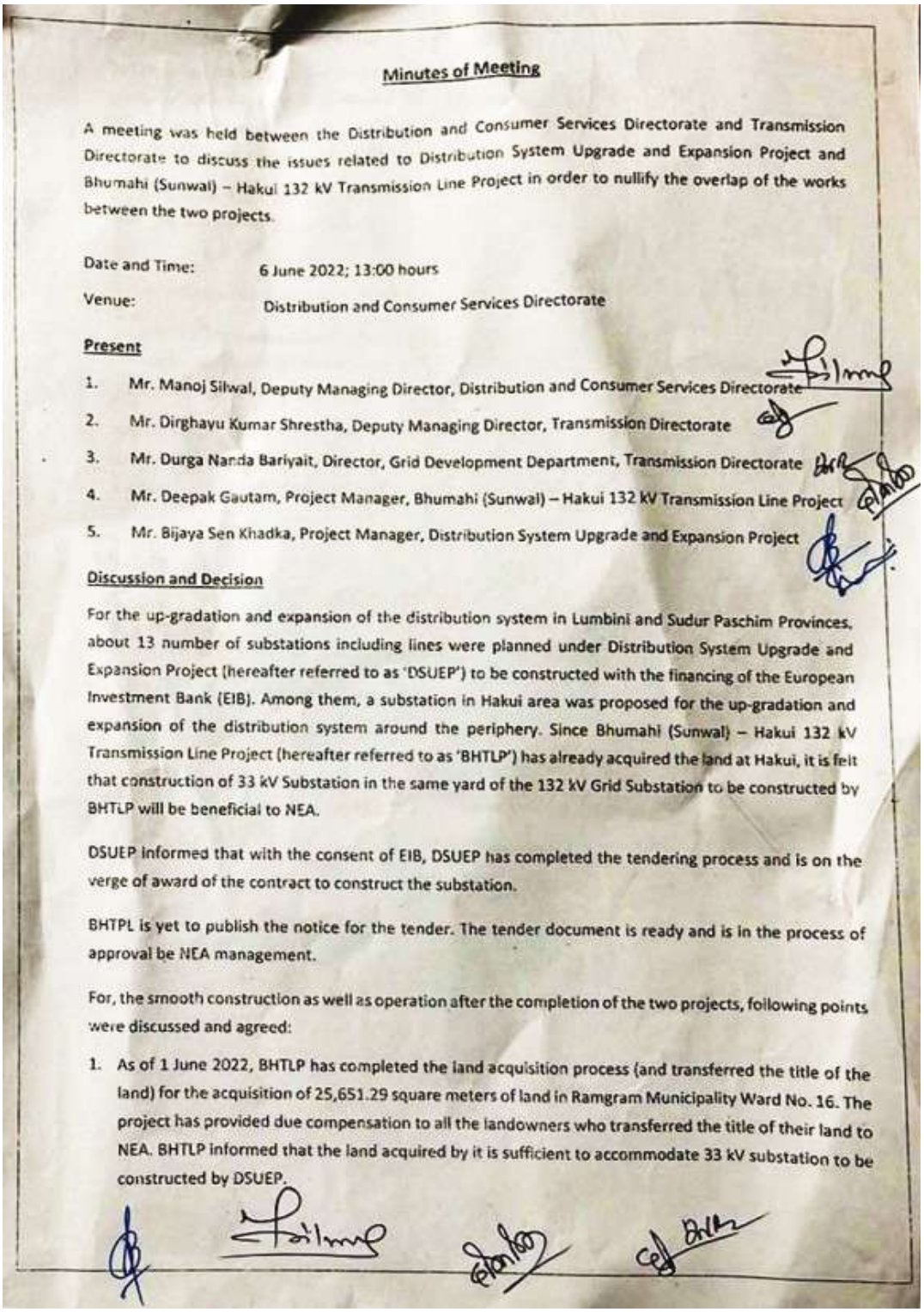
Scanned with CamScanner

वातथलो (customary land) संस्कृति धर्म तथा चालचलन मा कुनैपनिको नकारात्मक प्रभाव नपर्ने कुरा जानकारी गराउँदछौं।

४. यो आयोजना लाई हामी यहाँ स्थानीयको पूर्ण साथ र सहयोग रहने व्यहोरा जानकारी गराउँदछौं साथै योजना मा रोजगारी हो दर्जामा स्थानिय युवालाई प्राथमिकता दिन अनुरोध गर्दछौं। साथै रोजगारीमा पनि जग्गा उपलब्ध गराउने परिवारलाई प्राथमिकता दिनु पर्नेछ।

५- आयोजना संचालन निर्माण को क्रममा स्थानिय एवं जग्गा उपलब्ध गराउने सरोकारवाला सँग समन्वय गरी काम गर्नु पर्ने, साथै समुदाय का आवश्यकता का सेवा सुविधा मा आयोजनाले सहयोग गर्ने अपेक्षा गर्दछौं।

ANNEX 7: MEMORANDUM OF UNDERSTANDING BETWEEN DSUEP AND BHTLP FOR LAND USAGE



Minutes of Meeting

A meeting was held between the Distribution and Consumer Services Directorate and Transmission Directorate to discuss the issues related to Distribution System Upgrade and Expansion Project and Bhumahi (Sunwal) – Hakui 132 kV Transmission Line Project in order to nullify the overlap of the works between the two projects.

Date and Time: 6 June 2022; 13:00 hours

Venue: Distribution and Consumer Services Directorate

Present

1. Mr. Manoj Silwal, Deputy Managing Director, Distribution and Consumer Services Directorate
2. Mr. Dirghayu Kumar Shrestha, Deputy Managing Director, Transmission Directorate
3. Mr. Durga Nanda Bariyait, Director, Grid Development Department, Transmission Directorate
4. Mr. Deepak Gautam, Project Manager, Bhumahi (Sunwal) – Hakui 132 kV Transmission Line Project
5. Mr. Bijaya Sen Khadka, Project Manager, Distribution System Upgrade and Expansion Project

Discussion and Decision

For the up-gradation and expansion of the distribution system in Lumbini and Sudur Paschim Provinces, about 13 number of substations including lines were planned under Distribution System Upgrade and Expansion Project (hereafter referred to as 'DSUEP') to be constructed with the financing of the European Investment Bank (EIB). Among them, a substation in Hakui area was proposed for the up-gradation and expansion of the distribution system around the periphery. Since Bhumahi (Sunwal) – Hakui 132 kV Transmission Line Project (hereafter referred to as 'BHTLP') has already acquired the land at Hakui, it is felt that construction of 33 kV Substation in the same yard of the 132 kV Grid Substation to be constructed by BHTLP will be beneficial to NEA.

DSUEP informed that with the consent of EIB, DSUEP has completed the tendering process and is on the verge of award of the contract to construct the substation.

BHTPL is yet to publish the notice for the tender. The tender document is ready and is in the process of approval be NEA management.

For, the smooth construction as well as operation after the completion of the two projects, following points were discussed and agreed:

1. As of 1 June 2022, BHTLP has completed the land acquisition process (and transferred the title of the land) for the acquisition of 25,651.29 square meters of land in Ramgram Municipality Ward No. 16. The project has provided due compensation to all the landowners who transferred the title of their land to NEA. BHTLP informed that the land acquired by it is sufficient to accommodate 33 kV substation to be constructed by DSUEP.

2. BHTLP will landfill the area, and construct a boundary wall and all the civil structures including a Control Building. Inside the Control Building, it will provide space to DSUEP for accommodating one 33 kV transformer CRP and at least 6 numbers of 11 kV switchgears. This is necessary to avoid construction of two control rooms and need of separate operation teams in the future.

3. DSUEP will construct 33/11 kV substation (33 kV Transformer Bay, and structures to accommodate 33/11 kV transformer and associated breakers) and for that BHTLP will provide space in its yard to DSUEP.

4. BHTLP will provide a 33 kV bay to DSUEP which will work as an in-comer for the 33 kV switchyard.

5. Contract for the construction of the substation by DSUEP is on the verge of award. BHTLP will expedite the design and layout of the switchyard and provide as soon as possible necessary drawings to DSUEP so that the contractor of DSUEP can carry out the design of 33 kV switchyard.

6. BHTLP and DSUEP shall coordinate regarding the technical design/layout of the switchyard and control building before starting the construction. This shall avoid conflict of layout and ensure compatibility between related civil and electrical equipment of both the projects.

ANNEX 8: OUTLINE OF ENVIRONMENTAL, HEALTH AND SAFETY PLAN

Chapter 1: Project Overview
- 1.1 Scope of the document
- 2.2 Overview of health and safety features
- 2.3 Project Health, Safety, and Environmental Goals & Objectives

Chapter 2: Safety policy of the Project
- 2.1 Safety policy statement
- 2.2 Contractor's overall safety responsibilities
- 2.3 Contractor's safety Specialist responsibilities
- 2.4 Contractor's Supervisor responsibilities
- 2.5 Worker's responsibilities
- 2.6 Disciplinary policy procedures
- 2.7 Involvement of the public
- 2.8 Color coding for PPE

Chapter 3: Health policy, and amenities
- 3.1 Camp establishment, and operation
  - 3.1.1 Accommodation (Washing, cooking, bedding facilities with locking)
  - 3.1.2 Toilets
  - 3.1.3 Drinking water
  - 3.1.4 Waste collection bin
  - 3.1.5 Lighting
  - 3.1.6 Ventilation
  - 3.1.7 Maintenance of facilities
  - 3.1.8 Menstrual Kit Accessibility
- 3.2 First-aid facilities
- 3.3 Insurance of construction workers
- 3.5 Site facilities for works of short duration
- 3.6 Avoiding fire hazards

Chapter 4: Employee training
- 4.1 Competent person designation
- 4.2 Safety induction for new employees
- 4.3 Toolbox meetings

Chapter 5: Accidents, and emergency
- 5.1 First aid requirements
- 5.2 Assisting coworkers in medical emergencies
- 5.3 Emergency evacuation plan
- 5.4 Standby emergency vehicle
- 5.5 Accident investigations

Chapter 6: Toolbox safety talks
- 6.1 Overview of toolbox meetings
- 6.2 Recognize the warning signs
- 6.3 Good housekeeping
- 6.4 Trenching and excavation
  - 6.4.1 Trenching
  - 6.4.2 Competent person
  - 6.4.3 Protective systems to prevent subsidence
  - 6.4.4 Other safety requirements
- 6.5 Access to scaffolds
- 6.7 Falling object protection
  - 6.7.1 Falling object protection alternatives
  - 6.7.2 Falling object protection methods
- 6.8 Slips, trips, and falls

ANNEX 9: OCCUPATIONAL HEALTH AND SAFETY RELATED SIGNS

SIGNAL NOTICE

First Aid
प्राथमिक उपचार

Emergency Meeting Point
आकस्मिक भेला हुने ठाउँ

Fire Extinguisher
अग्नी नियन्त्रण उपकरण

Fire hose
अग्नी नियन्त्रण पाइप

DANGER SIGNS

Keep Out
निर्माण क्षेत्र- टाढै रहनुहोस्

Danger
खतरा - खुल्ला खाल्डो

Danger of open trench
खतरा - खुल्ला ट्रेन्च

No operation without safety guards
सुरक्षाका साधनविना यो उपकरण संचालन गर्न निषेध

INSTRUCTION SIGNS

Do Not Touch
छुनु मनाही

Food and Drinks Prohibited
खाना तथा मद्यपान निषेध

Slow Sign for Traffic Control
नियन्त्रण गर्नुहोस्

Directional Exit Sign
बाहिर जाने दिशा

SAFETY AND SAFETY INSTRUCTION SIGNS

Safety Gloves Required
सेफ्टी पन्जाको आवश्यक

Safety Vests Required
सेफ्टी भेस्टको आवश्यक

Safety Glasses Required
सेफ्टी चश्मा आवश्यक

Safety Shoes Required
सेफ्टी जुत्ता आवश्यक


निर्माणस्थलमा गर्नहुने र नहुने कुराहरु


निर्माणस्थलमा गर्नहुने र नहुने कुराहरु


Wear
safety harness
Wear safety harness
सेफ्टी हार्नेस लगाउनुहोस्

ANNEX 10: REVIEW OF LEGISLATIVE PROVISIONS

SN	Legislation	Provisions	Relevancy with respect to Project
1.	**Constitution of Nepal**	• Constitution of Nepal is the main legal document, which emphasizes on right of clean environment of the people, natural resources protection, preservation and its prudent use. Rights regarding clean environment, under article 30: • It includes to make multi-purpose development of water resources, while according priority to domestic investment based on public participation to ensure reliable supply of energy in an affordable and easy manner, and make proper use of energy for the fulfillment of the basic needs of citizens, by generating and developing renewable energy in article 51 (g).	DSUEP helps to fulfil the rights of people to live in clean environment along with to fulfil the basic needs by providing access of sufficient energy.
2.	**Environment Protection Act 2076 (2019 AD)**	• Section 3 of the Act requires the proponent to conduct environmental studies in relation to the prescribed proposals of any developmental works. Subsection 2 of this act provides the framework about the environmental study report prepared pursuant to sub-section (1) shall, in fulfillment of the process as prescribed, be submitted to the relevant bodies of Government of Nepal for approval.	Environmental Studies and approved of report from authorized body before construction of any project is mandatory to minimize the negative impacts in Nepal which is addressed in EPA, 2076.
3.	**Environmental Protection Rule, 2077 (2020 AD) [First Amendment on 2078 (2021)]**	• Under the Environmental Protection Rules (2077) first amendment (2078), rule (3) as mentioned in annex (1), Section (F) (Energy, Water Resources and Irrigation Sector) sub-section (1), a proponent shall be required to carry out the Brief Environmental Studies for construction of transmission line project less than 66 kV in forest land for another purpose.	This rule provides the overall guidance to what type of environmental studies is required according to project by Government of Nepal.
4.	**Nepal Environmental Policy and Action Plan, 2050(1993)**	The aims of NEPAP are: • To manage natural and physical resources efficiently and sustainably • To balance the development efforts and environmental conservation for sustainable fulfilment of basic needs	DSUEP should follow the aims of NEPAP to protect and conserve the physical, biological and social environment during

SN	Legislation	Provisions	Relevancy with respect to Project
		• To preserve endemic and endangered species and their habitats; the promotion of private and public institutions for biological resources inventory and conservation • To safeguard national heritage • To mitigate adverse environmental impact of development protects and human actions • To integrate environment and development through appropriate institutions, adequate legislation and economic incentives and sufficient public resources	construction of 33 kV distribution line along with substation.
5.	**CITES Act, 2017**	Prohibits for the treat and business of protected species is explained in Section 1, Rule 3 of this act. However, Sub-Rule 2 of the Rule 3 has allowed for the export and import of protected species for certain circumstances mention under sub-rule after taking approval. The Section 5 of the acts state the provision of punishment for the unauthorized import, export and provision mentioned in Section 3.	This act binds the workers along with the people not to collect, treat and business of the protected plants and animals listed in appendices of CITES.
6.	**Electricity Act 1992**	• No person shall be entitled to conduct survey, generation, transmission or distribution of electricity without obtaining license under this act. • The Electricity Act of 1992 has provision of land procurement for the development of projects that involve electricity generation, transmission or distribution. The Act states that the licensee may submit an application to GoN to purchase the land or house of any person if it is required for the generation, transmission or distribution of electricity. Upon the receipt of such an application, GoN may make the land or house, so requisitioned, available to any corporate body under the prevailing laws.	The main goal of this project is to distribute the sufficient amount of electricity by constructing 33 kV line and substation by conducting the survey to minimize the impacts.
7.	**Soil and Watershed Conservation Act, 2039 (1982**	Soil and watershed conservation Act, 1982 expedient to make legal provisions on the land and watershed conservation by controlling natural calamities such as flood, landslide and soil erosion and maintain convenience and economic interests of	To do the works, which can act, as causative factor of flood, landslide and soil erosion should

SN	Legislation	Provisions	Relevancy with respect to Project
	AD)	the general public.	strictly be prohibited during the construction of this project.
8.	**Rural Energy Policy, 2006**	Rationale of formulating and implementing this policy is to create conducive environment that will self-motivate and mobilize local institutions, rural energy user groups, non-government organizations, cooperatives and private sector organization for the development and expansion of rural energy resources. The government will facilitate and promote to involve private development and expansion of new technologies. It has also envisioned subsidy provision for promotion of such renewable energy technologies.	This project helps to improve the distribution and motivate to use the electricity in rural areas of western Nepal.
9.	**Labor Act, 2074 (2017 AD)**	This labor Act was made under the management of parliament under sub-clause 1 of clause 296 of Constitution of Nepal. Sub-section 3 of Section 2 states that the employees should not be compelled to other work other than they are assigned for. In addition, Sub-section 5 of Section 2 states about prohibition of child labor in any organization and sub-section 6 of Section 2 states that there should not be any kind of discrimination among the employee's regard of religion, ethnicity, gender, origin, language or intelligence or other kind of characters.	Construction of project is only possible when the rights of labor is secure. In this project, the Contractor should follow this act strictly.
10.	**Child Labor (Prohibition and Regulation) Act, 2056 (2000 AD)**	As per section 3 of this act, no child having not attained the age of 14 years shall be engaged in works as a laborer.	Child labor is strictly prohibited in this project and Contractor should follow this act.
11.	**Solid Waste Management Act, 2068 (2011 AD)**	This act has been formulated with a goal of minimizing solid waste production from the target area by setting rules and regulation on solid waste management (SWM) in the country in order to develop better environment for the systematic and	This act provides the overall framework to manage the solid waste generated from

SN	Legislation	Provisions	Relevancy with respect to Project
		effective management of solid waste and to involve all the concern stakeholders in SWM practice. The main features of this act are discussion of 3R principle (Reduce, Reuse and Recycle). 3R principle seems to be very beneficial as it not only increases the life of landfill site but also save the money, which could be used for other infrastructure development. Section 4 of the act assign the local body to manage or use the solid waste discharged or dumped in collection center, transfer station or treatment plant or collected during cleaning.	households to project level. In addition, the proponent should manage the waste generated during construction.
12.	**Solid Waste Management Rules, 2070 (2013 AD)**	The solid waste management rule was formulated as per provision made in article 50 of Solid Waste Management Act, 2068. This regulation has emphasized the segregation of waste at source and mentioned that the responsibility of proper disposal and management of source belongs to the producers themselves. Section 3 of the rule describes about the segregation and management of solid waste. It has mentioned that it is essential to segregate degradable and non-degradable solid waste at source.	These rules provide the overall framework about how to reduce the volume of waste to dispose from the source during construction of substation.
13.	**Fifteenth Plan**	Vision of 15th plan is in contribution to the prosperity of the nation through sustainable and reliable development of hydropower by setting the goal which is ensure energy security through intensifying hydropower generation. In addition, one of the strategies of government of Nepal in 15th plan is to make the distribution system effective and reliable to increase energy efficiency and increase power consumption by expanding access to electricity by formulating the required policies.	This 5-year interim plan sets the goal about generation and distribution of hydroelectricity in Nepal, which is directly related to this project.
14.	**United Nations Framework Convention on Climate Change (UNFCCC), 1992**	UNFCCC, Signatories: 165. Parties: 195. (1), Article (4), commitment (f) states climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments,	Goal of this project is to replace the traditional form of energy by clean energy i.e., electricity which ultimately reduces

SN	Legislation	Provisions	Relevancy with respect to Project
		formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change. After it entered into force on 21 March 1994, in accordance with, it mandates the individual state for prioritization of resource conservation with development.	the air pollution and smoke.
15.	**Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 and its Amendment 2014/52/EU**	This Directives in Annex II 3(b) speaks for Projects Referred to in Article 4 (2) for only on "Industrial installations for carrying gas, steam and hot water; transmission of electrical energy by overhead cables (Projects not included in Annex I)" should follow EIA study.	As per the nature and scope of the details, the proposed Subproject is of electricity distribution system instead of overhead electricity transmission lines for which no EIA level study is required.
16.	**ILO 169**	The main objective of this convention is to secure the rights of indigenous and tribal people along with the gender equality and non-discrimination of workers during work. The Article 1 on First Part of this convention mainly focused on following points: (a) the social, cultural and economic conditions of tribal peoples in independent countries differentiate from other parts of the national community and their status is managed fully or partially by their own customs or traditions or by special laws or regulations; (b) peoples in independent countries who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.	Nepal is the part of ILO convention that's why ILO 169 should strictly followed during construction and implementation of any types

SN	Legislation	Provisions	Relevancy with respect to Project
		• Self-identification as indigenous or tribal shall be regarded as a fundamental criterion for determining the groups to which the provisions of this Convention apply. • The use of the term peoples in this Convention shall not be construed as having any implications as regards the rights, which may attach to the term under international law.	
17.	**Environment and Social Management Framework**	• ESMF is to guide DSUEP sub-projects in the area of E&S management using appropriate instruments, methodologies, procedure and responsibilities during the project cycle. NEA and the project partners shall apply during design and development of the sub-projects in order to comply with the Government of Nepal E&S regulations and the EIB standards on E&S assessment and management, Involuntary Resettlement, Indigenous People, Gender, etc.).	Main guiding document for E&S study to identify issues and recommending appropriate practical augmentation/ mitigation measures
18.	**Environmental and Social Policy (ESP)**	• This policy speaks for the mandatory E&S requirements for each Project like, screening, DDR, E&S Assessment, ESMP, ESMF, Information Disclosure, Consultation and Monitoring and Evaluation.	Mandatory requirement for ESMP study
19.	**EIB E&S Standards**	• This Standard recognizes the importance of the promoters' commitment to effective and sustained environmental and social performance through the establishment of an environmental and social management system commensurate with the identified impacts and risks.	Mandatory requirement for ESMP study

ANNEX 11: DUE DILIGENCE REPORT

I. PROJECT DESCRIPTION

A. Background

Distribution System Upgrade and Expansion Project (DSUEP), hereinafter referred as *"Project"*) is expected to enhance and expand the electricity distribution system to improve the reliability (voltage level and reduction in power loss) and coverage of electricity supply in the Sudhurpaschim, Karnali and Lumbini Provinces. The Government of Nepal (GoN) and Nepal Electricity Authority (NEA) have agreed to receive loan financing from European Investment Bank (EIB) to 13 Subprojects under DSUEP. The Environmental and Social Management Framework (ESMF) has provisioned that the Subprojects that are likely to have environmental and social risks/impacts easily addressed through ESMP are categorized as Category III Subprojects requiring Due Diligence Report (DDR) along with ESMP report. The main objective of the E&S due diligence process is to review any potential social issues and risks associated with the activities related to the sub-projects. The Sunwal-Hakui Substation Subproject (hereafter referred to as "*Subproject*") is one of the 13 Subprojects being constructed under DSUEP.

B. Subproject Component

This Subproject level environmental and social studies for DSUEP is focused on the Component-I. In this Subproject, only one component is included.

a) **33kV Substation:** The substation 33/11 kV of capacity 24MVA has been proposed. The major component of the substation is Power Transformer of ONAN/ONAF (Oil Natural Air Natural/Oil Natural Air Forced) cooling mechanisms; which is supported by the switchgear (Circuit Breaker, Earth Switch, Current Transformer, Potential Transformers) components and Civil Structures like control building, guard house, staff quarter, switchyard, boundary walls, internal access road, drainage and essentials.

II. SUBPROJECT DESCRIPTION

The Subproject is located at Hakui, Ramgram Municipality-16 of Parasi District of Lumbini Province. The site is approximately 246 Km through Prithivi Highway, Narayanghat-Mugling Highway and East-West Highway in southwest of Kathmandu. It constitutes of 33/11kV substation of capacity 24MVA only and is proposed in 2.565 ha land. The substation land is owned and managed by NEA since 2078/05/18 (3 September 2021).

III. FIELD WORK: ASSESSMENT AND PUBLIC CONSULTATION

Literature review comprised the review of previous relevant reports, EIB's Environmental and Social Safeguard documents, ESMF for DSUEP and feasibility study reports, and relevant social safeguard documents prepared by the NEA. The study team had conducted field visit from 2078/06/05 to 2078/06/12 (21-28 September 2021). Local level stakeholders including the users, local people and teachers were notified through a notice from NEA which included the objectives, venue, and time of consultation requesting their presence in the consultation meeting. The meeting was conducted at the Bakenawa, Ramgram Municipality-16 on 2078/06/07 (23 September 2021). Hard copies of Subproject features and activities language were shared in Nepali at the time of consultation. Each of the components, activities and possible environmental and social issues during Subproject implementation was briefed. In total, 13 participants (5 female and 8 male) participated in the meeting. The views/consent, concerns,

recommendations/suggestions, and demands of the participants were documented in the form of minutes (ANNEX 6).

IV. SOCIO-ECONOMIC PROFILE

In Ramgram Municipality, the male population is 29,132, and female population is 30,323 aggregating total population to 59,455. Ward No. 16 has the total population of 6,627 among which 3,185 are male, and 3,442 are female living in 1,096 households. The majority ethnic composition nearby the Subproject area is of Tharu/Chaudhary and Chhetri/Brahmin (Terai). Nearly 80% population rely on agriculture based earning source followed by daily wage labor, small trade and business/enterprises and services. The previous land titleholders (15 users) are cultivating agricultural crops as a supporting household income source (ANNEX 2).

V. SOCIAL IMPACTS

i. A 33kV substation is proposed in NEA's land. At present, the previous land titleholders are cultivating agriculture crops. The household income source will be affected by the Subproject.

ii. No relocation impacts or impacts on structures and private land acquisition are anticipated at any of the identified proposed Subproject footprint area.

VI. ENTITLEMENT MATRIX

Components	Capacity/ Length with No.	Area (Sq.m)	Land Ownership	Involuntary Resettlement (IR) Impacts	Indigenous People (IP) Impacts	Proposed Mitigation Measures
A. Construction of New Substation	24 MVA/ 1	Required: 2.565ha	NEA	The land is owned by NEA, which is cultivated by the previous titleholders. Of total land, only a part will be used for 33kV substation construction. No any structures are present on the proposed site. No IR impacts are anticipated.	The previous titleholders are from Tharu/ Chaudhary community cultivating agriculture crops. The users have given consent to use the lands with an advance notice only. No negative impact are envisaged on the religious sites, professions, customary rights, religion and values of Tharu/Chaudhary, Muslims, and other community at the time of Subproject construction.	Appropriate financial assistance and crop loss compensation will be provided as provisioned in Table 3-10.

VII. INFORMATION DESSIMINATION

The DDR is publicly available in Nepal Electricity Authority Office and Project Implementation Unit.

VIII. GRIEVANCE REDRESS

The Subproject will entail the concerned party submitting a grievance either in-person, or via phone, letter, or email to the Site-Engineer or the concerned Municipality Chief or the concerned Ward Chair. The Site-Engineer will record such complaint. In cases where Ward Chair has received such grievance, s/he should forward the grievance to the Site-Engineer. The Site-Engineer shall notify the committee members of Tier-I and arrange meeting to resolve the received grievances. The Subproject level GRM committee will ensure the grievances are addressed. If not resolved, such grievances will be forwarded to Tier-II and then to Tier-III as described in **Section Error: Reference source not found**.

IX. CONCLUSION

The due diligence study findings suggests that there are minimal social impacts associated with the Subproject which will be addressed with minimal mitigation

measures. No relocation impacts or impacts on structures and private land acquisition are anticipated at any of the identified proposed Subproject footprint area except. NEA will address the total implementation cost as estimated in Table 4-14.