ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

HIMA-BADKI DISTRIBUTION LINE SUBPROJECT

SUBSTATION (33/11 KV) AND DISTRIBUTION LINE (33 KV)

JUMLA DISTRICT, KARNALI PROVINCE

NEPAL ELECTRICITY AUTHORITY

DISTRIBUTION AND CONSUMER SERVICE DIRECTORATE

DISTRIBUTION SYSTEM UPGRADE AND EXPANSION PROJECT (DSUEP)

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ABBREVIATIONS

ACSR	Aluminum Conductor Steel Reinforced
AIIB	Asian Infrastructure and Investment Bank
BES	Brief Environment Study
COVID-19	Corona Virus Disease
CDP	Community Development Program
CPA	Core Project Area
DCSD	Distribution and Consumer Services Directorate
DHM	Department of Hydrology and Meteorology
DL	Distribution Line
DSUEP	Distribution System Upgrade and Expansion Project
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EPA	Environment Protection Act
EPR	Environment Protection Regulation
EMF	Electromagnetic Field
ESP	Environmental and Social Policy
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
ESSs	Environmental and Social Standards
GHG	Green House Gas
GIS	Geographic Information System
GoN	Government of Nepal
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
IP	Indigenous People
IUCN	International Union for Conservation of Nature
IUSGS	International Union of Geological Sciences
LPG	Liquid Petroleum Gas
MDB	Multilateral Development Bank
MoEWRI	Ministry of Energy, Water Resources and Irrigation
MHT	Main Himalayan Thrust

NEA	Nepal Electricity Authority
PPE	Personal protective equipment
RM	Rural Municipality
RoW	Right of Way
SPA	Surrounding Project Area
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
US EPA	United States, Environment Protection Agency
USGS	United States Geological Survey
VC	Vulnerable Community

Unit

%	Percent/ Percentage
CO_2	Carbon dioxide
dB	Decibel
g	Gram
ha	Hectare
HHs	Households
Kg	Kilogram
Km	Kilometer
kV	Kilovolt
kWh	Kilo Watt Hour
ltr	Liter
LV	Low Voltage
m	Meter
masl	Meter Above Sea Level
mm	Millimeter
MVA	Mega Volt Ampere
MW	Megawatt
NRs.	Nepalese Rupees
^oC	Degree Centigrade
sq.m.	Square Meter

EXECUTIVE SUMMARY

Description of Project: Nepal Electricity Authority (NEA) under Ministry of Energy, Water Resources and Irrigation is responsible for the implementation of the Distribution System Upgrade and Expansion Project (DSUEP). DSUEP will enhance the distribution system to improve the reliability and quality of electric supply in Karnali Province, Lumbini Province and Sudurpashchim Province. The proposed **Hima-Badki Distribution Line Subproject** is located within Hima Rural Municipality (RM), Ward No.1, of Jumla district in Karnali Province. The Subproject requires 0.21 ha of land (Government Land) for the construction of the substation. The 33 kV distribution line of 0.177 km passes along the RoW (Right of Way) of the road. The proposed subproject is financed with a loan by Asian Infrastructure Investment Bank (AIIB).

Description of Environment

Physical Environment: The Subproject (substation and distribution line) area lies in the mountainous region of Jumla district, Karnali Province. The substation lies at Latitude 29°16'59.60"N, Longitude 81°58'27.13"E, and elevation of 2,269 masl. The climate of the Subproject area is sub-tropical. The average maximum and the minimum ambient temperatures recorded nearby the Subproject site i.e., of Jumla is of 24.2^{o}C and 12.4^{o}C. The average annual rainfall is estimated at approximately 54.7 mm per month. The air quality and noise level of the SPA of Subproject were found within the range of the National Ambient Air Quality Standard and Noise Quality Standard, respectively. No water sources were recorded within the distribution line (33kV) and nearby the substation area.

Biological Environment: The proposed Subproject (substation and distribution line alignment) Core Project Area avoided the forestland. The Subproject does not lie in any protected areas, lies in barren land without any induced impact to the biological environment. The Subproject components substation and 33 kV distribution line do not intercept any forest areas, thus there will be no issues of tree loss. The surrounding environment of the Subproject area contains sparse vegetation with species common to the area. Similarly, the bird species recorded in the surrounding environment are House Crow (*Corvus splendens),* Western Spotted Dove (*Spilopelia suratensis),* Common Cuckoo *(Cuculus canorus),* House Sparrow (*Passer domesticus*) and Rock Dove (*Columba livia*). All these bird species are of least concern under IUCN categorization.

Socio-Economic Environment: The major ethnic compositions within the surrounding project area i.e., Ward No. 1 of Hima RM are Hill Brahmin/Chhetri (82.99%), followed by Hill Dalit with 15.85% of the total population of 2,112. The implementation of the Subproject will increase the electricity beneficiaries to 10,589 HHs, 45 commercial purposes and 15 industries. Kalikakhetu, Badki, and Mahabaipathar Khola are the nearest business market nearby the Subproject area. The transportation facilities in this local level seem to be satisfactory. Tap/piped water is the main source of drinking water in the surrounding Subproject area. People of the Subproject have access to communication facilities mainly through mobile telephone services. The nearest and easily accessible equipped health facility to the proposed Subproject is in Badki located at less than a minute walking distance from substation site. The main occupation of people in the area is agro base with nearly 65% contribution followed by small trade and business/enterprises and services.

Potential Impacts and Mitigation Measures: Civil works will be involved with temporary impacts on air, noise and water quality and occupational and community health and safety; particularly related to working with electricity and in the context of the COVID-19 pandemic. Long-term impacts, although insubstantial, during operation and maintenance include occupational and community health and safety risks related to the presence of electricity infrastructure. The potential environmental issues and mitigation measures identified in screening and the preparation of the ESMP report will be addressed during the compliance monitoring carried out by the safeguard team. The land requirements for the substation and the pole erection there will be no any issues. Since the proposed substation land is government land and for the distribution line people have suggested to install poles at the edge of farm-lands, without affecting any private structures along the distribution line. The ESMP cost estimated for the Subproject is NRs 13,00,000.00 associated with mitigation measures and monitoring activities. NEA Project Implementation Unit has agreed on the estimated cost for the mitigation measures and monitoring activities.

Environmental and Social Management Plan: The ESMP serves as a guide to implement environmental and social mitigation measures and the responsibility of the concerned agencies during the construction and operations of the Subprojects. Monitoring and inspection of the environmental and social activities will be carried out by the Environment and Social Management Unit and the Project Supervision Consultant of PIU. ESMP will be an integral part of the contractor's Bidding document which will be updated by the contactor during the sub-project construction period.

Institutional Arrangements: To ensure full compliance with the ESMP, an institutional arrangement for monitoring and reporting has been proposed. All the resources needed for the implementation of ESMP for the construction and operation phase will be provided by the PIU. Project Supervision Consultant's with Environmental and Social Safeguard Specialist will be responsible for compliance monitoring activities during the construction phase. The Environment and Social Management Unit of NEA will provide regular updates to the site offices regarding the implementation of ESMP. The contractor shall prepare an Environment, Health, and Safety (EHS) plan approved by the PIU before field mobilization. The contractor should mobilize a safety officer at each work site during the construction period.

Public consultation: Public consultations have been conducted in the Subproject area. People in the Subproject area noted that electricity service is poor with frequent interruptions. People have suggested installing poles at the edge of farm-lands, and project components should not affect any houses and structures along the line. The impacts on the crops while stringing lines should be minimized. Prospective electricity consumers and people to be affected are supportive and have recommended quick implementation of the project.

Grievance Redress Mechanism (GRM)**:** A three-tier 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 issues at Subproject level. In each Subproject, two levels i.e., Tier-I and Tier-II of the Grievance Redress Mechanism have been established. During the ESMP study period, NEA has disseminated letters to the local level stakeholders regarding the formation of the GRM at the Subproject level.

Conclusion: The environmental impacts envisaged from the implementation of the proposed Subproject are site-specific, short-term, temporary and reversible in nature. The Subproject will provide significant benefits to people and the economy by providing a reliable and improved electricity supply. This ESMP is considered sufficient to mitigate the environmental and social issues identified for the Subproject and will be updated during the Subproject construction stage.

1. INTRODUCTION

1.1 Project Background

The proposed Distribution System Upgrade and Expansion Project (DSUEP) will enhance the distribution system to improve the reliability and quality of electric supply in the Lumbini Province. The project aims improvement in voltage level and reduction in power loss which in turn will improve Nepal Electricity Authority's (NEA) financial health, improve electricity supply reliability, and reduce dependence on petroleum-fueled accessories. The government of Nepal (GoN) has envisaged DSUEP to extend the reach of 33 kV and 11 kV distribution lines "to achieve affordable electricity fulfilling the demands at the local levels for all the households by 2022". Asian Infrastructure Investment Bank (AIIB) is financing a loan to upgrade existing and build new distribution systems in Lumbini Province, Karnali Province and Sudurpashchim Provincof Nepal. This ESMP is prepared for Hima-Badki distribution line Subproject of DSUEP.

This Subproject has three major components:

Component 1: construction, extension and augmentation of distribution lines and substations, especially 33 kV lines and 33/11 kV substations.

Component 2: construction of 11 kV lines, distribution transformers, and Low Voltage (LV) lines for new power distribution facilities.

Component 3: Capacity Building, Project Implementation Support, and Technical Assistance.

1.2 Scope of Study

This study ensures that the project meets the requirements of Nepal Government's Environmental Regulations, and Environmental and Social Policy (ESP) & Environmental and Social Standards (ESSs) of AIIB. This report provides the measures for environmental and social management, monitoring, and reporting of the project.

1.3 Objective of ESMP

The Environment and Social Management Plan aims to sets out the measures required to maximize the benefits of the project; and to avoid, minimize and mitigate any adverse environmental and social impacts caused by the project. The objectives of this ESMP are to:

- Describe the existing natural and socio-economical resources in and surrounding Subproject area;
- Based on existing environmental conditions, identify and assess potential significant impacts during project preconstruction, construction, and operation & maintenance stages;
- Identify and recommend mitigation measures to minimize any potential impacts caused by Subproject activities;
- Identify the local concerns on environmental and social issues and address them;

- Develop environmental management plan and monitoring plan including cost;
- Recommend institutional arrangement, including capacity building to ensure proper environmental and social safeguards implementation during construction and operation phases.

1.4 Legal Provision for the ESMP

Section 3 (1) of the Environment Protection Act (EPA), 2019 describes completing Environmental Studies as per Schedule 1 or 2 or 3 under Environment Protection Regulation 2020 (First Amendment in 2021/05/24 on Nepal Gazette). For this Subproject, none of the legal provisions are compliable to Schedule 1 or 2, or 3, and hence, detailed environmental studies; Brief Environmental Study (BES), or Initial Environmental Examination (IEE), or Environmental Impact Assessment (EIA) is not mandatory. According to the E & S safeguard Screening report, safeguard risks/issues identified as Category III (ESMF) which trigger for the preparation of ESMP to execute the Subproject. This Subproject has minimal or no adverse environmental and social impact; does not physically displace any family; and does not result in economic displacement of more than 10% of productive assets for any family.

1.5 Methodology for the ESMP

The methodology that was followed while conducting the ESMP study is as follows:

i. Literature Review: Published literature of government institutions and international organizations was reviewed to collect information on project surroundings. The Municipality/Rural Municipality (RM) and its Ward profiles are used to collect the socio-economic baseline information of the Subproject. National policies, legislative frameworks and Multilateral Development Bank (MDB) policies were reviewed to understand the priorities and any legally binding requirements were studied that should be complied with while implementing the project. The Legislative provisions relevant to the project are listed in **Annex 4**.

ii. Field Survey and Investigation: Field surveys were conducted to generate information on the physical, biological and socio-economic environment of the project area. The physical environment; air quality data was monitored by Temtop Airing-1000 PM Detector, noise level by UNI-T UT 353 Mini Sound Meter (dB) and water quality by EXTECH ExStik II DO600. Field observation of the core project area and the surrounding vicinity of project footprint area was applicable for the biological assessment. Priority was given to the consultation with local communities at substation sites and the settlement areas that benefit from the project.

iii. Data Analysis: All potential Subproject impacts on physical, biological, socio-economic and cultural resources were integrated and assessed using best practice of Multilateral Development Banks, and also complied with national requirements. The Geographic Information System and SW Maps were used for the field assessment and analysis of the CPA and SPS data and presentation of the maps in the ESMP report. The project foot print Ward and Municipality/RM are considered for the collection of socio-economic and baseline information.

iv. Impact Evaluation: The significance of impacts was evaluated on the basis of reversibility, nature, magnitude, extent and duration of the impact. Identification of magnitude, extent and duration is as provided in the National EIA Guidelines, 1993 of Nepal. While evaluating the impacts and prescribing mitigation, maximum efforts were made to get expert opinion and input from the DSUEP's technical and safeguard consultant team.

v. Public Consultation: As per the Government of Nepal EPA and the AIIB Environmental and Social Policy (ESP), pre-notifications with the subject of consultation, venue, and time were given at Subproject foot-print area, local level and affected Ward office in presence of the concerned local stakeholders. Consultations were conducted in the Subproject area, at substations and the distribution line system settlement areas with local stakeholders.

vi. Report Format: The ESMP report is prepared as per the Environmental and Social Policy (ESP) of the AIIB, which contains an executive summary, a main report, and annexes as appropriate, including one on the nature and findings of consultations undertaken. All the comments and suggestions from the field consultation are mentioned in the ESMP report.

1.6 Classification of Impact Area

The National EIA Guidelines (GoN, 2050) have mentioned on the "Core Project Area", and "Surrounding Project Area" based on the proximity and magnitude of the impacts due to the construction and operation of the proposed project.

Core Project Area (CPA) refers to the temporary and permanent area for the proposed project construction and associated activities. It is the area where direct impacts can be seen. For the **Hima-Badki Distribution Line Subproject**, the proposed substation area with 0.21 ha and RoW of 33 kV distribution line with 0.177 km length is considered as CPA. The Subproject components are located within the Ward No.1 of Hima RM. The major settlement is Badki Gau. The distribution line stringing route passes along the barren land (0+000 to 0+050, 0+100, 0+155) along the Right of Way (RoW) of the road alignment (0+050 to 0+100).

Surrounding Project Area (SPA) is the immediate vicinity of the footprint location of the proposed Subproject site. SPA is the moderate and indirect impact area. For this Subproject the 33 kV distribution line will be located within the Ward No.1, of Hima RM of Jumla district being considered as SPA. The SPA will have impact on the beneficiary's area of 11 kV lines and Low Tension (LT) lines service. The impact area showing the CPA and SPA area is presented in the google map **Figure 1-1**.

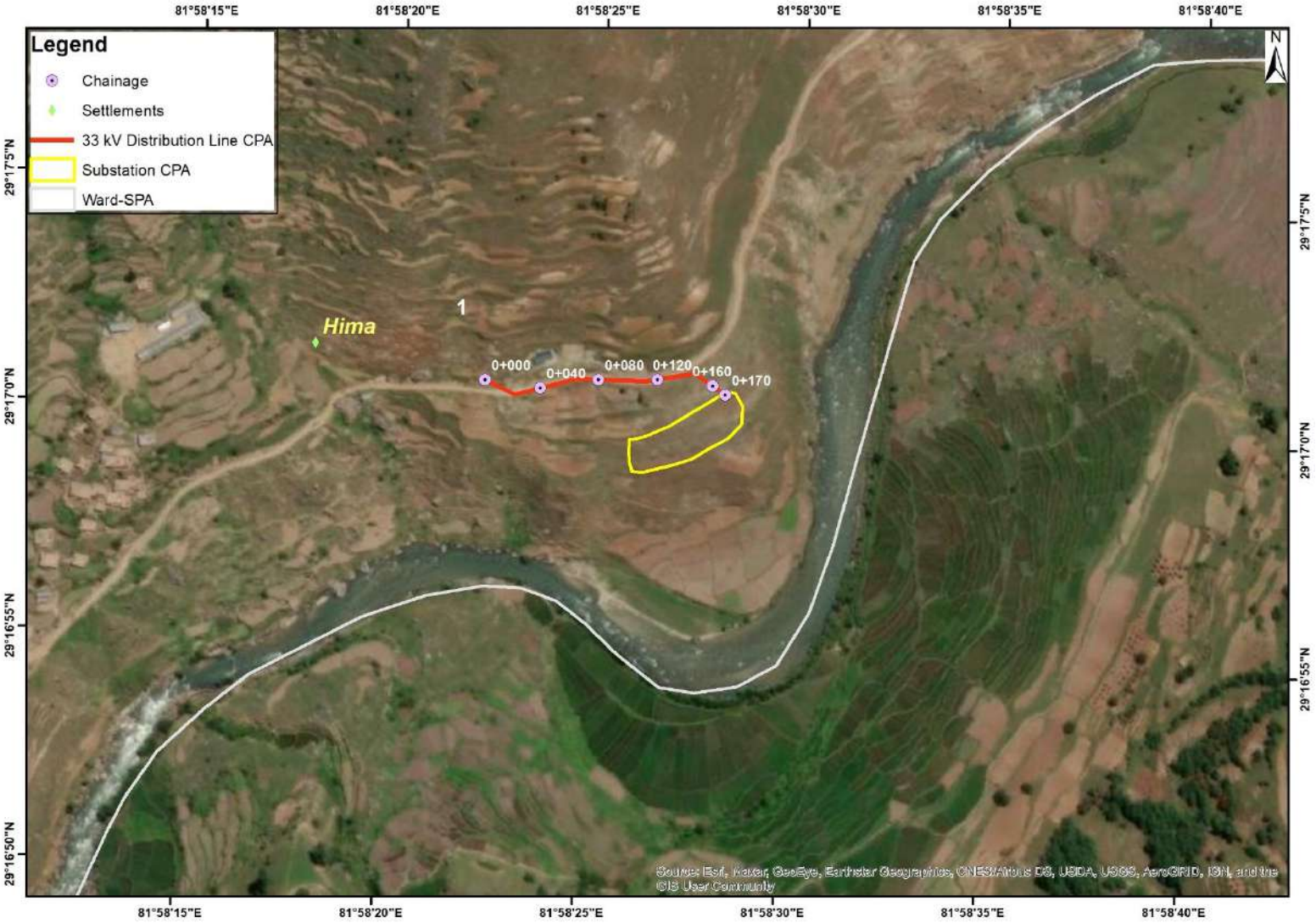


Figure 1-1: Core Project Area (CPA) and the Surrounding Project Area (SPA) Ward No.1 Hima Rural Municipality, Hima-Badki DL Subproject

2. DESCRIPTION OF THE SUBPROJECT

2.1 Subproject Location and Accessibility

The proposed **Hima-Badki Distribution Line Subproject** is located within Hima RM, Ward No.1, of Jumla district in Karnali Province. The tapping point of 33 kV line lies in Hima RM-1, Badki, Jumla. The proposed distribution line (33 kV) is 177 m in length in uphill side from the tapping point. There is the access to the road within the proposed Subproject Ward area. The Subproject location and the accessibility map are presented in the map below **Figure 2-1**. The main features of the Subproject are presented in **Table 2-1**.

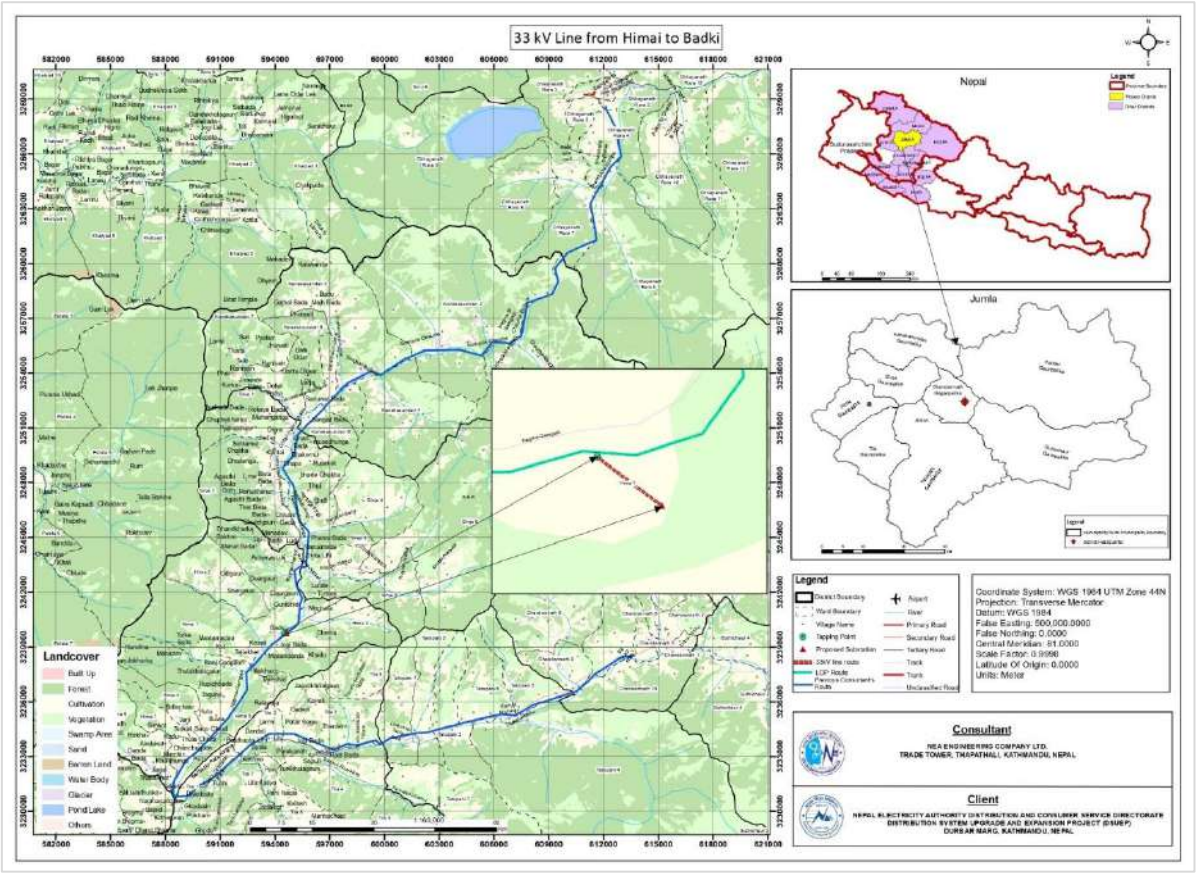


Figure 2-1: Location and Accessibility Map of Hima-Badki Subproject[1]

[1] *Source: Department of Survey, 1995 and Field Study 2021*

Table 2-1: Technical Description of the proposed Subproject

Description	Features
Proponent	Nepal Electricity Authority
Project	Distribution System Upgrade and Expansion Project
Subproject	Hima-Badki Distribution Line Subproject
Funding Agency	AIIB
Project Location	Hima Rural Municipality, Jumla, Karnali Province
Distribution Line	
33kV Line Starting Point	Tapped from 33kV TL at Hima-1, Badki, Jumla Co-ordinate: Lat 29°17'1.10"N, Long 81°58'23.00"E
33kV Line End Point	Badki Substation (Proposed) at Hima - 1, Badki, Jumla Co-ordinate: Lat 29°16'59.60"N, Long 81°58'27.13"E
Land Type	Government
System Voltage	33 kV
Max, Min System Voltage	36, 30 kV
Climatic Condition	Wind Speed: As per IS 802-1-1 Maximum Ambient Temperature: 40 ^{o}C Altitude (Min, Max): 2265, 2320 masl
Length of Line/Number of poles	177 m/5 Poles
Right of Way	6 m
Number of Circuit	2 (Loop in Loop Out Arrangement)
Conductor	ACSR Dog
Line Capacity/Thermal Limit (approx.)	13.4 MW (Dog) at 0.9 power factor
Type of Poles	Steel Tubular Pole, 13m
Pole Configurations	Single Pole Structures, H-Pole Structures etc.
Diameter of a Single Pole (approx.)	0.22m (As per IS 2713-3)
Planting Depth of Pole	2.2m
Insulators	Porcelain Disc and Pin Insulator
Substation	
Location	Hima RM-1, Badki, Jumla Co-ordinate: Lat 29°16'59.60"N, Long 81°58'27.13"E Elevation: 2269 masl
Land Type	Then Badki VDC owned the land (Hima RM)
Voltage Level	33/11 kV
Substation Capacity	3 MVA
Number and Capacity of Transformer	1 no., 3 MVA
Type of Transformer	3 Phase, ONAN/ONAF, Mineral Oil
Type of Substation	AIS (33kV) and Indoor (11kV)
Number of 33kV Line Bays	1 Incomer, 1 Outgoing (Loop in Loop Out)
Number of 33kV Transformer Bays	1
Number of 11kV Feeders	4
Approximate Area of Substation	0.21 ha, Parcel No: 195 and 38

2.2 Subproject Components

The major components of the Subproject are the 33/11 kV substation and 33 kV distribution line (DL). The 33 kV DL is tapped from an existing 33 kV network line and acts as a source

feeding to the proposed 33/11 kV substation. 11 kV distribution feeders emerge from the substation, eventually supplying the electricity to the consumers. The structures of the Subprojects are briefly described below.

2.2.1 33 kV Distribution Line (DL)

The 33 kV DL serves as the pathway for feeding electricity to the proposed substation. Aluminum Conductor Steel Reinforced (ACSR) type conductors are stringed on Steel Tubular Pole from the starting point of the line. In general, the 33 kV lines comprises of the Steel Tubular Poles, Insulators, Conductors and Supporting Stays.

Steel Tubular Poles: Steel tubular poles will be installed in this Subproject. 11 m and 13 m long poles shall be used depending upon the location of the poles and the number of circuits used in the line. The poles to be erected will be supported by stays wherever necessary. Insulators will be installed at cross arms to support the conductor from the poles. The length of the distribution line 0. 177 km and the total number of steel tubular poles to be erected are estimated as 5.

Insulators: The insulators provide insulation to the poles from the high voltage in the conductors. Pin-type insulators will be employed for suspension poles whereas disc types will be employed for tension poles. Porcelain-type insulators will be used owing to their dielectric strength, better compressive strength, higher resistance to degradation, suitability for extreme climate, and environment friendly characteristics over its counterparts.

Conductor: ACSR Conductor – Aluminum Conductors Steel Reinforced, conductors with stranded layers of aluminum and steel will be used for 33 kV lines. Aluminum strands carry the current whereas the steel in between provides the mechanical strength for the conductor. Typically, 100 sq. mm conductors are used in 33 kV line for this Subproject which is also known as ACSR DOG conductor.

Stay/Guy Sets: Stay Wires are used to support or provide the balancing tension to the poles. These are made up of steel materials and can be used in multiples for a single pole, depending upon the requirements.

2.2.2 Substation

The proposed substation 33/11 kV is of capacity 3 MVA. The substation plays the role of lowering the 33 kV voltage level to 11 kV, which will then be strung as a distribution feeder to supply the consumers. The major component of the substation is the power transformer, which is supported by the switchgear components and Civil Structures. The facility and components sample pictures are shown in **Annex 3**.

Transformers: Transformer is the major component of the distribution substation. It transforms power from higher voltage to lower voltage for distribution purpose. Power Transformers are used for the 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 substations in Nepal

are typical 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 3 MVA ONAF type.

Electrical Switchgear: Electrical Equipment comprising of Circuit Breaker, Earth Switch, Current Transformer, Potential Transformers, etc. installed in the substation are called Electric Switchgear. They facilitate the objective of power conversion.

Civil Structures: A control building is essential for the operation of the substation. It houses the operating station, along with battery systems. Guard House and Staff Quarter are other essential buildings for the 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 the power system are laid in the switchyard based on prudent engineering practice. Steel structures are used to support the components as per component-wise requirements. Roads are paved within the boundary as essential for the transport of power transformers and other components. The substation location also serves as a site store for the storage of distribution system components.

2.2.3 11 kV Lines and LT Lines

11 kV lines and LT lines take the access of electricity to the consumer households. It is why the construction of those lines is always encouraged by the local people. The line route, thus the installation of poles and lines, is envisaged to go through the edge of local roads. If any line route passes through any private lands, permission from the corresponding land owner will be taken before the construction of those lines.

The detailed line route survey for 11 kV and LT lines has not been done yet. A separate screening will be prepared for 11kV lines. The scope of detailed survey is in the scope of the construction Contractor. The construction Contractor will conduct Pre-Construction Survey (PCS) to finalize the line route of 11 kV lines and LT lines for the construction. PCS will prepare the detailed line route of those lines and submit it to PIU for approval. After the detailed line route is submitted by the Contractor and approved by PIU, the E&S team of the Project Supervision Consultant (PSC) will conduct an E&S study and submit the findings that

- Do the lines pose any adverse Environmental or Social issues?
- If there are any Environmental or Social issues, how can they be resolved? If the lines do not pose any adverse Environmental or Social issues, the lines will be cleared by PIU after seeking concurrence from AIIB.
- If the solution measures are not implementable in the field, PCS will suggest any other way to divert or reroute the lines If yes, PCS will propose an alternative line route. The lines will be cleared by PIU after seeking concurrence from AIIB, given that the lines do not pose any adverse Environmental or Social issues.

2.3 Major Construction Activities in the Subproject

Activities in the Subproject area can be sub-divided into three categories viz, Pre-Construction Phase, Construction Phase and Operation Phase. The proposed Hima-Badki

Line Subproject does not intercept forest area, thus there will be no issues of tree loss in the RoW of 33 kV lines and the substation area.

I. **Preconstruction phase**: The activities to be carried out before the construction phase are:
- Demarcation of land area for the proposed substation
- Receive public opinion
- Make clearance of the substation land area permanently
- Distribution line route selection

II. **Construction phase**: The activities to be carried out during the construction phase are:
- Assign the land area for the temporary storage of construction materials
- Transportation of construction materials
- Leveling of land area for the proposed substation
- Construction of substation structures
- Pole erection work for 33 kV, 11 kV and low-tension distribution lines
- Stringing of 33 kV, 11 kV and low-tension distribution line

III. **Operation phase**: The activities to be carried out during the operation phase are:
- Maintenance of the substation and 33 kV distribution line route

2.4 Energy to be used

During the construction period, diesel fuel will be used to power construction equipment and transport vehicles, which emit air pollutants and greenhouse gases in insignificant quantities. Use of firewood is restricted in the labor camp, whereas the Contractor shall supply LPG for cooking foods to the workers.

2.5 Land Required

The Hima-Badki Subproject will require about 0.21 ha of land for building the proposed substation. The land is managed by Hima RM. The agreement with the Hima RM has already given written permission to NEA to construct the substation in the designated area. The 33 kV distribution line of 177 m passes along the RoW of the road. Poles shall be installed at the edge of road, which will not affect the usability and valuation of the lands.

2.6 Material Requirement and Sources

A 33/11 kV substation, 33 kV, 11 kV and low-tension distribution lines will be constructed for this Subproject. Minimal excavation at the pole locations will be done to erect steel tubular poles of 11 m and 13 m. The depth of burial for 11 m (approximately 256 kg) and 13 m (approximately 343 kg) poles are 1.8 m and 2.17 m respectively. The construction works for the substation will not produce a significant amount of spoils and thus it will not require a spoil-dumping site. Similarly, excavation works carried out for digging pit holes for poles produces insignificant spoils which do not require the management of earthworks.

Civil construction works will involve excavation for the foundation of the substation, steel reinforcement, cement, coarse aggregates, and fine aggregates (sand). Materials will be

procured from legally operating local markets. Following estimated volume of construction materials are required for the proposed 33 kV distribution line and the substation.

Table 2-2: Approximate Quantity of Material for 33 kV line

SN	Particular	Unit	Requirement
1	Amount of Steel	Ton/Km	5800
2	M15 concrete for Pole base	Cum/Km	12.5

Source: Design Report, DSUEP

Table 2-3: Approximate Quantity of Material for 33/11 kV Substation

SN	Particular	Unit	Support Structures, Road, Drainage	Control Building	Staff Quarter	Office Building	Guard House
1	M15 Concrete	Cum	100	25	224	120	5
2	M25 Concrete	Cum	300	170	125	75	27
3	Reinforcement bar	Ton	7	27	20	12	4

Source: Design Report, DSUEP

2.7 Major Equipment and Power Requirements

Major types of equipment used during the Project implementation are:

One Excavator, One Roller, One Drilling Machine, One Crane, one Grid Supply of 100 kVA Distribution Transformer, and two 50 kVA capacity diesel generators.

2.8 Workforce Requirement

Local people in the surrounding Subproject area will be encouraged for the employment. Based on the skills (skilled, semi-skilled and unskilled labor), local people will be used for the construction in such a way that both males and females will get an equal opportunities during construction. The number of human resources required depends upon the complexity of the project as well as the geographical location of the project. In case of construction of 33 kV lines and 33/11 kV substations, the workforce typically varies from terai to hilly to the mountain region. The expected number of manpower employed is enlisted hereunder.

Table 2-4: Human Resource Required for construction of 33 kV line and substation in a day of Construction

SN	Human Resource/Day	For Distribution Line	For Substation
1	Engineer (No.)	1	2
2	Supervisor (No.)	2	4
3	Foreman (No.)	3	5
4	Skilled (Lineman/Electrician) (No.)	8	10
5	Helper (No.)	5	15
6	Labour (No.)	20	30

Source: Design Report, DSUEP

2.9 Construction and Implementation Schedule

Implementation of the proposed Subproject comprises the construction of a new 33/11 kV substation, 33 kV lines, 11 kV lines, low tension lines, and installation of distribution transformers. It includes the construction and installation of components as mentioned in subsection 2.2. The estimated completion period is 24 Months.

Table 2-5: Construction Schedule of Project Implementation

SN	**Activities/ Months**	**Months** *(After the completion of Detailed Survey Study)*					
		1-3	**4-6**	**7-10**	**11-15**	**16-20**	**20-24**
1.	Invitation for tender, evaluation, and award						
2.	Implementation of Environmental and Social Safeguards						
3.	Erection of Poles						
4.	Stringing of conductor						
5.	Construction of substation						
6.	Charging and Testing						

Source: Design Report, DSUEP

3. DESCRIPTION OF THE ENVIRONMENT

3.1 Physical Environment

3.1.1 Topography and Land Use

The proposed Subproject area lies in Ward No. 1 of Hima RM of Jumla district, Karnali Province. The tapping point is situated at Latitude 29°17'1.10"N, Longitude 81°58'23.00"E with an elevation of 2,307 masl (**Figure 3-1**). The tapping point lies at Nagma-Gamgadhi Highway (F154) or just 177 m uphill side from the substation. The proposed distribution line stringing route passes along the RoW of existing road and barren land.

Figure 3-1: Location map and Land use details of the Subproject[2]

The proposed substation lies at Latitude 29°16'59.60"N, Longitude 81°58'27.13"E and elevation of 2,269 masl. The proposed substation boundary lies within a 0.21 ha area. None of the private and public entities will be affected due to the implementation of the proposed Subproject, as it will be installed within the RoW of the existing road and barren land. The land use type of the Subproject footprint area is barren for proposed substation while RoW of access road for distribution line. The site is primarily within the slope area-needing earthwork. The land use map details with the components of the Subprojects are presented in **Annex 2**.

[2] *Source: Topographic Map, Department of Survey, 1995 and Field Study 2021*

Figure 3-2: Tapping Point of DL at Badki

Figure 3-3: Hima-Badki Substation View

3.1.2 Geology

Geologically, the proposed Badki substation is located on the Dadeldhura Sub Group, i.e., the Kalikot Formation, of the Precambrian age. The rock is made up of thin-medium weathered colored Gneiss (1-5 cm) with Quartz partings ranging in thickness from 3-5 cm. The rock foliation dips to the north-west. The proposed site lies within the undulated sloppy area in mountain region and made up of made up of thin-medium weathered colored Gneiss with Quartz. In addition, the rock foliation dips to the north-west and substation slightly sloped towards south. No major geological hazard has been identified associated with the proposed Subproject.

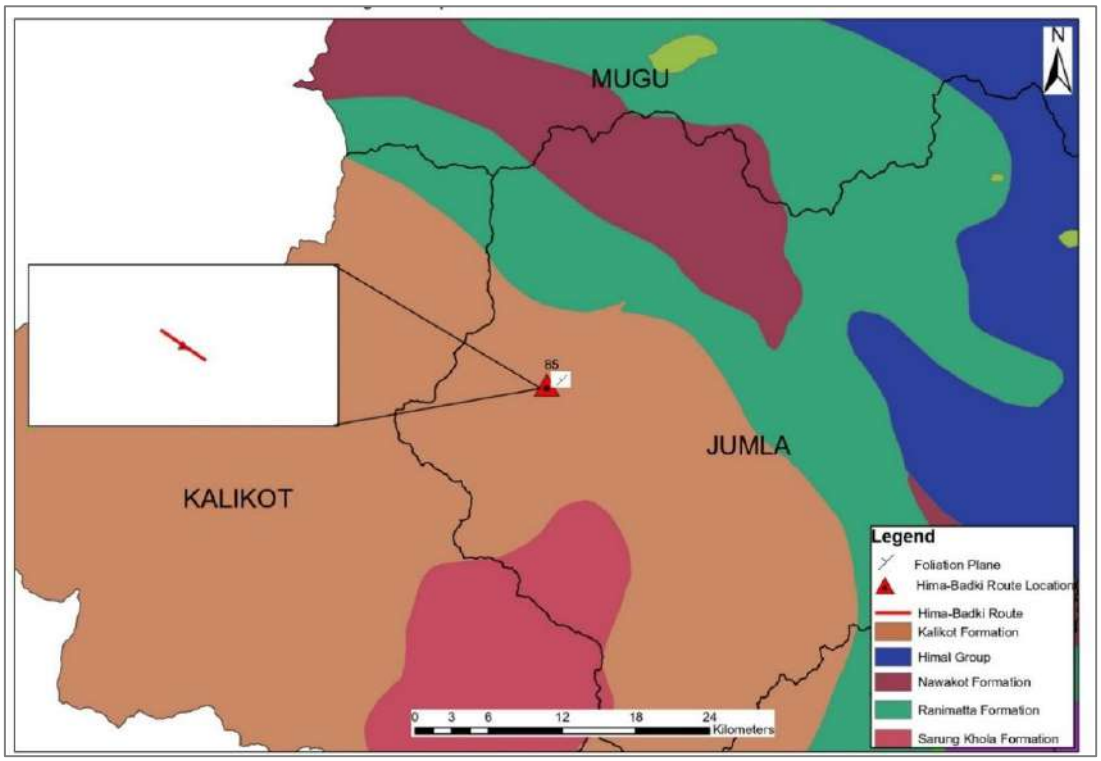


Figure 3-4: Geological Map of proposed Subproject Area[3]

[3] *Source: Department of Mines and Geology (DMG), 2020*

3.1.3 Seismology

The entire country of Nepal is in a seismically active zone caused by the subduction of Indian tectonic plate under the Tibetan Plate. According to the National Seismological Center of Nepal several big earthquakes have been felt in Nepal, the earthquakes of magnitude 6 to 7 are mostly confined to the Main Himalayan Thrust (MHT) between the foot hills and the Higher Himalaya. Moreover, earthquake generation is confined to the crustal depth of 20 km. However, shallow earthquakes at depths down to 6 km are generated as a result of strike-slip faults. Therefore, the substations and distribution lines of this Subproject will be designed and operated per seismic design requirements and best engineering practice. The seismic activity in Nepal between 1964 and 2019 as in the IUSGS portal is shown in **Figure 3-5.**

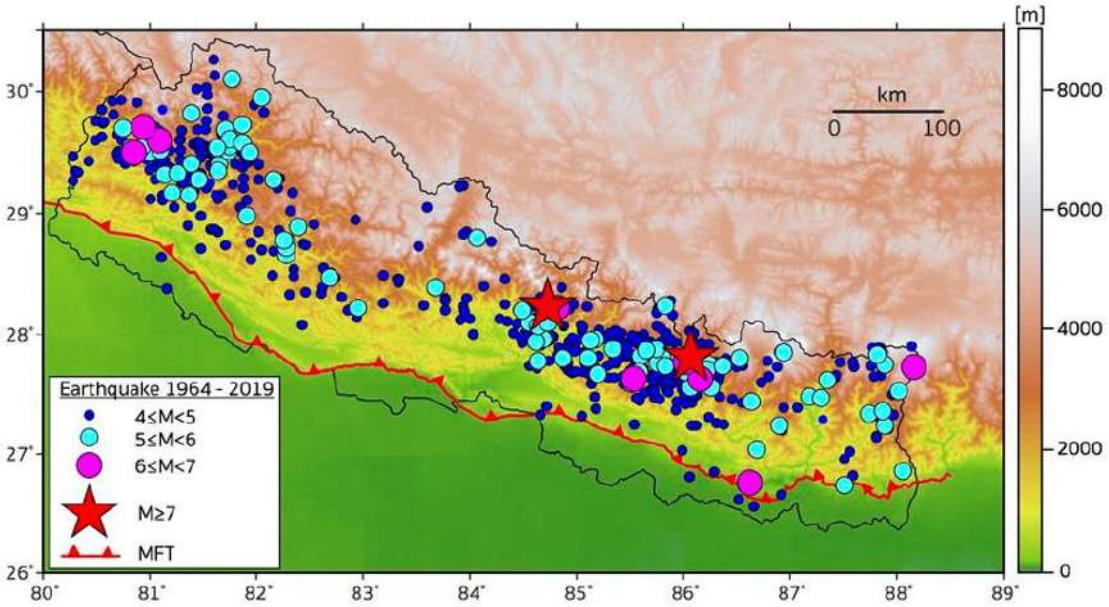


Figure 3-5: Seismicity map of Nepal from 1964 -2019[4]

3.1.4 Climate

The climate of the Subproject area is temperate. According to DHM 2021, the average maximum and minimum ambient temperatures recorded nearby the Subproject site i.e., of Jumla is of 24.2^{o}C and 12.4^{o}C. The relative humidity is in the range of 84% to 87 %. The maximum rainfall recorded in nearby Subproject site at Jumla was 142.8 mm of rainfall (March 25, 2019) with average monthly rainfall 54.7 mm of rainfall (DHM, 2021).

3.1.5 Air, Noise, Water Quality and Polluting Sources

The major air polluting sources recorded are only vehicular emission and dust problem from plying of vehicles and high wind velocity. Noise-polluting sources noted at the time of field study are similar to the air polluting sources. Unnecessary honking along the access road of the site is the source of noise generation. The following table shows the real-time quality of air and noise during a field study.

[4] *Source: USGS catalogue, 2019*

Table 3-1: Ambient Air and Noise Quality within the Proposed Subproject Site

SN	Location/ Chainage	**Air Quality[5]-**Temtop Airing-1000 PM Detector (µg/m^3)					**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.	Tapping Point	13.3	100	18.9	200	1-hour	32.7	50	Plying of Vehicles and Hima River

Source: Field Visit, 2021

The air quality and noise level of the SPA of Subproject were found within the range of the National Ambient Air Quality Standard and Noise Quality Standard, respectively. The construction activities will be confined within the enclosed substation boundary none of the impact will cause to any the water sources. Hima River is located at 75 m distance from the substation, hence the drainage system must be managed.

3.1.6 Solid Waste Management

Wastes were found littered in front of HHs and along the side of the access road near the Subproject area. People in the nearby area were found managing organic wastes within the household premises. Recyclable waste (large quantities) was sold to scrap collector occasionally. The estimated quantity of solid waste generation from the labor camp is shown in **Table 3-2**.

Table 3-2: Estimated Daily Solid Waste Generation from Campsite

SN	Description	Calculation	Remarks
1.	Total Labors within the Campsite	= 20 Labors	
2.	Total Waste Generation to be Expected	= 20 * 123.62 g/capita/day = 2472.4 g/capita/day = 2.4724 kg/day	
3.	Organic Waste Composition Responsible for Foul Smell, and Rodents	= 1.26 kg/day	Assuming 51% organic waste
The rest other waste is recyclable, and non-decomposable which could be stored for long period, and have less impact on the environment if properly managed. The amount of organic waste is manageable within the Subproject site as organic waste per day will be expected to be only 1.26 kg/day.			

3.2 Biological Environment

The proposed Subproject's distribution line avoids forest but passes through the RoW of the access road whereas; substation area lies in barren land in Ward No.1 of Hima RM of Jumla District. The proposed Subproject lies at the elevation between 2280 masl in temperate bioclimatic zone. The proposed Subproject site does not lie within any protected area or

[5] *National Indoor Air Quality Standard, 2009*

[6] *National Ambient Sound Quality Standard, 2012*

conservation area. The Rara National Park lies at a distance of 15.25 km from the proposed substation site, thus there will be no any impact to the protected species of the National Park. The Subproject components (substation and 33 kV distribution line) do not intercept any forest area, thus there will be no issue of tree loss. The detail of the bird species found in the SPA is tabulated below:

Table 3-3: List of Bird Found within the Surrounding Project Area

S.N.	Common/ Local Name	Scientific Name	GoN	IUCN	CITES
1.	House Crow	*Corvus splendens*	-	LC	-
2.	Western Spotted Dove	*Spilopelia suratensis*	-	LC	-
3.	Common Cuckoo	*Cuculus canorus*	-	LC	-
4.	House Sparrow	*Passer domesticus*	-	LC	-
5.	Rock Dove	*Columba livia*	-	LC	-

Source: Field Visit, 2021

Following are the Herpetofauna so far recoded during the public interaction found within the surrounding area.

Table 3-4: List of Herpetofauna Found within the Outlying Project Area

S.N.	Common (Local Name)	Scientific Name	GoN	IUCN	CITES
1.	Asian Common Toad	*Duttaphrynus melanostictus*	-	LC	-
2.	Changeable Lizard	*Calotes versicolor*	-	LC	-
3.	Indian Bullfrog	*Hoplobatrachus tigerinus*	-	-	-

Source: Field Visit, 2021

3.3 Socio-economic Environment

Demography and Ethnic Compositions: The proposed Subproject area lies in Ward No. 1 of Hima RM. Kalikakhetu, Badki, and Mahabaipathar Khola are the nearest business markets nearby the Subproject area. The general demographic information of the affected Wards is presented in **Table 3-5**. The major ethnic composition within the surrounding project area i.e., Ward No.1 of Hima RM is Hill Brahmin/Chhetri (82.99%), followed by Hill Dalit with 15.85%. of the total population of 2,112. Majority of people follow the Hinduism and the rest follow Buddhism. The Core Project Area (CPA) of the Subproject will not affect any indigenous people.

Table 3-5: General Demographic Characteristic of Subproject Rural Municipality

SN	Wards	Population			Total Households
		Male	Female	Total	
Hima RM					
1.	All	6,377	5,878	12,255	1,893
2.	1	1,055	1,057	2,112	330

Source: (CBS, Rural Municipality-Municipality Profile of Jumla District, 2018)

Road Accessibility: Subproject-Ward No. 1 of Hima RM is connected to Hima RM Office by feeder type Road and the sub-project is connected to Nagma-Gamgadhi Road at a distance of 177 m. The transportation facilities in this locality are good. It is 20-30 minutes' walk to reach Hima RM office from the Subproject area.

Electricity Beneficiaries: The implementation of the Subproject will increase the electricity beneficiaries to 10,589 HHs, 45 commercial purposes, and 15 industries. This will expand the electricity supply in the Subproject area with clean energy sources.

Water and Sanitation: Tap/piped water is the main source of drinking water in the surrounding Subproject area. Almost all the houses in the area have some sort of toilet facility.

Health Facility: The nearest and easily accessible health facility nearby the proposed Subproject area is Health Post just adjoining to the substation site at Badki located at less than a minute walking distance from substation site.

Communication: People of the Subproject have access to communication facilities mainly through mobile telephone services. In the Subproject area, people have access to local and national FM Radio networks and local newspaper facilities.

Occupation: Agriculture is the main occupation of people in the Subproject area with nearly 65% contribution; small trade and business/enterprises and services are other occupations of people in the Subproject area. Intermittent tripping and voltage drop of electricity were adversely affecting the irrigation of crops and daily household chores activities.

COVID-19: The coronavirus (COVID-19) pandemic has been defined as a global health crisis; the virus has spread in almost all parts of Nepal. Heedful of its vulnerabilities, the Government of Nepal enforced a nationwide lockdown in 2020/2021 and activated its federal, provincial and local level mechanisms to respond to the crisis. In case of any sudden surge or outbreak of COVID-19, quarantine facilities and immediate health supports should be provided to the workers and personnel involved in construction.

Other seasonal and minor diseases like dengue, fever, sneezing, cough, gastritis, diabetes and mental disorder have been reported within the Subproject area.

4. ANTICIPATED ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

The environmental and social impacts predicted during the construction of the proposed Subproject are discussed in this chapter. National Environmental Impact Assessment Guidelines (GoN, 2050) have been referred for the predicting magnitude, extent, and duration of the project-induced environmental impacts in the Subproject area. This chapter identifies the basic environmental and social impacts in the Subproject area that will arise during the construction. The detailed impacts of each domain of environmental and social safeguards have been addressed in this chapter.

4.1 Anticipated Beneficial Impacts

Construction Phase

4.1.1 Local Employment

Local employment will be created during the construction phase. As mentioned in section 2.8 Workforce Requirement, the typical construction team will have 27 skilled manpower and 78 unskilled manpower for the period of 4-5 months for the erection of poles and stringing the distribution lines and 12-15 months for building the substation. Local people within the SPA and OPA will be encouraged for employment during construction phase. Both males and females will get equal opportunities during the construction. Based on the skill levels (skilled, semi-skilled and unskilled labor) local people will be used for the construction as far as possible. *The magnitude of impact is considered moderate, the extent is local, and the duration is short-term.*

Operation Phase

4.1.2 Local Economy and Enhancement in Rural Electrification

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. Intermittent tripping and voltage drop problems nearby the settlement area will be reduced. Upgrading and expansion of electricity distribution help to way-out many electricity-related issues and promotes the use of new types of home appliances, the use of electric motors for irrigation, and the establishment of small and large industries. *The magnitude of impact is considered high, the extent is local, and the duration is long-term.*

4.1.3 Greenhouse Gas Emission Balance

Net Green House Gas (GHG) emissions resulting from the Subproject area are expected to be low as the distribution lines will improve and expand the electricity supply from clean energy sources. It will reduce the emission of GHG from traditional source like Guitha (made from cow dung), firewood and timber along with commercial fuel Kerosene for cooking/lighting, heating, and diesel for water pumping. *The magnitude of impact is high, the extent is local, and the duration is long-term.*

4.2 Anticipated Adverse Impacts

A. Physical Environment

Construction Phase

4.2.1 Change in Land Use

The Subproject requires about 0.21 ha of land for the substation. The proposed substation land area belongs to Hima RM. The land will be managed by NEA and will be converted to the substation area surrounded by proper boundary wall. Distribution Line passes through edge of barren land and RoW of access road. The construction of the Subproject will bring change in land use permanently. Potential impacts caused by distribution lines will be limited to approximately 0.22 m of land for each pole, at the edge of roads and baren lands. *The impacts due to the use of land will be moderate in magnitude, site-specific and long-term in duration.*

Mitigation Measures

- Steel Tubular Pole for distribution lines will be planted at the right way of the existing road without hampering traffic movement. In the case of cultivated land, minimal land will be used at the edge for planting the poles.
- A cropping calendar will be followed while planting poles and stringing conductors so that standing crops will not be damaged.
- In case of loss of standing crops, compensation will be made to the respective land owner as per the prevailing market rate.

4.2.2 Air Quality

The impact on air quality during the construction period is expected to be insignificant, as site clearance, excavation, stockpiling of construction materials, waste burning at camp sites and equipment installation are localized and of short-term. Transportation of the materials and movement of construction crew and equipment will have a minor impact on air quality. *The impact on air quality will be minor in magnitude, site-specific in terms of extent, and of short duration.*

Mitigation Measures

- Contractors' vehicles and equipment should meet Nepali vehicle emissions standards.
- Dust emissions shall be controlled using water sprays on earthen roads nearby settlements in the 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.

4.2.3 Noise

Noise is inevitable during construction. As noted in section 3.1.5, noise is less around the substation area as the area is rural and settlement is sparse. Construction-related noise will be limited to vehicular movement and inside-the-fence construction activities at substations sites; construction-related noise is not expected to exceed acceptable levels. *The impact on noise level will be minor in magnitude, site-specific in terms of extent, and of short duration.*

Mitigation Measures

- Contractors will be required to monitor noise during construction.
- For the substation site, boundary walls serve as a noise barrier, and they should be constructed as early as possible.

4.2.4 Drainage and Water Quality

Substation sites with an area of 0.21 ha will result in a slight alteration of drainage patterns, although the alterations in drainage will not be quantifiable. Interference with drainage patterns will be temporary during construction phase only. The impact on water quality during the construction period is expected to be insignificant. Water will be used primarily as a cement additive for the construction of substation foundations and boundary walls, and to control dust. *The magnitude of impact is considered low, the extent is site-specific, and the duration is short-term.*

Mitigation Measures

- Storm water run-off from substation sites will be minimized and controlled by bundling temporary dikes (constructed boundary walls will also help contain run-off water).
- Proper management of ground drainage from camps as a preventive measure against the breeding places of mosquitoes, and other pests.

4.2.5 Soil and Muck

As the proposed substation land's ground level is low, filling of soil is necessary. The required filling materials shall be purchased from a nearby authorized crusher plant approved by the local government. For distribution lines the excavation activity will be insignificant. *The magnitude of impact is low, the extent is site-specific, and the duration is short-term.*

Mitigation Measures

- Soil required for filling shall be purchased from the nearby authorized crusher plant under local government.
- Soil shall be covered with a tarpaulin while transporting it from earth-borrowing areas.
- Simultaneous water sprinkling and compaction of spoil shall be done using the roller.

4.2.6 Solid Wastes

The wastes generated during construction within the Subproject area are cement bags, iron bars, and other leftover construction materials, and waste generated by the labor camp. It might cause an adverse impact if not properly managed. Organic wastes generated from labor camps may give a foul smell and attract rodents if not manage properly. Inorganic wastes generated during implementation shall be managed through source segregation. *The magnitude of impact is low, the extent is site-specific, and the duration is short-term.*

Mitigation Measures

- Source segregation of organic and inorganic wastes in different storage areas or facilities in the designated location.

- The organic waste generated from the campsite shall be managed within the substation premises, through composting in the bin or by constructing a ground pit, and covered by a 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 ground leveling.
- Packing materials used for casing components should be recyclable.
- Recyclable wastes like left out/non-usable reinforcement bars and packing materials shall be sent or sold to scrap vendors.
- Chemical waste generated from the transformer shall be collected in leakage-proof, corrosion-free, and specially-designed containers and sealed carefully.
- Effective coordination shall be done with the local level government for proper waste management during the construction period.

Operation Phase

4.2.7 Electric and Fire Hazard

Employees performing servicing or maintenance of substations may be exposed to electric shock, burns and injuries from the unexpected energization or release of stored energy in the equipment. *The magnitude of impact is considered moderate, the extent is site-specific, and the duration is long-term.*

Mitigation Measures

For this, the following mitigation measures will be practiced:

- Use of insulation, guarding, grounding, electrical protective devices, and safe work practices are advised.
- Boundary walls and security fences around the substation are recommended to prevent unauthorized access.
- Only trained and authorized personnel shall be allowed for electrical work.
- Warning signs shall be installed.

B. Biological Environment

The proposed Subproject avoids forest area and other sensitive biodiversity area. Hence, there will be no significant impact to biological environment because of construction of substation and distribution lines.

Construction Phase

4.2.8 Loss of Habitat

As the proposed substation lies in the barren land type and distribution line route with installation of poles at edge of cultivated land, no loss of forest area. There is no impact to any other biodiversity is expected. Although the labors might reach to the nearby forest areas for the collection of firewood. *The magnitude of impact is low, the extent is site-specific, and the duration is short term.*

Mitigation Measures

- Labors and staff shall be made aware to avoid illegal activities in adjoining forest.

- Illegal fishing and bird hunting will be totally discouraged through supplying adequate food items (poultry and fish) requirement within the camp.

Operation Phase

4.2.9 Bird electrocution and collision

The Subproject area is located in rural setting and there is no presence of critical habitat of avian fauna. Electrocution is a risk to bird species that perch on power line infrastructures (substation and distribution line). List of birds presented in section 3.2, may collide to distribution lines and substation Minimizing bird collision and electrocution risk is therefore a win-win for biodiversity and the power sector. *The magnitude of impact is low, the extent is site-specific, and the duration is long term.*

Mitigation Measures

- Bird guards should be installed above the poles and white spirals in the conductors to improve visibility electrical structures.

C. Socio-Economic and Cultural Environment

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

Construction Phase

4.2.10 Land Requirement

The land required for the proposed substation area is 0.21 ha, is the government land, that will be managed by NEA later. This has been confirmed officially through Ward Office, Hima RM. NEA is given the right to use the land to build and operate a substation. The construction activities of the Subproject will not involve any private land. So, there will be no land acquisition, and thus no resettlement impacts. For the construction of distribution lines, owners of private land along the route have assured and committed to the necessary help and support during implementation. They have agreed on NEA's proposal that poles shall be installed on the edge of barren lands (**Annex 5** Compensation shall be made based on crops types and quantity of loss equivalent to the market price. *The impacts will be low in magnitude, site-specific and long-term in duration.*

Mitigation Measures

- A distribution pole of diameter 0.22 m should be installed on the edge of cultivated land making no loss of standing crops.
- If there is a loss of crops, appropriate compensation shall be made.

4.2.11 Public Health

Construction activities will be of small scale, causing no significant adverse impact to existing quality of air, water and sound. Local people except the workers do not involve in construction activities. Considering the COVID-19 pandemic as an example, workers will be advised to avoid unnecessary contact with local people. *The magnitude of impact is low, the extent is site-specific, and the duration is short-term.*

Mitigation Measures

- Contractors shall implement health and safety plans.
- Awareness of HIV/AIDS and other sexually transmitted disease should be provided to the labors.
- Awareness of basic sanitation and waste management should be provided to the labors.
- For coronavirus (COVID-19) pandemic situation, contractor needs to handle the situation in case of any sudden surge and standardize the quarantine facilities with health aid to the labors.

4.2.12 Occupational Hazards and Safety of Workers

Occupational health hazard and the safety of workers is the major issue during the construction period. Working without adopting safety measures during excavation work, spoil management work, mechanical and electrical equipment handling activities, chemical handling, etc. during construction may call the risk of accident. The primary victims are the workers involved in the construction. *So, the envisaged direct impact is high in magnitude, site-specific in extent, short-term in duration.*

Mitigation Measures

- The contractor shall prepare the Environmental, Health and Safety plan and take approval from the Client (NEA/PIU). The contractor shall employ Safety officer during the 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.
- 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 throughout construction.
- Installation of warning signs (High Voltage, Fire Safety Signs, and Emergency Signs) as shown in **Annex 7**.
- NEA will be responsible to supervise the EHS performance of the construction Contractor, and workers' health and safety.

4.2.13 Child Labor, and Gender Issues

During the construction period, people employed on daily wages for excavation, transportation of construction materials, and other construction-related works should avoid the involvement children and should avoid gender discrimination. Gender discrimination may occur as the Contractor may not be sensitive towards gender equity. Contractors should equally pay men and women workers. Construction area should be gender friendly with required facilities. *The envisaged impact is high in magnitude, site-specific in extent, and short-term in duration.*

Mitigation Measures

The Subproject will ensure to:

- Provide equal wage to male and female for similar nature of work.
- Prohibit the use of child labor i.e., below 16 years of age (which is as per government and ILO guidelines).

- Provide female friendly construction environment with separate cabins and toilet for women in the camp.
- Prepare suitable work categorization for women.

4.2.14 Socially Undesirable Activities

The workers may use alcohol and other forms of intoxication, gamble and quarrel with locals, disrespect local culture and religion, and may promote socially undesirable activities in and around the project area. *So, the envisaged impact is low in magnitude, local in extent, and short-term in duration.*

Mitigation Measures

- Restrict movement of workers out of camp after dinner time at the night.
- Prohibit the use of alcohol and gambling in the camp.
- Supply water supply, daily consumable items, and communication facility in the camp so as not to create additional pressure on the local services.
- Orient workers to show respect for 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 public relation officer to keep close and regular consultation and coordination with local communities.
- Regular monitoring of workers' behavior and takeing appropriate measure on rule violators.

Operation Phase

4.2.1 Hazards and Safety

Occupational health hazard and the safety of staff are the major issues during the operation phase of the substation. The possible electric shock and fire hazard might cause injury or death to working staff thus protection measures should be taken all the time. *The envisaged direct impact is high in magnitude, site-specific in extent, and long-term in duration.*

Mitigation Measures

- There will be the use of insulation, guarding, grounding, electrical protective devices, and 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.
- No electric wire shall be stringed above the house.
- Security fences around the substation.
- Establishment of warning signs
- Shutdown shall be taken during work on the DL route

4.2.2 Electric and Magnetic Field Effect

Electric power distribution lines create electric and magnetic fields 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; so, there will be no impact outside of the substation boundaries. [7] Research on the long-term effects of EMF associated with distribution lines is inconclusive for 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 transmission lines and equipment.

[7] 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%.

5. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

5.1 Methodology in Information Disclosure, Consultation and Participation

The following methodologies were followed for information disclosure, consultation and participation:

i. Identification of the stakeholders is important to understand how the Subproject activities will relate different institutions/groups/individuals. Stakeholders are the groups that might be affected by the Subproject or might influence Subproject outcomes. The identified stakeholders are considered into three groups (**Figure 5-1**).

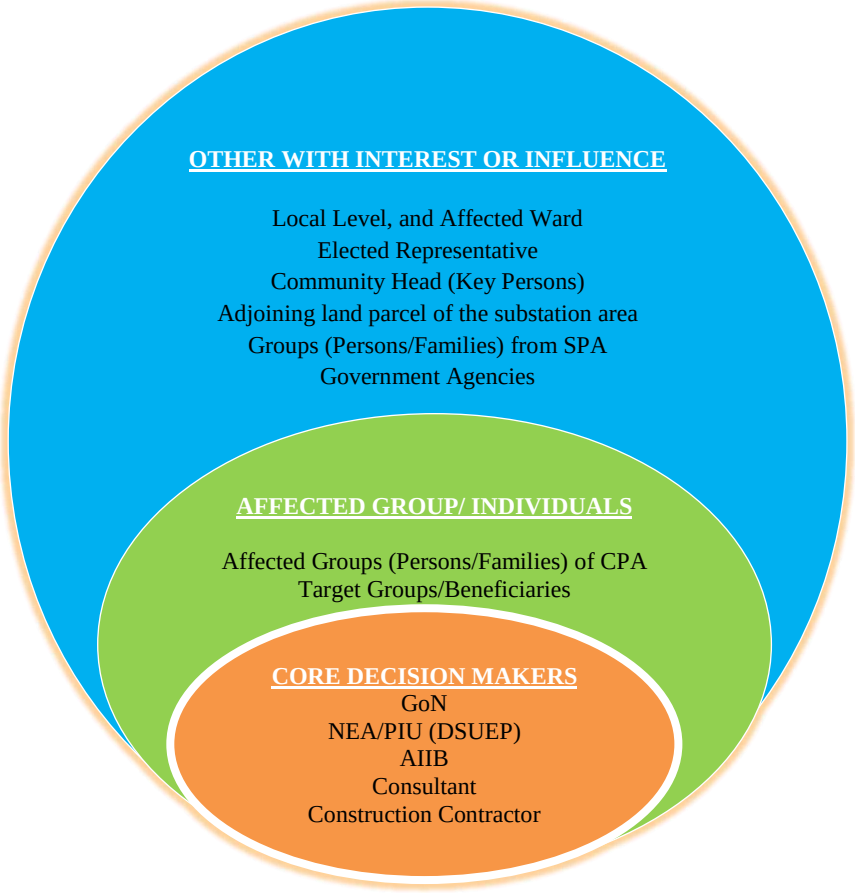


Figure 5-1: Identified Stakeholder in the Subproject[8]

ii. The notices with the subject of consultation, venue, and time were pasted at the Subproject footprint area, local level and affected Ward office in presence of concerned local stakeholders. People were explained about the notices and their views were noted and agreed upon as Minutes.

iii. Study team members visited all the local government offices within the Subproject influence area. Representatives from each local body were also consulted. All local governments were given request letters for their active support in project

[8] *Referenced Meaningful stakeholder engagement: a joint publication of the MFI working group on environmental and social standards / Reidar Kvam, PP-19, 2019.*

implementation. Municipalities were requested to provide written suggestions. The deed of inquiry (Muchulkas) and Letter of Declaration from the stakeholders are presented in **Annex 6 and Annex 7**.

iv. Local communities nearby the substation area and along the distribution line routes were consulted, and were briefed about the Subproject activities and likely benefits with their suggestions (included in the Minutes).

v. During the Subproject construction phase, booklets informing about the Subproject activities, likely impacts, and mitigation measures together with the complaints handling mechanisms will be developed and distributed in the Subproject area.

5.2 Consultation and Information Disclosure

The consultation aims to encourage the participation of stakeholders and communities of the Subproject area in the identification of issues, comments, and suggestions. The Subproject affected groups (persons/families) were given more emphasis during the field consultations. Public consultation was conducted at Hima RM, Ward No. 1 in the proposed substation area (Health Post, Badki) on 24th August 2021 (**Figure 5-2**). The concerns expressed and issues/ raised issues during the consultation were documented as in the form of minutes (**Annex 5**).

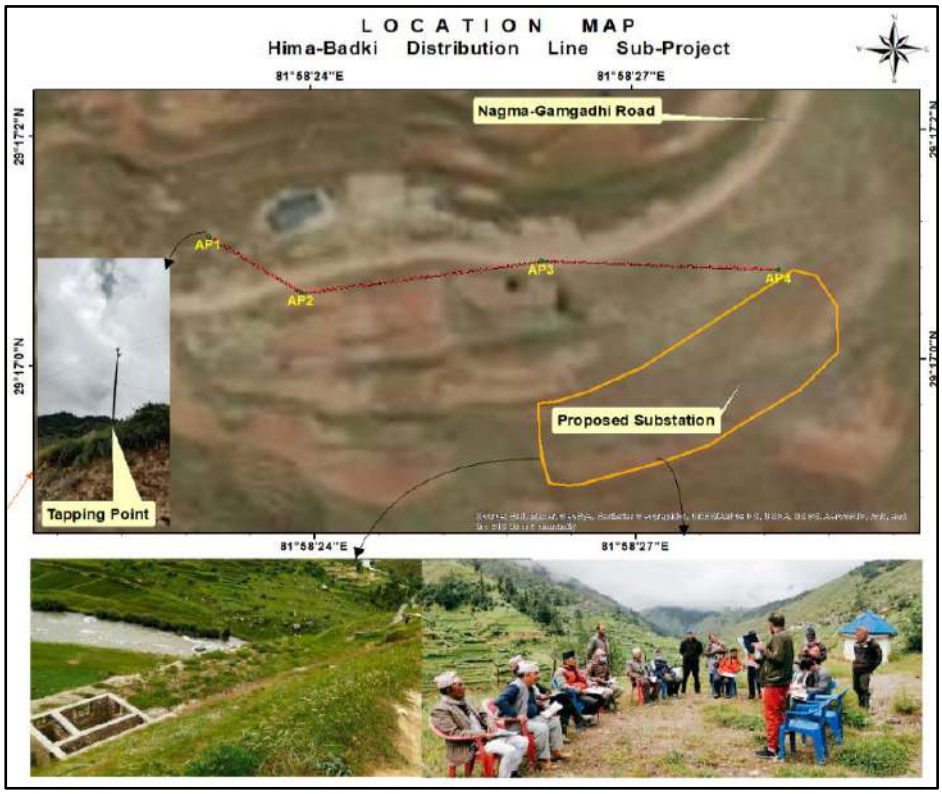


Figure 5-2: Consultation with the stakeholders and communities in the Subproject Area.[9]

Major benefits expected from the implementation of the Subproject through the perspective of local people were identified from public interaction, and that included improvement in the rural electrification facilities ensuring uninterrupted electricity in the

[9] *Field Study, 2021. Used SW Map and GIS*

households and better functioning of industries in the locality. The issues, comments and suggestions received in the consultation are presented in **Table 5-1**.

5.3 Comments and Suggestion Received

Table 5-1: Summary of issues, comments and suggestions received in Consultations

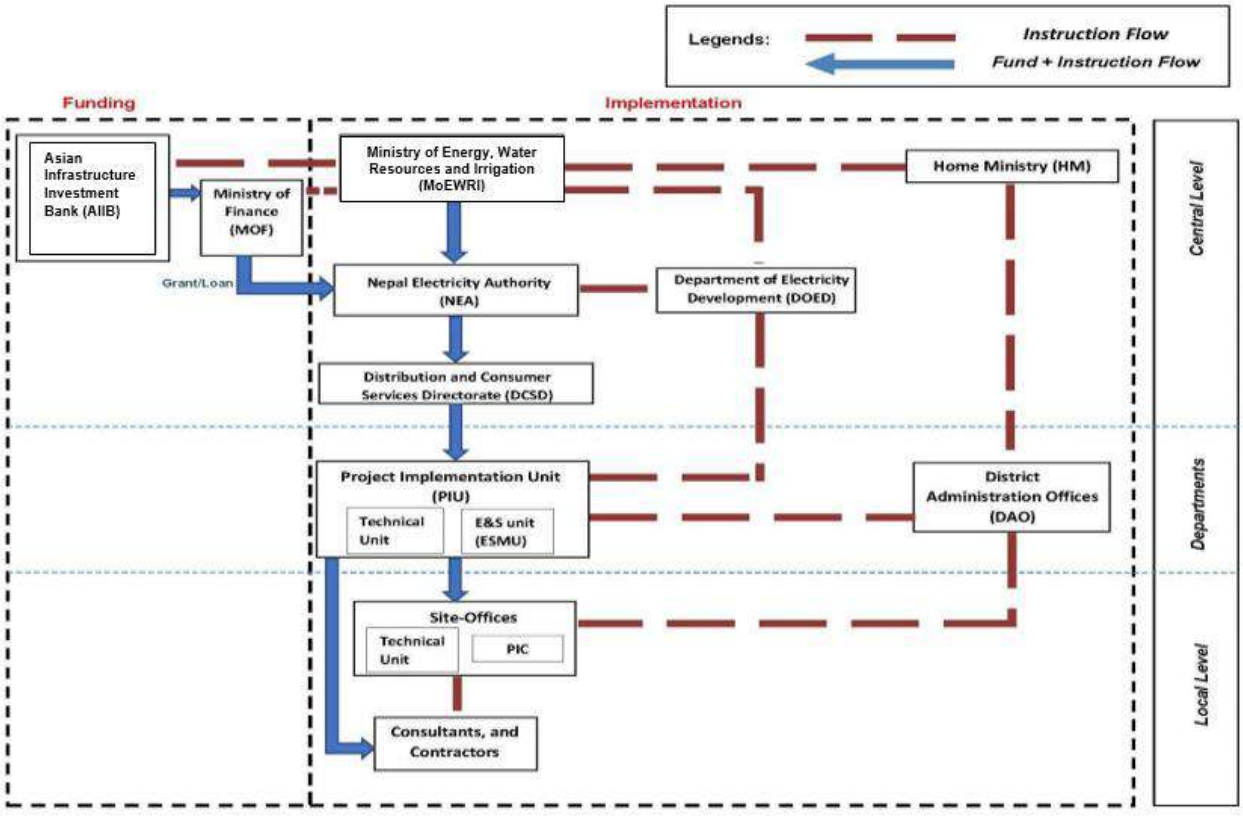
Date	Location	Issues, comments and suggestions received	Participants
24th August 2021	Hima RM, Ward No.1, substation (Health Post, Badki)	• To resolve problem of power tripping around the Subproject area, implementation of Subproject needs to be undergone immediately • Substation construction activities should be started after construction of boundary retaining wall only. • Local people should be prioritized for employment opportunity based on qualification and skills • We (Community People) have full support and assurance during implementation of Subproject • Assurance of Electricity Tariff Counter for the ease of tariff collection • There should be the relocation of existing incomplete building of Ward office towards western side near Health Post Office	26,2F-24M

Source: Field Visit, 2021

6. INSTITUTIONAL ARRANGEMENT AND GRIEVANCE REDRESS MECHANISM

6.1 Institutional Arrangement

The Ministry of Energy, Water Resources and Irrigation (MEWRI) is responsible for the overall planning and execution of the plans for the overall development of the water and energy sector in Nepal. Nepal Electricity Authority (NEA) under MEWRI is the responsible agency for the implementation of the DSUEP. The project comes under the Distribution and Consumer Services Directorate (DCSD) of NEA. Project Implementation Unit (PIU) under DSUEP is the implementing unit of the project. The 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 a supervision consultant with an environmental and social safeguard specialist, who will be responsible for compliance monitoring activities during the construction phase. He will also provide technical support in preparing the monitoring report.



Source: ESMF-DSUEP

Figure 6-1: Institutional Arrangement for Environmental and Social Management

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

compliance orientation to all environment monitors and safeguard team of the contractor, one month before the construction works start.

6.2 Grievance Redress Mechanism

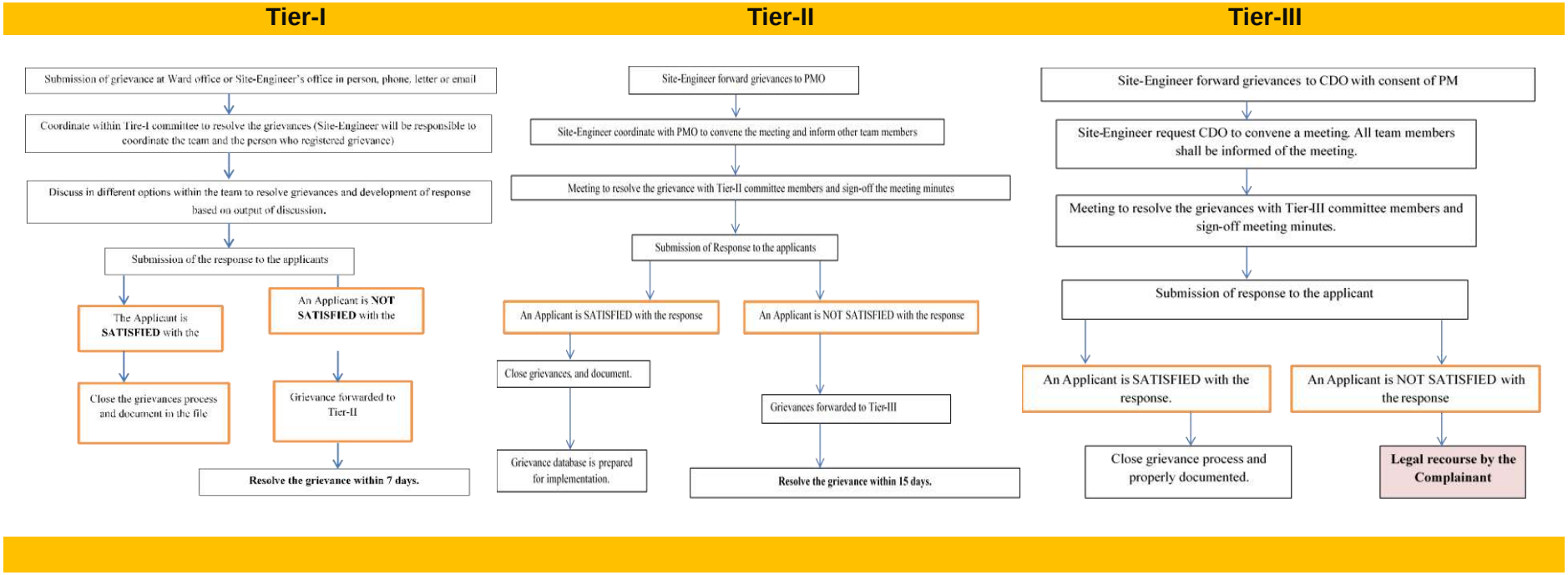
The Grievance Redress Mechanism (GRM) has been established to receive, evaluate, and facilitate the resolution of affected people's concerns, complaints, and grievances about social and environmental-related issues at the subproject level. The GRM is designed to be simple, transparent, and responsive. GRM shall address only the concerns arising due to the project implementation activities, mainly during the construction stage. Social Comment Addressed -In each subproject, three levels of Grievance Redress Mechanism will be established. During the ESMP study period, NEA disseminated letters to the local level stakeholders regarding the formation of the GRM at the subproject level. To date, NEA has established Tier-I and Tier-II GRM has been established at the local wards level and Municipality/RM level. Tier-II will be established before construction work starts.

GRM process entails the concerned party submitting a grievance either in-person, via phone, letter, or email to the Site-Engineer or the concerned Municipality Chief or the concerned Ward Chair. The Site-Engineer will record the complaint. In cases where Ward Chair has received such a grievance, he/she should forward the grievance to the field office Engineer. The Site-Engineer shall notify the committee members of Tier-I and arrange a meeting to resolve the received grievances. If not resolved such grievances will be carried to Tier II and Tier III. The three levels of GRM will be based on time-bound schedules as mentioned in **Table 6-1**. The subproject will carry the regular meeting for Tier-I, once a month to follow up if any grievances are received or not and to resolve the grievances received and update its status to PIU. **Figure 6-2** describes the Workflow Diagram of GRM for the subprojects.

Table 6-1: Levels of Grievance Redress Mechanism Based on Time Bound

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**
	Municipality Chief	Coordinator	Project Manager	Coordinator	Chief District Officer (CDO)	Chair
	Site-Engineer-NEA	Member secretary	Site-Engineer	Member Secretary	Project Manager	Coordinator
	Safeguards Expert from Consultant	Member	Municipality Chief	Member	Site-Engineer	Member Secretary
	Contractor Engineer	Member	Safeguards Expert from Consultant	Member	Municipality Chief/Ward Chair	Member
	Ward Chair	Member	Contractor Engineer	Member	Safeguards expert from consultant	Member
					Contractor Engineer	Member
					Representative from affected people	Member

Figure 6-2: Workflow Diagram for GRM from NEA[10]



***** 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.

[10] *Grievance Redress Mechanism (GRM) Prepared for the sub-projects financed by Asian Infrastructure Investment Bank (AIIB) under Distribution System Upgrade and Expansion Project (DSUEP), Nepal Electricity Authority (NEA), May 2021.*

7. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

7.1 Environmental and Social Management Plan and Mitigation Measures

The overall Environmental and Social Management Plan of the Subproject is presented in **Table 7-1**. The 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 ESMU of PIU.

Table 7-1: Environmental and Social Management Plan (ESMP)

Project Activity	Environmental and Social Issues	Management/Mitigation Measures	Mitigation Cost	Responsibility	
				Planning and Implementation	Supervision and Monitoring
Pre-construction Phase					
Approvals, permits and clearances	Installation of poles along the edge of private farm lands	• Site office and the contractor must inform the community prior to the installation of poles and stringing of the line along DL route		Site Office/ Contractor/	DSUEP (PIU)/NEA
Construction Phase					
Construction work in substation area and distribution line alignment	• Inadequate/unsafe working conditions	• Appropriate contract clauses to ensure satisfactory implementation of contractual environmental, health, and safety measures.		Site Office/Contractor	PIU/NEA
	• Accident may arise if the pit hole (depth-2m and diameter-0.22 m) prepared for steel tubular poles remains open for long time	• Pit holes for the steel tubular pole shall not be left open and should be filled instantly by erecting poles and concrete-cement around the base should be used to strengthen the pole erection • Contractors should follow the guideline provided by the PIU	Project Cost	Contractor/ Site Office	PIU/ESMU/ PIU
	• Dust emission - transportation of materials and movement of construction crews and equipment will	• Water sprays to be used for dust control as necessary in the earthen roads of the settlements nearby the substation area and proper storage of the construction materials (sand, cements, aggregates and spoil) to be stored in substation area.	Air Quality Monitoring-1,50,000.00 (NRs.) Sprinkling water (Dust Management) 2,00,000.00 (NRs.)	Contractor/ Site Office	PIU/ESMU

	cause minor impact	• Steel poles firstly stocked in the substation area and secondly in the open barren area in coordination with Municipalities and RM. No social and environmental issues for the stockpiling of the steel poles and stringing wires			
	• Noise emission- Construction related noise will be limited to vehicular movement and inside-the-fence construction activities at substations sites	• Boundary walls serves as a noise barrier, and these shall be constructed as early as possible. • Construction equipment to meet national emissions and noise control standards.	Noise Level Monitoring- 50,000.00 (NRs.) Provision of PPE in Project Cost	Contractor/ Site Office	PIU/ESMU
	• Interference with drainage patterns will be temporary at substation during construction phase	• A proper drainage system should be managed within the substation area. • Storm water run-off need to be minimized and controlled with bunding temporary dikes • Drainage management as a preventive measure against breeding of mosquitoes and other pests	Project Cost	Contractor/ Site Office	PIU/ESMU
	• Construction associated wastes generated within substation area and campsite location	• Organic waste generated from the campsite shall be managed within the substation premises, through composting in the bin or by constructing a ground pit, and covered, by a thick layer of soil • Reusable waste like debris, broken brick pieces, sand, stone, waste cement, and the	Solid wastes management – 1,00,000.00 (NRs.)	Contractor/ Site Office	PIU/ESMU

		sand mix should be used as refills for ground leveling. • Recyclable wastes like left out/non-usable reinforcement bars and packing materials to be sent or sold to scrap vendors. • Effective coordination with the local level government for the proper waste management			
	• Illegal fishing and bird hunting by the labors	• Discouraged by supplying adequate food item (poultry) requirement within the camp. • Awareness of legal provisions upon illegal hunting of biodiversity need to be disseminated	Project Cost	Contractor/ Site Office	PIU/ESMU
	• Use of firewood from nearby forests	• Workers and staffs should be restricted to use firewood for cooking. • Providing LPG-based stoves in Labor camp.	Project Cost	Contractor/ Site Office	PIU/ESMU
	• Loss of standing crops at pole installation locations (depth-2m and diameter-0.22 m)	• Poles are to be installed at the edge of cultivated land making no loss of standing crops. • Need to make prior consultation with landowners before installation of the poles. • If there is a loss of crops, appropriate compensation shall be provided.	Project Cost	Contractor/Site Office	PIU/ESMU
Environment, Health and Safety	• Injury and sicknesses workers and members of the public • Potential fecal coliform contamination in	• Contractor shall prepare the Environmental, Health and Safety plan and take approval from the client. Provision of a safety officer in the work team shall be made during the construction period. • All employees shall be provided with the necessary training, and safety equipment as required for their responsibilities and duties.	Establishment of Labor Camp with basic facilities in Project Cost	Contractor/Site Office	PIU/ESMU

	drinking water	• Basic facilities of drinking water, sanitation & clean resting place, canteen, and first aid shall be made available for the campsite. • Provision of health insurance to employees. • Security fences around the substation. • Installation of warning signs (High Voltage, Fire Safety Signs, and Emergency Signs). • Awareness of HIV/AIDS and other sexually transmitted disease. • Awareness of providing basic sanitation facilities and waste management control to the labors. • For coronavirus (COVID-19) pandemic situation, Contractors should arrange for quarantine and health services for infected workers.	EHS Awareness Trainings - 1,50,000.00 (NRs.) COVID-19 measures 2,00,000.00 (NRs.)		
Management of electric equipment, toxic materials of chemical wastes	• Possible spills resulting in contamination of soil, water, and air	• Chemical waste generated from the transformer shall be collected in leakage-proof, corrosion-free, specially designed containers, and sealed carefully	1,00,000.00 (NRs.)	Contractor/ Site Office	PIU/ESMU
Operation and Maintenance Phase					
Electric shock and fire hazard	• Injury or death to the workers and public	• Use of insulation, guarding, grounding, electrical protective devices, and safe work practices. • Boundary walls and / or security fences around substations to prevent unauthorized access. • Only trained and authorized personnel shall be allowed for the electrical works. • No electric wire to be stringed above the house. • Installation of warning signs.	Project Cost	NEA	NEA

Routine operations and maintenance	• Potential disturbance to other utility functions and vehicular traffic.	• Maintain warning / advisory signs in the good and visible condition • Visual and technical inspection	Project Cost	NEA	NEA
Oil spillage	• Contamination of land/nearby water bodies	• Substation transformers should be stored within secure and impervious bundled areas with a storage capacity of at least 110% of the capacity of oil in transformers and associated reserve tanks.	Project Cost	NEA	NEA
Bird electrocution and collision	Electrocution can cause a risk to bird species that perch on power line infrastructures	Provision of bird guards above the poles and white spirals on the conductors to improve visibility	Project Cost	NEA	NEA

(*The provision of an environment and social management cost should be included in the project cost making each items visible in BOQ of bidding document for the safeguard compliance by the construction contractor*)

7.2 Proposed Monitoring Plan

The monitoring proposed in **Table 7-2** will be of value primarily for establishing baseline conditions in the Subproject area, and then for ambient quality monitoring.

Table 7-2: Minimum Provisions for Environmental Monitoring

Parameters to be Monitored	**Location**	**Measurements**	**Frequency**	**Responsibility**
Construction Stage				
Clearing of construction site	Substation boundaries	• Field inspection of Subproject Sites and ensuring that appropriate safety measures are implemented	Clearing and restoration: Weekly	Contractors to implement corporate EHS plan, drainage management and solid waste control in the substation area.
Air: SPM, Noise: dB(A)	Substation boundaries and nearest receptor to substation	• Spot check for noise and dust using a portable monitoring device	Air, and noise: quarterly during construction period	Contractors need to conduct air and noise monitoring during the construction period at the substation location

Construction wastes: on-site inspection	Visual inspection of active construction areas, including equipment staging areas and camps	• Spot check / visual inspection of solid waste (spoil, muck etc.) generation and disposal. • Analysis of transformer oils to determine if polychlorinated biphenyls are present.	Monthly spot checks for construction waste management	PIU safeguard officers to provide oversight via regular field inspections, and submit monitoring reports to the Bank
Construction and Operation Stage				
Occupational health and safety	Substation boundaries	• No. of Toolbox talk and safety orientation to the workers • No. of workplace accidents • Use of PPE by workers	Daily Inspection during construction Monthly Inspection during the operation phase	Inspection of the construction site by safety officer and PIU safeguard officer
Child involvement in construction work (needs to be prohibited)	Substation work	• Spot inspection at construction sites	Monthly Inspection during construction	Site Office

7.3 Environmental and Social Management Plan and Mitigation Measures

Preliminary cost estimates for the ESMP implementation are shown in **Table *7-3*** These estimates cover the basic monitoring activities and the mitigation measures to be complied from the contractor's side. The ESMP cost estimated for the **Hima-Badki Distribution Line** is NRs 13,00,000.00. The community support activities and the costs will be presented in the Community Development Plan (CDP). NEA has agreed to the effective implementation of the mitigation and monitoring cost items as mentioned in table below.

Table 7-3: Mitigation Measures and Monitoring Activities Cost Estimates

SN	Budget Items	Unit	Rate (NRs.)	Total Amount (NRs.)
1	Air Quality Monitoring (at substation)	6 (Times)	25,000.00	150,000.00
2	Noise Level Monitoring (at substation)	6 (Times)	8,334.00	50,000.00
3	Sprinkling of water to be used for dust control necessary in the earthen roads of the settlements nearby the substation area and proper storage of the construction materials (sand, cements, aggregates and spoil)	200 (Times) During Excavation and Civil works	1000.00	2,00,000.00
4	Management of electric equipment's, toxic materials of chemical wastes	-	L.S.	1,00,000.00
5	Segregation and management of solid wastes	-	L.S.	1,00,000.00
6	COVID-19 measures (considering pandemic situation) standardize the quarantine facilities with health aid to the labors	-	L.S.	200,000.00
7	EHS Awareness raising training to the labors	10 (Events)	15,000.00	1,50,000.00
8	Meeting of Safeguard Desk and Grievance Redress Committee at Field Level	24 (Months)	14,583.00	3,50,000.00
Total				**13,00,000.00**

8. CONCLUSION

Potential environmental impacts of this Subproject are not diverse and are all site-specific i.e., confined to the Core Project Area. Civil works will have minimal temporary impacts on air, noise and water quality. Erection of poles during construction shall follow the RoW of existing roads and the edge of farmlands. The PIU should give prior information before the installation of the poles. In the ESMP consultations conducted in the settlement area, people have agreed for the implementation of the Subproject and have suggested installing poles on the edge of farm-lands, without affecting any private structures along the distribution line. If there is a loss of crops, appropriate compensation shall be provided. Mitigation measures are suggested in this ESMP to avoid any possible environmental and social impacts. The total ESMP cost for this Subproject is NRs. 13,00,000.00. NEA Project Implementation Unit has agreed to implement the estimated cost for the mitigation measures and monitoring activities.

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ANNEXES

Annex 1: SAMPLE NOTICE FOR PUBLIC CONSULTATION

नेपाल विद्युत प्राधिकरण

(नेपाल सरकारको स्वामित्व)

वितरण तथा ग्राहक सेवा निर्देशनालय

फ्याक्स: ०१-४१५३१४४
फोन नं : ०१-४१५३१४५
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: .....

..... प्रदेश ..... जिल्ला .....(नगरपालिका/गाउँपालिका/महानगरपालिका/उपमहानगरपालिका) मा एसियन इन्फ्रास्ट्रकचर इन्भेस्टमेन्ट बैंकको ऋण सहयोग भएको नेपाल विद्युत प्राधिकरण, वितरण तथा ग्राहक सेवा निर्देशनालय, वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजना प्रस्तावक रही कार्यान्वयन गर्न लागिएको ..... 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:

मिति:

समय:

नेपाल विद्युत प्राधिकरण

(नेपाल सरकारको स्वामित्व)

वितरण तथा ग्राहक सेवा निर्देशनालय

नेपाल वितरण प्रणाली स्तरोन्नती तथा विस्तार आयोजना

(ए.आई.आई.बि.)

फ्याक्स: ०१-४१५३१४४
फोन नं : ०१-४१५३१४५
दरबारमार्ग, काठमाण्डौं।

प.सं. ०७८/७९: 93८.

मिति: २०७८/१०/०७

श्री .....

.....

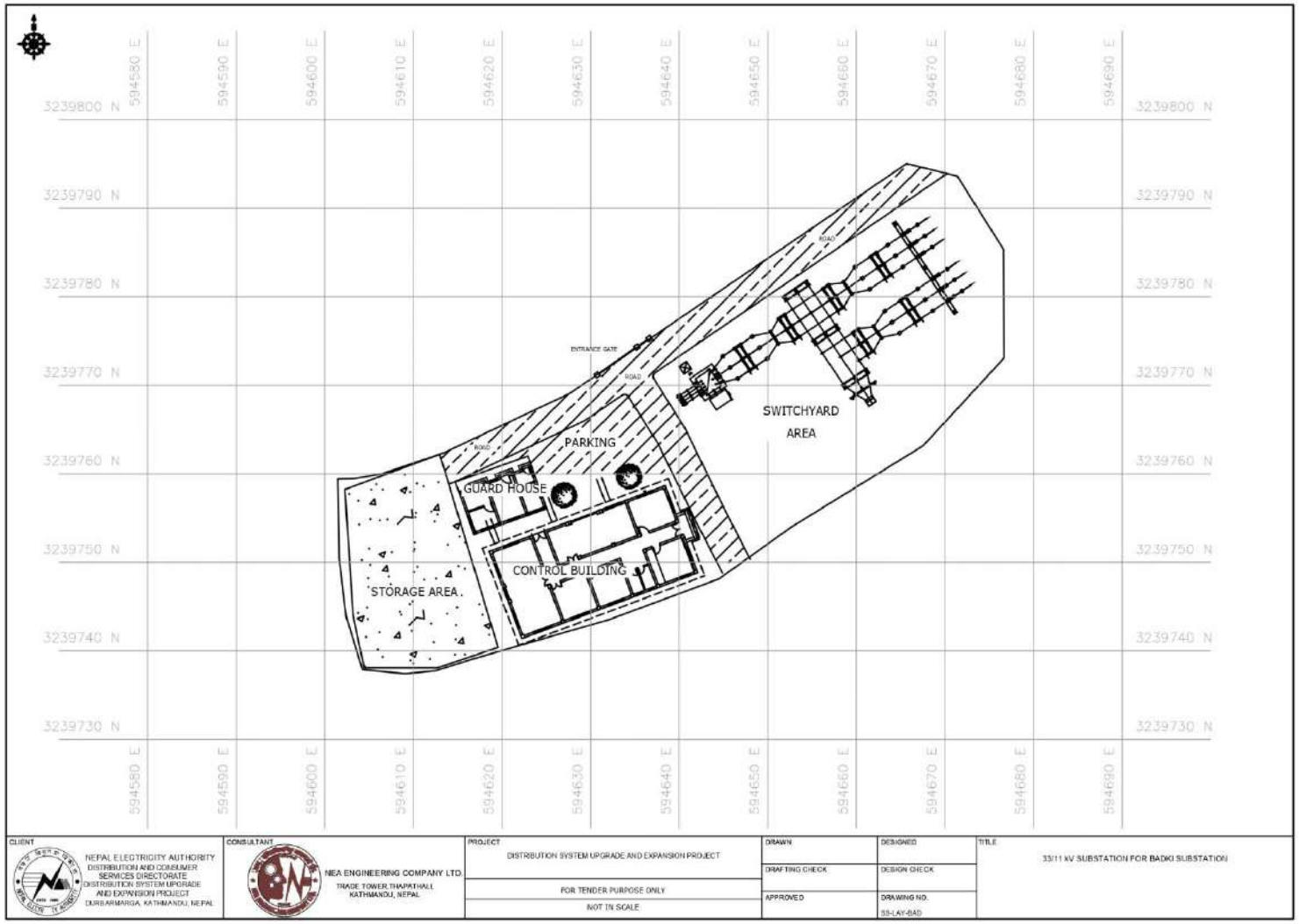
विषय: गुनासो समाधान संयन्त्र गठन भएको सम्बन्धमा।

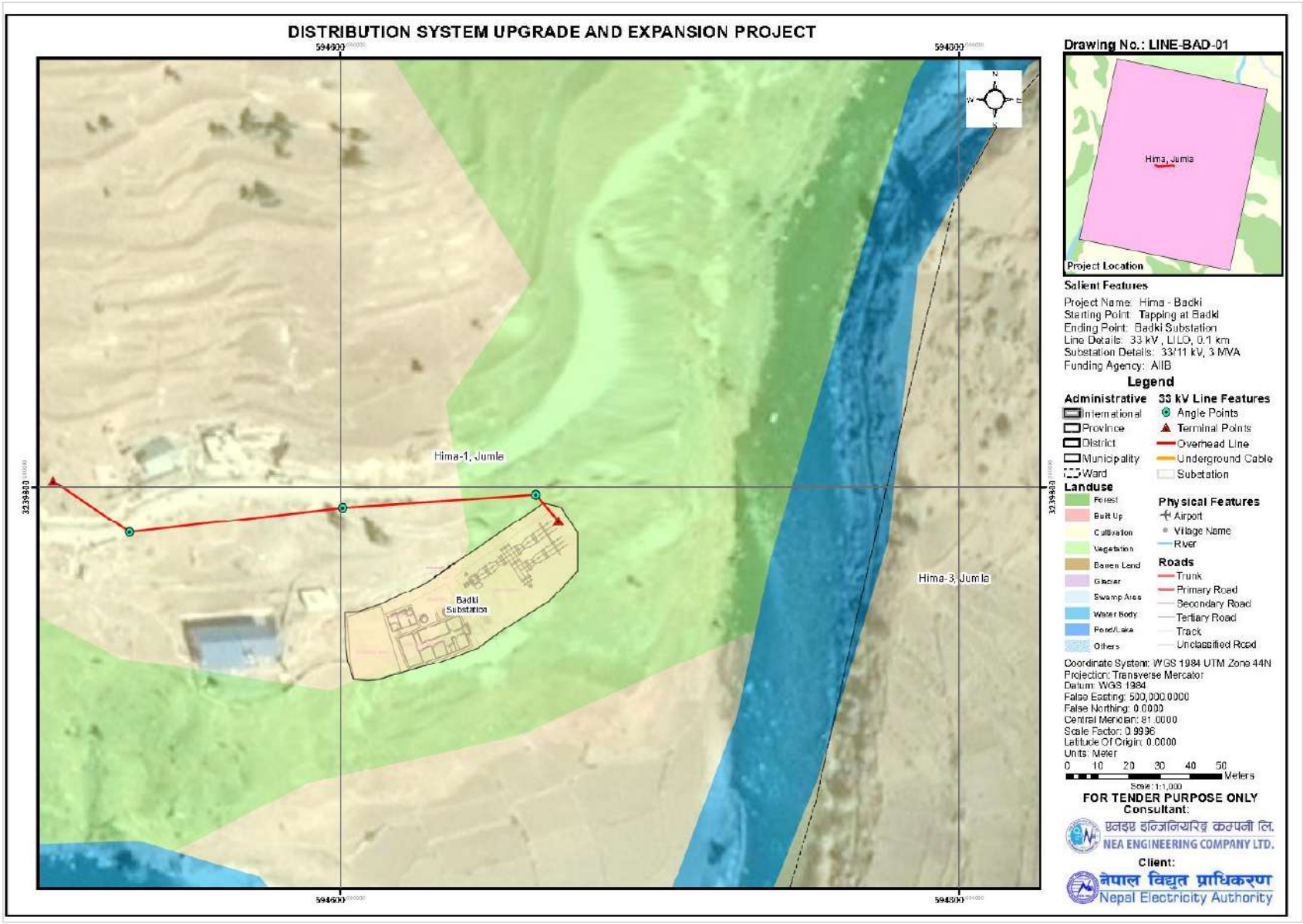
उपरोक्त विषयमा एसियन इन्फ्रास्ट्रकचर इन्वेस्टमेन्ट बैंक (ए.आई.आई.बि.) को ऋण-सहयोगमा नेपाल विद्युत प्राधिकरण, वितरण तथा ग्राहक सेवा निर्देशनालय, वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजना (ए.आई.आई.बि.) प्रस्तावक रही कार्यान्वयन गर्न लागिएको ..... आयोजना अन्तर्गत नेपाल सरकारको पूर्ण-विद्युतीकरण गर्ने लक्ष्य बमोजिम तहाँ ***वडा/गाउँपालिका/नगरपालिका/उप-महानगरपालिकामा*** ३३/११ के.भी. सब-स्टेशन, ३३ के.भी. लाईन, ११ के.भी. लाईन, ४०० भी. लाईन, आदि निर्माण कार्यहरु हुने भएकोले सो कार्यहरु गर्दा स्थानीय सरोकारवालाहरुको कुनै गुनासो भए सो गुनासोको समाधान गर्न गुनासो समाधान संयन्त्र निर्माण गरिएको छ। अतः संलग्न गुनासो समाधान संयन्त्र दस्तावेज बमोजिम आफ्ना गुनासोहरु दर्ता गर्न र सोही दस्तावेजमा भनिए बमोजिम गुनासोको समाधान हुने व्यहोरा सम्पूर्ण सरोकारवालाहरुलाई जानकारी गराइन्छ।

भवदीय,

(केशव श्रेष्ठ)
आयोजना प्रमुख

Annex 2: LAYOUT MAPS OF SUBSTATION AND DISTRIBUTION LINE ALIGNMENT

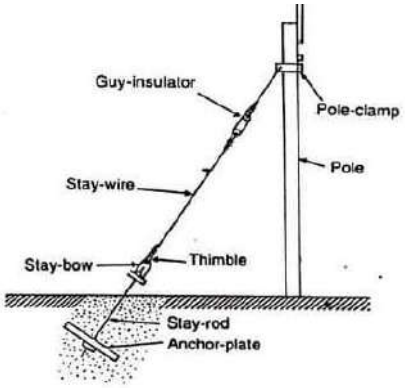



DISTRIBUTION SYSTEM UPGRADE AND EXPANSION PROJECT
Drawing No.: LINE-BAD-01
Hima, Jumla
Project Location
Salient Features
Project Name: Hima - Badki
Starting Point: Tapping at Badki
Ending Point: Badki Substation
Line Details: 33 kV , LILO, 0.1 km
Substation Details: 33/11 kV, 3 MVA
Funding Agency: AIIB
Legend
Administrative
International
Province
District
Municipality
Ward
Landuse
Forest
Built Up
Cultivation
Vegetation
Baren Land
Glacier
Swamp Area
Water Body
Pond/Lake
Others
33 kV Line Features
Angle Points
Terminal Points
Overhead Line
Underground Cable
Substation
Physical Features
Airport
Village Name
River
Roads
Trunk
Primary Road
Secondary Road
Tertiary Road
Track
Unclassified Road
Coordinate System: WGS 1984 UTM Zone 44N
Projection: Transverse Mercator
Datum: WGS 1984
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: 81.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
0 10 20 30 40 50
Meters
Scale: 1:1,000
FOR TENDER PURPOSE ONLY
Consultant:
एनइए इन्जिनियरिङ्ग कम्पनी लि.
NEA ENGINEERING COMPANY LTD.
Client:
नेपाल विद्युत प्राधिकरण
Nepal Electricity Authority
Hima-1, Jumla
Badki Substation
Hima-3, Jumla
594000
3239000

Annex 3: FACILITY AND COMPONENTS

Transformer

Switch Yard

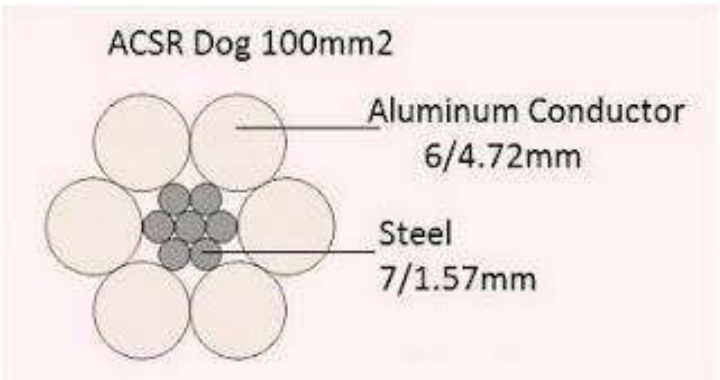


Stay/Guy Sets

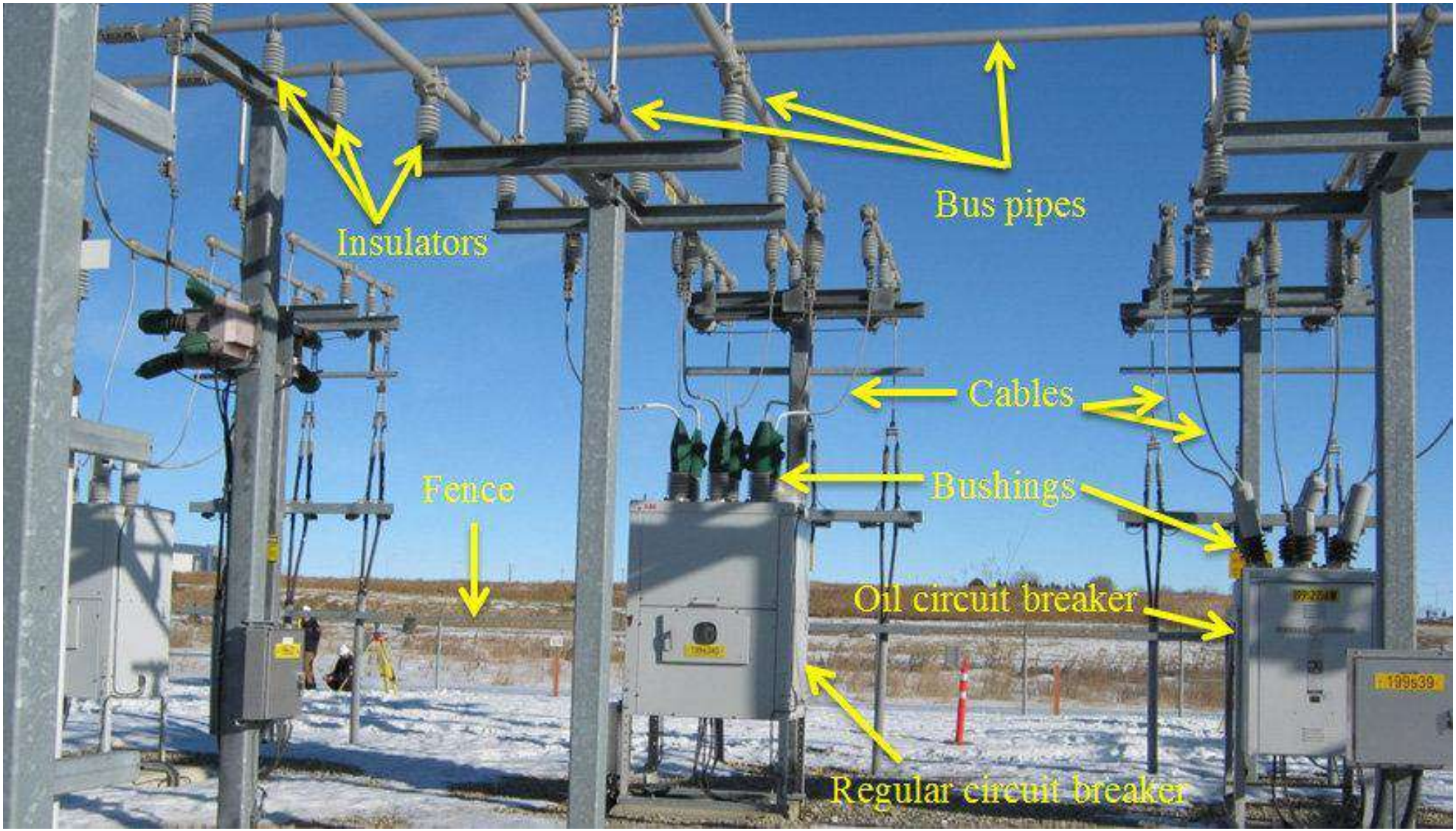
Steel Tubular Pole

Insulator

Civil-Structures Supporting Electrical Components



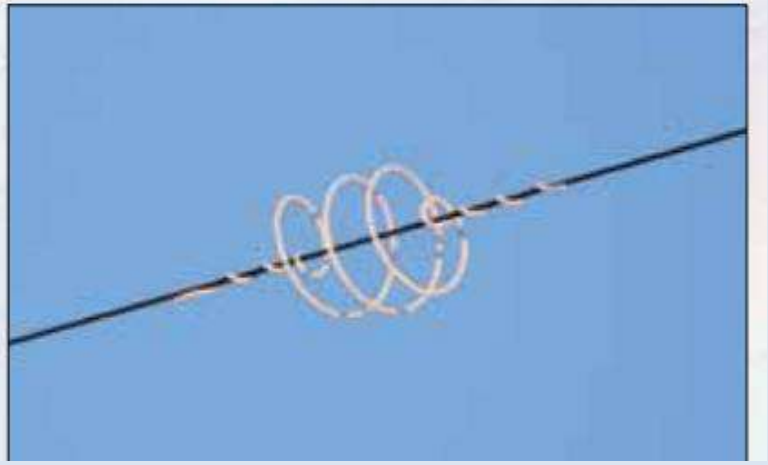
Conductor



Possible components within 33 kV/11 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 4: LEGISLATIVE PROVISIONS

SN	Legal Provisions	Description	Relevancy concerning Project
1.	**Constitution of Nepal**	● The Constitution of Nepal is the main legal document, which emphasizes the right to a clean environment of the people, natural resources protection, preservation, and its prudent use. Rights regarding the clean environment, under article 30: ● It includes making multi-purpose development of water resources, while according priority to domestic investment based on public participation to ensure a reliable supply of energy affordably, and easily, 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 fulfill the rights of people to live in a clean environment along with fulfilling the basic needs by providing access to sufficient energy.
2.	**Environment Protection Act 2076 (2019 AD)**	● Section 3 of the Act requires the proponent to conduct environmental studies concerning the prescribed proposals of any developmental works. Subsection 2 of this act provides the framework for the environmental study report prepared according to sub-section (1) shall, in fulfillment of the process as prescribed, be submitted to the relevant bodies of the Government of Nepal for approval.	Environmental Studies, and approval of the report from the authorized body before construction of any project is mandatory to minimize the negative impacts in Nepal which is addressed in EPA, 2019.
3.	**Environmental Protection Rule, 2077 (2020 AD) [First Amendment on 2078 (2021)]**	● Under the Environmental Protection Rules (2020) first amendment (2021), 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 the project by the Government of Nepal.
4.	**Nepal Environmental Policy, and**	The aims of NEPAP are: ● To manage natural, and physical resources efficiently, and sustainably	DSUEP should follow the aims of NEPAP to

	Action Plan, 2050(1993)	● To balance the development efforts, and environmental conservation for sustainable fulfillment of basic needs ● 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 the adverse environmental impact of development projects, and human actions ● To integrate environment, and development through appropriate institutions, adequate legislation, and economic incentives, and sufficient public resources	protect, and conserve the physical, biological, and social environment during the construction of a 33 kV distribution line along with a substation.
5.	**Electricity Act 1992**	● No person shall be entitled to conduct survey, generation, transmission, or distribution of electricity without obtaining a license under this act. ● The Electricity Act of 1992 has the provision of land procurement for the development of Subprojects that involve electricity generation, transmission, or distribution. The Act states that the licensee may apply 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 a sufficient amount of electricity by constructing a 33 kV line, and substation by surveying to minimize the impacts.
6.	**Rural Energy Policy, 2006**	The rationale of formulating, and implementing this policy is to create a conducive environment that will self-motivate, and mobilize local institutions, rural energy user groups, non-government organizations, cooperatives, and private sector organizations 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 the promotion of such renewable energy technologies.	This project helps to improve the distribution, and motivate use the of electricity in rural areas of western Nepal.
7.	**Labor Act, 2074 (2017 AD)**	This labor Act was made under the management of parliament under sub-clause 1 of clause 296 of the 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 the prohibition of child labor in any organization,	The construction of a project is only possible when the rights of labor are secure. In this project, the Contractor should

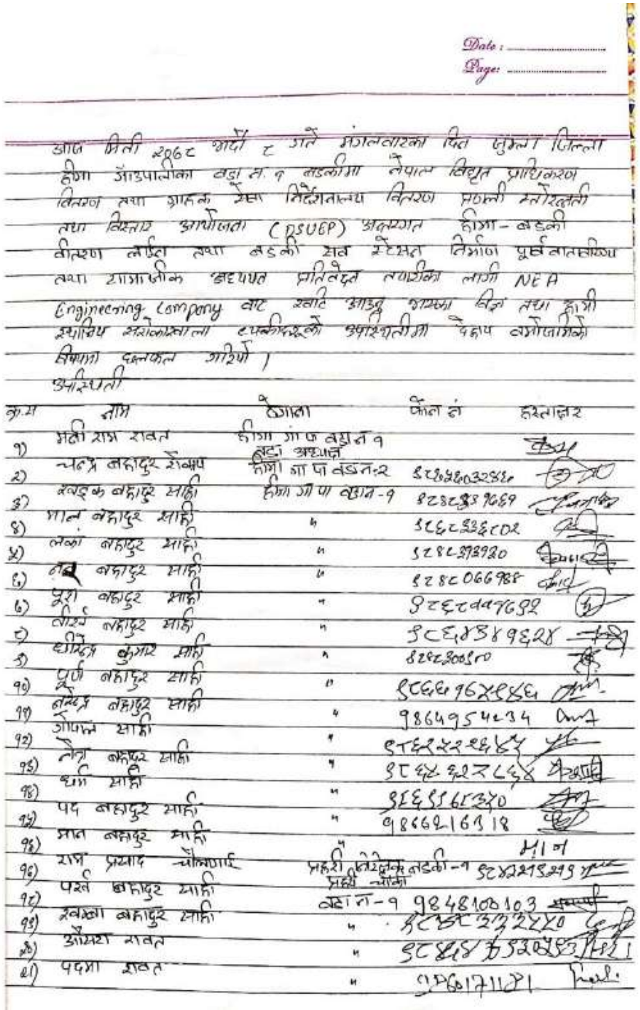
		and sub-section 6 of Section 2 states that there should not be any kind of discrimination among the employee's regard of religion, ethnicity, gender, origin, language, or intelligence or other kinds of characters.	follow this act strictly.
8.	**Child Labor (Prohibition, and Regulation) Act, 2056 (2000 AD)**	As per section 3 of this act, no child has not attained the age of 14 years shall be engaged in works as a laborer.	Child labor is strictly prohibited in this project, and Contractors should follow this act.
9.	**Solid Waste Management Act, 2068 (2011 AD)**	This act has been formulated to minimize solid waste products from the target area by setting rules, and regulations on solid waste management (SWM) in the country to develop a better environment for the systematic, and effective management of solid waste, and to involve all the concerned stakeholders in SWM practice. The main features of this act are the discussion of the 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 saves the money which could be used for other infrastructure development. Section 4 of the act assigns the local body to manage or use the solid waste discharged or dumped in the collection center, transfer station, or treatment plant or collected during cleaning.	These acts provide the overall framework to manage the solid waste generated from households to the project level. Also, the proponent should manage the waste generated during construction.
10.	**Solid Waste Management Rules, 2070 (2013 AD)**	The solid waste management rule was formulated as per the provision made in article 50 of the 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 the segregation, and management of solid waste. It has been mentioned that it is essential to segregate degradable, and non-degradable solid waste at the source.	These rules provide the overall framework for how to reduce the volume of waste disposed of at the source during the construction of the substation.
11.	**Fifteenth Plan**	The vision of the 15th plan is to contribute to the prosperity of the nation through sustainable, and reliable development of hydropower by setting the goal which is to ensure energy security through intensifying hydropower generation. In addition, one of the strategies of the government of Nepal in	This 5-year interim plan sets the goal about the generation, and distribution of hydroelectricity in

		the 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:	Nepal which is directly related to this project.
12.	**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, formulated, and determined nationally, to minimize adverse effects on the economy, on public health, and the quality of the environment, of Subprojects or measures undertaken by them to mitigate or adapt to climate change. After it entered into force on 21 March 1994, it mandates the individual state for prioritization of resource conservation with development.	The goal of this project is to replace the traditional form of energy with clean energy i.e., electricity which ultimately reduces air pollution, and smoke.
13.	**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. Article 1 on the First Part of this convention mainly focused on the 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 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. ● 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.	Nepal is the part of ILO convention that's why ILO 169 should strictly follow during construction, and implementation of any types

		● The use of the term people in this Convention shall not be construed as having any implications as regards the rights which may attach to the term under international law.	
14.	**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 Financiers' 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
15.	**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
16.	**Environmental and Social Standards of AIIB** [11]	● Three associated mandatory environmental and social standards (ESSs) set out more detailed environmental and social requirements relating to the ESMP	ESMP requirement

[11] *https://www.aiib.org/en/policiesstrategies/download/environmentframework/20160226043633542.pdf*

Annex 5: CONSULATATION MEETING MINUTES



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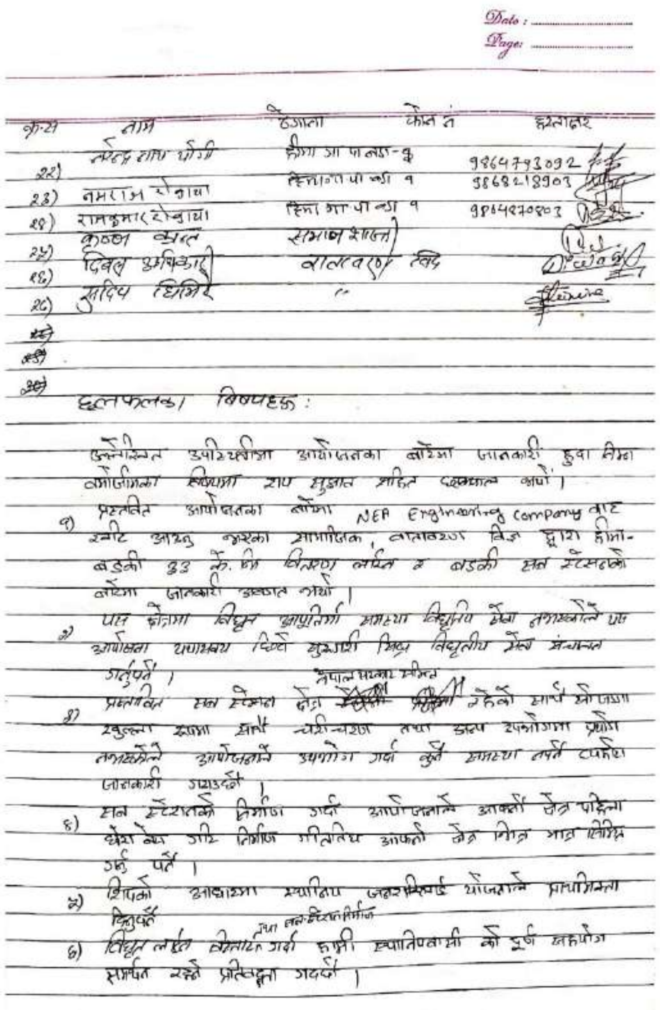
आज मिति २०७८ भदौ ८ गते मंगलवारका दिन जुम्ला जिल्ला हिमा गाउँपालिका वडा नं. १ बडकीमा नेपाल विद्युत प्राधिकरण वितरण तथा ग्राहक सेवा निर्देशनालय वितरण प्रणाली स्तरोन्नति तथा विस्तार आयोजना (DSUEP) अन्तर्गत हिमा-बडकी वितरण लाईन तथा बडकी सब स्टेसन निर्माण पूर्व वातावरणीय तथा सामाजिक अध्ययन प्रतिवेदन तयारीका लागि NEA Engineering Company बाट खटि आउनु भएका विज्ञ तथा हामी स्थानीय सरोकारवालाहरु एवम् व्यक्तिहरुको उपस्थितिमा देहाय बमोजिमको विषयमा छलफल गरियो ।

उपस्थिति

क्र.स	नाम	ठेगाना	फोन नं	हस्ताक्षर
१)	मनी राम रावत	हिमा गा पा वडा नं १ वडा अध्यक्ष		
२)	चन्द्र बहादुर रोकाय	हिमा गा पा वडा नं-२	९८६८९८०३२४८	
३)	खड्क बहादुर शाही	हिमा गा पा वडा नं-१	९८४८३३१६६९	
४)	मान बहादुर शाही	"	९८६८३३६८०२	
५)	लंका बहादुर शाही	"	९८४८३७३९२०	
६)	नर बहादुर शाही	"	९८४८०६६९८८	
७)	पुरी बहादुर शाही	"	९८६८४४७६९२	
८)	वीरे बहादुर शाही	"	९८६४४५४९६२४	
९)	धीरेन्द्र कुमार शाही	"	९८४८३००९८०	
१०)	पूर्ण बहादुर शाही	"	९८६६९६५९४६	
११)	नरेन्द्र बहादुर शाही	"	9864954234	
१२)	गोपाल शाही	"	९८६२२२२६४२	
१३)	नेत्र बहादुर शाही	"	९८६४४२२८६४	
१४)	धर्म शाही	"	९८६५१६१३२०	
१५)	पद्म बहादुर शाही	"	9866216318	
१६)	मान बहादुर शाही	"		Man
१७)	राम प्रसाद चौलागाई	प्रहरी चौकी बडकी-१	९८४२४१३४१३	
१८)	पर्व बहादुर शाही	वडा नं-१	9848100103	
१९)	खड्का बहादुर शाही	"	९८४८३३२४४०	
२०)	औंसरा रावत	"	[illegible]	
२१)	पद्मा रावत	"	9868171121	



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क्र.स	नाम	ठेगाना	फोन नं	हस्ताक्षर
२२)	नरेन्द्र नाथ योगी	हिमा गा पा वडा-३	9864793092	
२३)	नमराज रोकाया	हिमा गा पा वडा १	9868218903	
२४)	रामकुमार रोकाया	हिमा गा पा वडा १	9864270803	
२५)	कृष्ण खत्री	समाजशास्त्री		
२६)	दिवस अधिकारी	वातावरण विद्		
२७)	सुदिप घिमिरे	"		

छलफलका विषयहरु :

उल्लेखित उपस्थितिमा आयोजनाका बारेमा जानकारी हुँदा निम्न बमोजिमका विषयमा राय सुझाव सहित छलफल भयो ।

१) प्रस्तावित आयोजनाका बारेमा NEA Engineering Company बाट खटि आउनु भएका सामाजिक, वातावरण विज्ञ द्वारा हिमा-बडकी ३३ के.भी वितरण लाईन र बडकी सब स्टेसनको बारेमा जानकारी गराउनु भयो ।

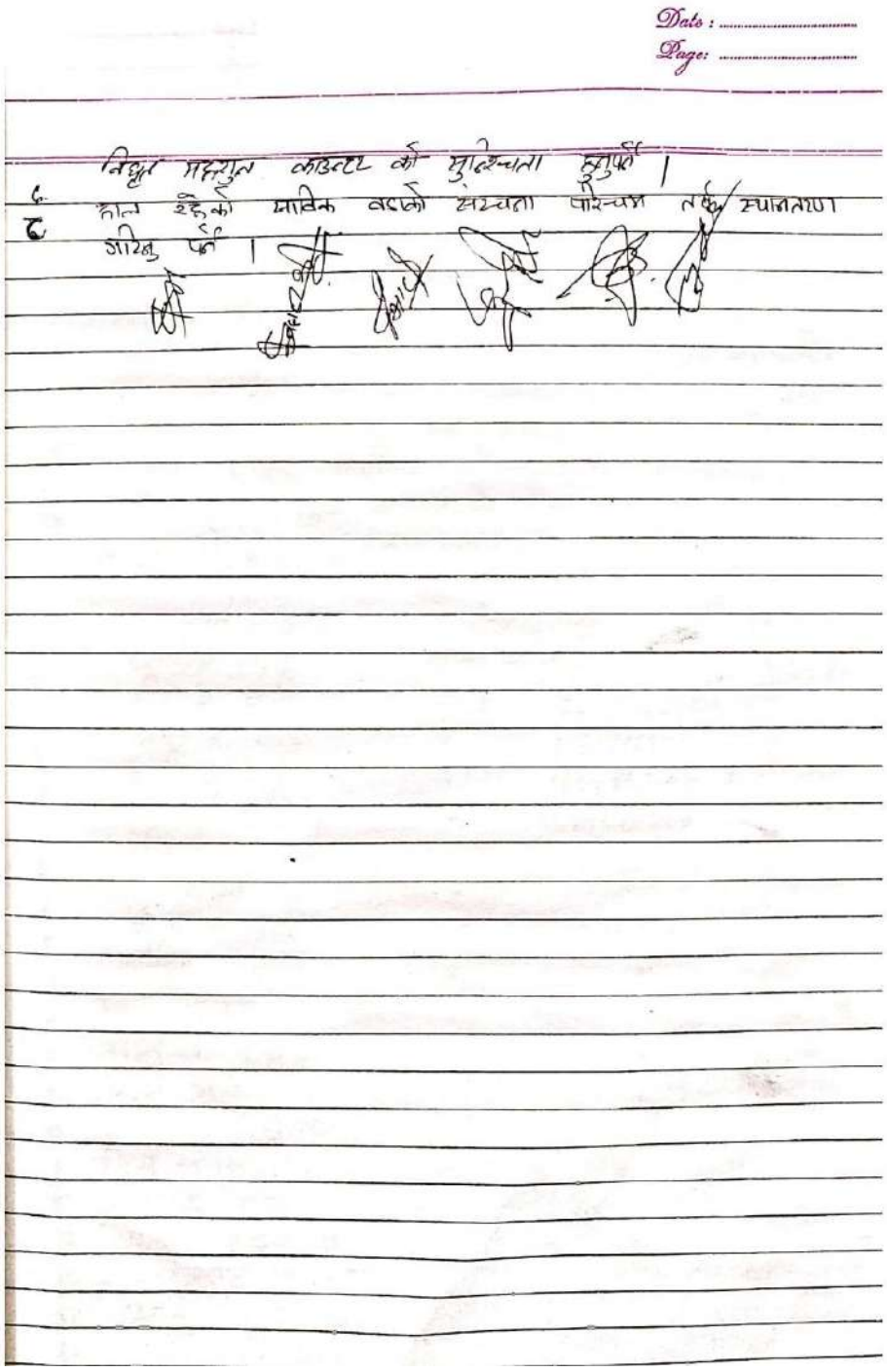
२) यस क्षेत्रमा विद्युत आपूर्तिमा समस्या विद्युतीय सेवा नपाएकोले यस आयोजना यथाशिघ्र निर्माण गरी नियमित विद्युतीय सेवा संचालन गर्नुपर्दछ ।

३) प्रस्तावित सब स्टेसन क्षेत्र नेपाल सरकार मातहत रहेको सार्वजनिक जग्गा खुल्ला क्षेत्र सार्वजनिक चरीचरण तथा अन्य उपयोगमा प्रयोग नभएकोले आयोजनाले उपयोग गर्दा कुनै समस्या नपर्ने स्थानीयले जानकारी गराउँदछौं ।

४) सब स्टेसनको निर्माण गर्दा आयोजनाले आफ्नो क्षेत्र पहिचान गरी घेरा बार गरी निर्माण गतिविधि आफ्नो क्षेत्र भित्र मात्र सीमित गर्नु पर्दछ ।

५) सीपको आधारमा स्थानीय जनशक्तिलाई योजनाले प्राथमिकता दिनुपर्दछ ।

६) विद्युत लाईन विस्तार तथा सबस्टेसन निर्माण गर्दा हामी स्थानियवासीको पूर्ण सहयोग समर्पित रहने प्रतिबद्धता गर्दछौं ।



Annex 6: DEED OF INQUIRY (MUCHULKAS)

हिमा गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय
कालिकाखेतु, जुम्ला
कर्णाली प्रदेश, नेपाल

प.स.:०७८/०७९
च.न. ९०

मिति : २०७८/०५/०७

विषयः- सूचना टाँस गरीएको सम्वन्धमा ।

श्री नेपाल विद्युत प्राधिकरण,
वितरण तथा ग्राहक सेव निर्देशनालय नेपाल वितरण प्रणाली स्तरोन्नती तथा विस्तार आयोजना
दरवारमार्ग काठमाण्डौ ।

प्रस्तुत विषयमा तहाँ कार्यालयको प.सं. ०७८/०७९ च.नं. १६ DSUEP र मिति २०७८/०४/२५ गतेको प्राप्त पत्रानुसार यस कार्यालयमा प्राप्त भएको सूचना एक प्रति सूचना पाटीमा टाँस गरिएको व्यहोरा जानकारीको लागी अनुरोध छ ।

.....
रतन बहादुर रावत
नि. प्रमुख प्रशासकीय अधिकृत

प्रमुख प्रशासकीय अधिकृत

हिमा गाउँ पालिका
१ नं. वडा कार्यपालिकाको कार्यालय
बड्की , जुम्ला
कर्णाली प्रदेश, नेपाल

प.सं०७८।०७९
च.नं. ८१

मिति: २०७८।०४ ।०७

विषय: सूचना टाँसगरि जानकारि पठाएको बारे ।

श्री.नेपाल वितरण प्रणाली स्तरोन्नती तथा विसतार आयोजना ।

प्रस्तुत विषयमा तहाँ आयोजनाको प. सं. ०७८।०७९ च.नं १६ मिति२०७८।०४।२५ को पत्र यस वडा कार्यालयमा मिति २०७८।०४।०७ गते प्राप्त भइ सो पत्रको व्यहोरा अवगत भयो र उक्त पत्र साथ संलग्न रहेको सूचना पत्र थान १ (एक) यसै वडा कार्यालयको सूचनापाटिमा सूचना टाँसगरि सोको जानकारी गरेको व्यहोरा सिफारिस गरिन्छ ।

०८/०४/०७८
मुनिराम रावत

मुनिराम रावत
का.वा. वडा अध्यक्ष

Annex 7: SAFETY RELATED SIGNS AND WASTE MANAGEMENT PRACTICES

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 साधनबिना यो उपकरण संचालन गर्न निषेध

INSTRUCTION SIGNS

Slow Sign for Traffic Control
सिग्नल जानुहोस्

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 जुता आवश्यक


निर्माणस्थलमा गर्नहुने र नहुने कुराहरु

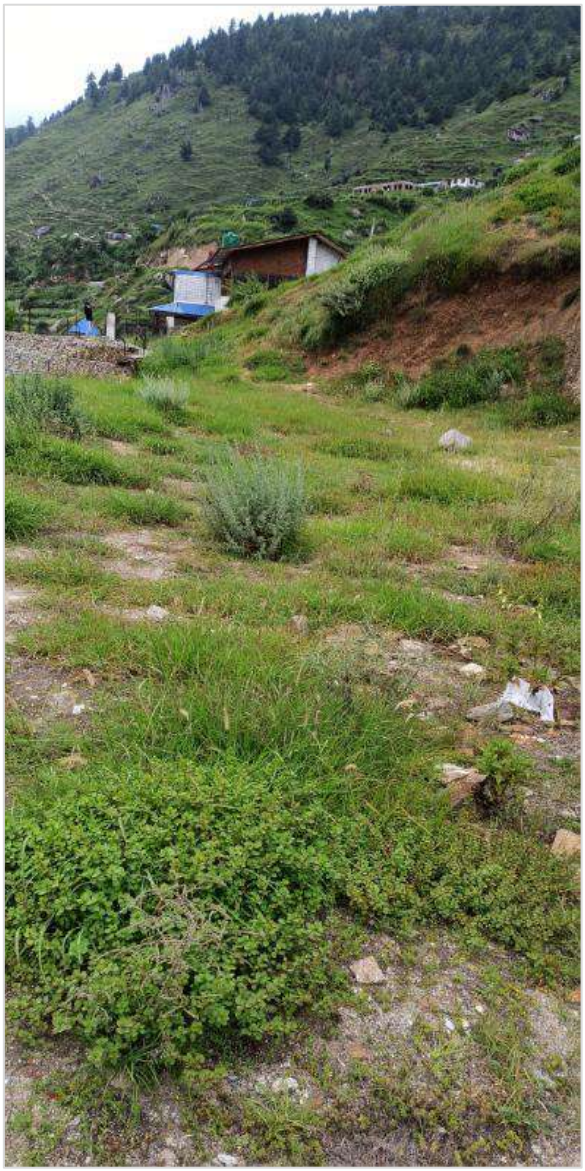

निर्माणस्थलमा गर्नहुने र नहुने कुराहरु

Annex 8: PHOTOGRAPHS

Tapping Point near Police Chowki at Badki and Notice Pasting at Hima RM Office

Substation (Proposed) Site, Access Road and Health Post at Badki, Hima RM-1

Northeast View of Hima-Badki Substation Site at Badki, Hima RM-1



South-West View of Hima-Badki Substation Site and DL Route at Badki, Hima RM-1

Rock Formation of Substation Area at Badki, Hima RM-1

Stakeholders during Public Consultation cum FGD Meeting at Substation

Annex 9: ENVIRONMENTAL AND SOCIAL SCREENING AND RAPID ASSESSMENT GUIDANCE FOR DISTRIBUTION LINE

9.1 Screening Guidance – to be filled up per subproject (11kV line)

Province: District/Municipality: Subproject Name: Subproject Location: name of locations of distribution line (start from/ward/municipality …….end to…… (ward/municipality), Total length of distribution line:……km/m

Environmental and Social Screening Criteria	Project Requirement
Environmental Impact Assessment Requirement EIA/IEE. As per national requirement (as per Environmental Protection Act 2019) does the subproject require assessment of BES/IEE or EIA, Please tick the requirement.	
1.	If “Yes”, the subproject needs to prepare ESMP as per AIIB requirement.
Natural Habitat Defined as the type of natural environment in which a particular species of organism lives. It is characterized by both physical and biological features and that human activity has not essentially changed the main ecological functions of the area	
4. Is the subproject located in a legally protected area based on Forestry Map?	If “Yes”, please indicate what type of permission it will requires
5. Does distribution line route/poles close to any touristic view points, wetlands, and sites of cultural / religious / archeological / historic significance?	If “Yes” please indicate what impact it will entail.
6. Will the subproject significantly make impact of degradation or change of the natural known habitat/migration movement route of protected rare and endangered species and/or forest in the protected area, proposed protected area or area considered with special ecology?	If “Yes”, please indicate what impact it will entails including cutting down trees etc.
7. Does the distribution line/ route and locations of poles are falling in any landslide & erosion prone/ risk spot where geological avoidance is not feasible	If “Yes” please indicate what impact it will entail.
Indigenous Peoples (IPs) Identification of the existence IPs is aimed to guarantee that IPs would be treated as well as other community members and given opportunity to participate and get access to the benefit of the project with ways that would not threat their exclusive culture and welfare. The project has to give correct and detail information of the objective and plan (design, schedule etc) of the subproject with consultation with the IPs before any construction activity in the area started. The term IPs is used generally for an ethnic individual or group that: (i) are considered by	

national or local laws or policies as well as anthropological researches/studies as belonging to ethnic minorities or Indigenous Peoples defined by Nepal Federation of Indigenous Nationalities(NEFIN); (ii) identify as being part of a distinct social and cultural group; (iii) self-identify as being part of a distinct social and cultural group; (iv) maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories; (iv) maintain cultural, economic, social, and political institutions distinct from the dominant society and culture; (v) speak a distinct language or dialect; (vi) have been historically, socially, and economically marginalized, disempowered, excluded, and/or discriminated against; (vii) represented as "Indigenous Peoples" or as "ethnic minorities" in any formal decision-making bodies at the national or local levels.	
7. Is the subproject area affected community: (i) Are considered by national or local laws or policies as well as anthropological researches/studies as belonging to ethnic minorities or Indigenous Peoples defined by Nepal Federation of Indigenous Nationalities(NEFIN)? (ii) Identify as being part of a distinct social and cultural group? (iii) Self-identify as being part of a distinct social and cultural group? (iv) Maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories (v) Maintain cultural, economic, social, and political institutions distinct from the dominant society and culture? (vi) Speak a distinct language or dialect? (vii) Have been historically, socially, and economically marginalized, disempowered, excluded, and/or discriminated against? (viii) Represented as "Indigenous Peoples" or as "ethnic minorities" in any formal decision-making bodies at the national or local levels?	If "Yes" in any of the question no 7, consultation should be conducted as described above. This should be documented as followed: (i) proof of dissemination of the notice for consultation; (ii) notes on when is the consultation being held, who attend the consultation, what is the result, and documentation of every consultation, with list of attendance segregated by gender. The form of attendance list and notes of meeting is attached in Appendix 11
8. Is there any adverse impact on any groups identified (by answering "Yes") on the point 5?	If "Yes", the subproject is not qualified to be included. Realign.
Cultural Resources Cultural resources include tangible culture (such as buildings, monuments, landscapes, books, works of art, and artifacts), intangible culture (such as folklore, traditions, language, and knowledge), and natural heritage (including culturally significant landscapes, and biodiversity)	
9. Is the subproject temporary or permanently causing relocation or any other negative impacts to cultural heritage that has important significance for local, regional or national based on provincial or national list, proposed provincial or national list, and/or just has been identified when the	If "Yes", the subproject is not qualified to be included

public consultation with project affected people was held?	
10. Is there any cultural heritage especially with important value for local community (eg. ancestral tomb) being negatively affected by the subproject?	If "Yes", the subproject is not qualified to be included
Land Use The development of or erection of distribution poles will require use of land. The land requirement would be optimized by using government owned land. For Right of Way, private land might be affected if there is no existing Right of Way available, and/or necessary to connect to private customers. Consent of landowners for use of their land and people whose non-land assets impacted by the project would be secured using written documentary evidences as in Appendix 11. During the construction phase, there would be land to be used temporary for construction activities. The contractor on behalf of NEA should maximise the usage of public land like roadside, and will rent private land with budget taken from the construction contract if public land is not available.	
11. Is there any land owned by individual or organisation to be affected because of the subproject?	If "Yes", the consent form has to be filled and collected. Keep all written letter request and filled consent documentation in hard copies
12. Is there any subproject activity that would restrict or close access to the community usual activities, facilities and services, productive assets and natural resources permanently or temporarily?	If "Yes", explain briefly why there would be restriction and/or closure and what would be the arrangement with the landowners and land users. Keep all written filled consent documentation in hard copies
13. Is there any crops and/or trees (fruit, timber or herb) or fixed assets, loss of business or enterprises owned by individual or organisation to be affected because of the subproject?	If "Yes", explain briefly what would be the impacts of the trees and crops, loss of business or enterprises and the arrangement with the landowners, business owners and land users. Keep all written filled consent documentation in hard copies include reference/basis for compensation.
14. Is there any adverse impact on social and economic activities arising from change in land use	If "Yes", explain briefly what would be the adverse impacts on social and economic activities arising from change in land use
15. Is there restrictions on land and resources owned communally or by the Government	If "Yes", explain briefly what would be the impacts of the restrictions on land and resources owned communally or by the Government
16. Is there any private land to be used temporary during the construction phase for any construction activities?	If "Yes", explain briefly: - location(s) of private land to be used - evidence(s) that the land would be rented under contractor's contract
Safety Distance **As per Electricity Regulation 2050 (1993)**	
17Schedule 12 (Distance which ought to be from wire to the ground) 18. Schedule 13 (Minimum distance which	If "Yes", for any of the question, the subproject has to redirect the distribution lines plan to follow the safety distance Note:

ought to be from the wire to the house of tree) a.	Keep all plan documented in print-out, any change has to be noted in the resource documents

9.2 Mitigation measures if the impact entails:

	Particulars	**Mitigation measures**	**Responsibility**	**Remarks**
E1.	If route passes through forest area and tree cutting is required.			
E2.	If the distribution line/ route and locations of poles are falling in any landslide & erosion prone/ risk spot where geological avoidance is not feasible.			
E3.	To maintain minimum clearance as per government/NEA standard.			
E4.	If existing transformers are replaced with new one. How to manage to those replaced one			
E5.	Occupational health and safety measures of the works during the erection/installation of poles/cables			
E6.	Issues related to influx of labor/labor camp and sanitation			
E7.	Other if any			

Note: *Kindly response mitigation measures with example if any alternative option has been selected/proposed during the survey and design of route. Mitigations measures stated shall be implemented during construction and operation phase.*
Each package of the proposal (distribution line) will be subject to environmental screening and environmental compliance monitoring.

9.3 Supporting Form

1	Subproject		
2	Type of Activity (*choose in accordance with the activity*)	□ Extension of 11 kV distribution lines □ Expansion of distribution lines on existing right of way□ □:	
3	Project Description (*describe briefly about the project activities from preparation to operation*)		
4	Project Location (*describe the location of the project in detail, name of sub-village, village district, regency/city and province*)		
	Alternatives Considered and Hierarchy of Mitigation Measures applied (for private land and/or land belonging to IPs)		
5	Work Capacity (*describe the capacity of the work*)		
6	Protected Area (*checking whether the project location is in protected location below)*		
	a. Protected Area as defined By the Department of National Parks and Wildlife and conservation and Forest Act 2076	□ Protected forest/Types of Forest □ Wetland □ □ □ □ □ □ National Park and Wildlife	□
		1.	
	c. List of protected species/animals based on the International Union for Conservation of Nature (IUCN) List		
7	Land Use – provide explanation for items 12-16 if applicable		
8	IPs Area (*checking whether the project location is in IP location or there are presence of IP groups or ethnic minorities in the community)*		

* might cross (X) more than one options

Form on Consent of Private Land Owner(s)

Statement Letter

The person signing below,

Name : ……..

: ……..

Address : ……..

Phone Number : ……..

In relation with the request for electricity distribution upgrade and expansion of NEA with the following details:

Power : ……..

Location : ……..

Geo-tagging (coordinates): ……..

Like to inform that we give permission for the electricity installation to the above location from all parties that whose land and non-land assets (like plants and crops) could be affected by the development for installing the poles, transformer and right of way. The parties on the list below agree for the usage of the land and any necessary clearance needed (e.g. trimming of branches, cutting of trees).

List of Name

No	Name	Address	Signature
1			
2			
3			
4			

……, ……., ……..,202..

Witnesses	Applicant
Ward Chair or Ward Member …….. (other authority)	(Legal stamp) (Name and signature)
(Name and signature)	

Attachment:

Map of Distribution Network Plan Drawing

For any complaints or request for information, NEA can be contacted via **123.**

Notes and List of Attendance of Community Consultations

Notes of Community Consultations

Date, time :

:

Name of the Village /Municipality and Ward:

:

Name of the Province :

:

Note of the Community Consultation:

1.

2.

3.

Name of the notes taker: :		Signature:
Agreed by : Position	1.	Signature:
Position :	2.	Signature:

List of Attendance of Community Consultations

Date, time :

:

Name of the Village/Municipality and Ward:

:

Name of the Province :

:

No	Name	Gender		Address or Mobile Phone	Signature
		Male (M)	Female (F)		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Google map of 11kV distribution line

Consent letter of Community Forest User Groups (If route alignment passes through forest)

E & S Screening completed by:

Name:

Designation:

Date:

E & S Screening verified/reviewed by:

Name:

Designation:

Date: