

Electricity Supply Reliability Improvement Project



Environment and Social Management Plan For 33/11kV Kakarvitta Substation

Nepal Electricity Authority

September 2026

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ABBREVIATIONS

AIS:	Air Insulated Switchgear
B.S:	Bikram Sambat
CESMP:	Contractor's Environmental Social Management Plan
CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
dB:	Decibel
DCS:	Distribution and Consumer Services
DCSD:	Distribution and Consumer Services Directorate
DD:	Data Deficient
DIA:	Direct Impact Area
EN:	Endangered.
ERP	Emergency Response Plan
E &S	Environment and Social
ESF:	Environment and Social Framework
ESHS:	Environmental, Social, Health, and Safety
ESMP:	Environmental and Social Management Plan
ESRIP:	Electricity Supply and Reliability Improvement Project
ESSa:	Environmental and Social Standards
FGD:	Focus Group Discussion
GBV:	Gender-Based Violence
GoN:	Government of Nepal
GPS:	Global Positioning System
GRM:	Grievance Redress Mechanism
Ha:	Hectare
HHs:	Households
IIA:	Indirect Impact Area
IS:	International Standard



IUCN:	International Union for Conservation of Nature
IUSGS:	International Union of Geological Sciences
KII:	Key Informant Interview
KM:	Kilometer
kV :	Kilovolt
LC:	Least Concern
LMP:	Labor Management Plan
LPG:	Liquefied Petroleum Gas.
LS:	Lump Sum
µg/m ³ :	Micrograms Per Cubic Meter
MASL:	Meters above Sea Level
MHT:	Main Himalayan Thrust
MVA:	Mega Volt-Ampere
NDWQS:	National Drinking Water Quality
NEA :	Nepal Electricity Authority
NT:	Near Threatened
OCMC	One-Stop Crisis Management Centre
OHS:	Occupational Health and Safety Plan
ONAN/ONAF:	Oil Natural Air Natural/Oil Natural Air Forced
OPD:	Outpatient Department.
PIU:	Project Implementation Unit
PPE:	Personal Protective Equipment
RoW:	Right of Ways
SEA:	Sexual Exploitation and Abuse
SEP:	Stakeholder Engagement Plan
SH:	Sexual Harassment
Sqmm:	Square Millimeter
STIs:	Sexually Transmitted Infections.



STL: Sub-Transmission Line
WB: World Bank



कार्यकारी सारांश

परिचय

नेपाल सरकारले Electricity Supply and Reliability Improvement Project(ESRIP) कार्यान्वयनका लागि १२० मिलियन ,अमेरिकी डलर बराबरको IDA ऋण प्राप्त गरेको छ। यस आयोजनाको उद्देश्य नेपालको विभिन्न क्षेत्रमा विद्युत वितरण सञ्जाल सुधार गरी विद्युत सेवाको गुणस्तर, क्षमता तथा विश्वसनीयता अभिवृद्धि गर्नु रहेको छ। यस आयोजनाबाट उपभोक्ताहरूलाई थप विस्तारित गुणस्तरिय र भरपर्दो विद्युत सेवा उपलब्ध हुने अपेक्षा गरिएको छ र नेपालको वितरण प्रणाली सुदृढीकरणमा नेपाल सरकार तथा अन्य विकास साझेदारहरूको प्रयासलाई समेत यसले सहयोग पुग्नेछ। आयोजनाको कार्यान्वयन नेपाल विद्युत प्राधिकरण (NEA) द्वारा गरिनेछ।

प्रस्तावित ३३ kV काकरभिट्टा सबस्टेशन उप-आयोजना ESRIP को प्याकेज-३, लट-२ अन्तर्गत पर्दछ। प्रस्तावित सबस्टेशन मेचीनगर नगरपालिकाको वडा नं. ६ मा अवस्थित छ र सब-ट्रान्समिसन लाइन मेचीनगर नगरपालिकाको वडा नं. १०, ७, ८ र ६ हुँदै जानेछ। प्रस्तावित सबस्टेशन नेपाल विद्युत प्राधिकरणको स्वामित्वमा रहेको जग्गामा निर्माण गरिनेछ र sub- transmission line पूर्व-पश्चिम राजमार्ग तथा स्थानीय सडकको क्षेत्राधिकार (RoW) भित्र निर्माण गरिनेछ। उक्त sub- transmission line मेचीनगर नगरपालिकाको वडा नं. १० स्थित धाइन डाटमा रहेको विद्यमान ३३ kV लाइनबाट जोडी प्रस्तावित काकरभिट्टा सबस्टेशनसम्म पुर्‍याइनेछ। सब-ट्रान्समिसन लाइनको लम्बाइ करिब ९ कि.मि. रहेको छ। धाइनडाट, धुलाबारी, जोरसीमल, ईटाभट्टा, अयाबारी, काकरभिट्टा (शान्तिगाउँ, रमाइलो टोल र दक्षिणकाली टोल) आयोजना क्षेत्रमा पर्ने प्रमुख बस्तीहरू हुन्। यस उप-आयोजनाको उद्देश्य मेचीनगर, बुद्धशान्ति र भद्रपुर नगरपालिकाको विद्युत वितरण प्रणालीलाई सुदृढ गर्नु हो।

अध्ययनको क्षेत्र

वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) को अध्ययन क्षेत्र निर्माण तथा सञ्चालन चरणमा सम्भावित वातावरणीय तथा सामाजिक प्रतिकूल जोखिम/प्रभावहरूलाई न्यूनीकरण, नियन्त्रण तथा अनुगमन गर्न आवश्यक वातावरणीय तथा सामाजिक उपाय, जिम्मेवारी तथा प्रक्रियाहरू निर्धारण गर्नु हो।

वातावरणीय तथा सामाजिक व्यवस्थापन योजनाको उद्देश्य

यस वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) को उद्देश्य प्रस्तावित उप-आयोजनाबाट उत्पन्न हुन सक्ने सम्भावित सकारात्मक तथा नकारात्मक वातावरणीय तथा सामाजिक जोखिम/प्रभावहरू पहिचान गर्नु हो। यसले आयोजना अबधि भर सकारात्मक प्रभावहरूलाई अधिकतम बनाउन तथा प्रतिकूल प्रभावहरूलाई न्यूनतम गर्न उपयुक्त न्यूनीकरणका उपायहरू निर्धारण गर्नेछ।

प्रतिवेदन तयार गर्दा अपनाइएका बिधिहरू

वातावरणीय तथा सामाजिक व्यवस्थापन प्रतिवेदन तयार गर्दा नेपाल सरकारका कानून, नियम, नीति तथा निर्देशिकाहरू, विश्व बैंकको वातावरणीय तथा सामाजिक रूपरेखा (ESF), वातावरणीय तथा सामाजिक मापदण्डहरू (ESSs), निर्देशिका, नीति तथा निर्देशनहरू तथा वातावरणीय तथा सामाजिक प्रतिबद्धता योजना, सरोकारवाला संलग्नता योजना तथा अन्य प्राविधिक कागजातहरू सहित आयोजनासँग सम्बन्धित दस्तावेजहरूको समीक्षा गरिएको थियो। साथै, यस चरणमा आवश्यक सूचना प्राप्त गर्न सम्बन्धित नेपाल



विद्युत प्राधिकरण (NEA) का सम्बन्धित निर्देशक , आयोजना प्रमुख तथा विश्व बैंक (WB) का वातावरण तथा सामाजिक विज्ञहरूसँग विभिन्न बैठकहरू आयोजना गरिएको थियो।

आयोजना क्षेत्रको भौतिक, जैविक तथा सामाजिक-आर्थिक अवस्थाको आधारभूत जानकारी संकलन गर्न स्थलगत सर्वेक्षण गरिएको थियो। वायु गुणस्तरसम्बन्धी तथ्याङ्क Temptop M2000 बाट, ध्वनि स्तर CURCOXISA-SL720 Mini Sound Meter (dB) बाट मापन गरिएको थियो र प्रस्तावित सबस्टेशन क्षेत्र नजिक पर्ने कालिखोला तथा खानेपानी वितरण प्रणालीको धाराको पानीका नमूना संकलन गरिएको थियो। पानीका नमूनाहरू प्रयोगशालामा परीक्षण गरी खानेपानी परीक्षण परिणामहरू नेपाल खानेपानी गुणस्तर मापदण्ड २०७९ सँग तथा नदीको पानीको नमूनाको परिणामहरू सामान्य मापदण्ड र IFC निर्देशिकासँग तुलना गरिएको थियो। सामाजिक, जैविक तथा भौतिक तथ्याङ्क संकलन गर्न स्थलगत अवलोकन, स्थानीय बासिन्दसँग स्थानीय जनप्रतिनिधि को उपस्थितिमा परामर्श बैठक ,समूह केन्द्रित छलफल (FGD) तथा प्रमुख सूचनादाता अन्तर्वार्ता (KII) समेत सञ्चालन गरिएको थियो। आधारभूत तथ्याङ्क संकलन सम्पन्न भएपछि प्रस्तावित उप-आयोजनाका गतिविधिहरूबाट उत्पन्न हुन सक्ने सम्भावित प्रतिकूल प्रभावहरू पहिचान गर्न प्रभाव मूल्याङ्कन गरिएको थियो।

आयोजना क्षेत्रको विवरण

भौतिक वातावरण

उप-आयोजनाका संरचनाहरू नेपालको तराई क्षेत्रमा अवस्थित छन्। ट्यापिड बिन्दु मेचीनगर नगरपालिकाको वडा नं. १० स्थित धाइजन ढाटमा रहेको छ, जसको अक्षांश २६°३९'१८.३९"N र देशान्तर ८८°०४'४७.१५"E रहेको छ र प्रस्तावित ट्यापिड बिन्दु समुद्री सतहबाट ७६ मिटर उचाइमा अवस्थित रहेको छ। प्रस्तावित सबस्टेशन २६°३९'३९.५८"N अक्षांश र ८८°०९'२०.२३"E देशान्तरमा तथा समुद्री सतहबाट ८० मिटर उचाइमा अवस्थित रहेको छ। उक्त स्थल नेपाल बिधुत प्राधिकरण को स्वामित्वमा रहेको समथर जमिनमा अवस्थित छ। भौगर्भिक दृष्टिकोणले प्रस्तावित काकरभिट्टा ३३/११ kV सबस्टेशन तथा सम्बन्धित सब-ट्रान्समिसन लाइनको मार्ग Recent Formation भित्र पर्दछन्।

उप-आयोजना क्षेत्रमा वायु प्रदूषणका प्रमुख स्रोतहरूमा सवारी साधनबाट हुने उत्सर्जन तथा पूर्व-पश्चिम राजमार्गमा भइरहेका निर्माण गतिविधिबाट उत्पन्न हुने धुलो पर्दछन्। स्थलगत भ्रमण का क्रममा आयोजना क्षेत्रको २ ठाउँमा वायुको गुणस्तर मापन गरिएको थियो र ट्यापिड बिन्दु तथा प्रस्तावित सबस्टेशन क्षेत्रमा क्रमशः PM10 को मात्रा ५२.२ $\mu\text{g}/\text{m}^3$ र ४९.८ $\mu\text{g}/\text{m}^3$ तथा PM2.5 को मात्रा २०.९ $\mu\text{g}/\text{m}^3$ र १८.२ $\mu\text{g}/\text{m}^3$ मापन गरिएको थियो। उप-आयोजना आसपासको ध्वनि प्रदूषणका प्रमुख स्रोतहरू सवारीसाधनको आवागमन तथा पूर्व-पश्चिम राजमार्गमा भइरहेको निर्माण कार्य हुन्। मापन गरिएको ध्वनि स्तर निर्धारित राष्ट्रिय सीमाभित्र रहेको पाईएको थियो।

जैविक वातावरण

प्रस्तावित उप-आयोजना कुनै पनि वन क्षेत्र वा कुनै प्रकारको संरक्षण क्षेत्र भित्र पर्दैन। उप-आयोजनाका संरचनाहरू (सबस्टेशन तथा ३३ kV सब-ट्रान्समिसन लाइन) कुनै पनि वन क्षेत्रबाट जादैनन् त्यसैले रूख कटानसम्बन्धी कार्य तथा जैविक वातावरणमा उल्लेखनीय प्रभाव पर्ने देखिदैन। आयोजना क्षेत्र आसपासमा पाइने प्रमुख वनस्पति हरूमा सिसौ (*Dalbergia sissoo*), साल (*Shorea robusta*), बाँस (*Bambusa vulgaris*) तथा कदम (*Anthocephalus chinensis*) रहेका छन्।

उप-आयोजना क्षेत्र आसपास पाइने प्रमुख वन्यजन्तु प्रजातिहरूमा स्याल (*Canis aureus*), खरायो (*Lepus nigricollis*) तथा बाँदर (*Macaca mulatta*) रहेका छन्। उप-आयोजना क्षेत्र आसपास अवलोकन गरिएका प्रमुख चराहरूमा घर काग (*Corvus*



splendens), डाङ्ग्रे रुपी (*Acridotheres tristis*), जुरेली (*Pycnonotus cafer*), कण्ठे सुगा (*Psittacula krameria*) तथा कालो चिबे (*Dicrurus macrocerus*) रहेका छन् साथै स्थलगत अध्ययन को क्रममा आयोजनाको प्रत्यक्ष प्रभाव क्षेत्र (DIA) भित्ते वन्यजन्तु तथा चराहरूको महत्वपूर्ण बासस्थान अवलोकन गरिएको छैन।

त्यसैगरी, प्रस्तावित Sub-Transmission line ले पार गर्ने प्रमुख खोलाहरूमा ढुकुरे खोला, नागरडुब्बा खोला, टिमाई खोला, निन्दा खोला, पाली खोला तथा काली खोला रहेका छन् र सो खोलाहरूमा पाइने मा प्रमुख माछा प्रजातिका रूपमा कत्ले (*Neolissochilus hexagonolepis*), जुंगे (*Mystus cavasius*), हिले (*Channa stewartii*) तथा नदिहारी (*Puntius chola*) अभिलेख गरिएको छ।

सामाजिक वातावरण

प्रस्तावित काकरभिट्टा सबस्टेशन उप-आयोजना कोशी प्रदेश, झापा जिल्लाको मेचीनगर नगरपालिकामा अवस्थित छ। यस उप-आयोजनाको सबस्टेशन मेचीनगर नगरपालिकाको वडा नं. ६ मा प्रस्ताव गरिएको छ र सब-ट्रान्समिसन लाइन मेचीनगर नगरपालिकाको वडा नं. ६, ७, ८ र १० हुँदै जानेछ। धाइजनढाट, धुलाबारी, जोरसीमल, ईटाभट्टा, अयाबारी तथा काकरभिट्टा (शान्तिगाउँ, रमाइलो टोल र दक्षिणकाली टोल) आयोजना क्षेत्रका प्रमुख बस्तीहरू हुन्।

राष्ट्रिय जनगणना २०७८ का अनुसार आयोजना प्रभावित मेचीनगर नगरपालिकाको कुल जनसंख्या १३३०७३ रहेको छ, जसमा ६४००१ पुरुष र ६९०७२ महिला रहेका छन्। आयोजना प्रभावित नगरपालिकाको परिवारको औसत आकार ४.०७ तथा लैङ्गिक अनुपात ९२.६६ रहेको छ। आयोजना प्रभावित मेचीनगर नगरपालिकामा विभिन्न जातजाति तथा जातीय समूहहरूको बसोबास रहेको छ, जसमा जनजाति ४२.९३ प्रतिशत, ब्राह्मण/क्षेत्री ४२.९३ प्रतिशत, दलित ७.२२ प्रतिशत, मधेसी ३.५५ प्रतिशत, मुस्लिम १.१८ प्रतिशत तथा अन्य समूह १.४२ प्रतिशत रहेका छन्।

आयोजना प्रभावित नगरपालिकामा नेपाली प्रमुख रूपमा बोलिने भाषा हो। कुल जनसंख्याको करिब ८०.९३ प्रतिशतले हिन्दू धर्म मान्ने भएकाले हिन्दू धर्म प्रमुख धर्म हो। आर्थिक रूपमा सक्रिय जनसंख्यामध्ये करिब ३४.३१ प्रतिशत (कृषि, वन तथा मत्स्यसम्बन्धी) काममा र २७.१५ प्रतिशत श्रमिकका रूपमा संलग्न छन्। आयोजना प्रभावित नगरपालिकाका लगभग सबै घरधुरीले वृत्ति बालनका लागि विद्युत प्रयोग गर्छन्। साथै आयोजना क्षेत्रको साक्षरता दर ८३ प्रतिशत रहेको छ। आयोजना क्षेत्र आसपास विभिन्न तहका विद्यालय तथा कलेज र अस्पतालहरू उपलब्ध छन्। मोबाइल फोन, इन्टरनेट सेवा, टेलिभिजन तथा एफएम रेडियो आयोजना क्षेत्रमा सञ्चारका प्रमुख माध्यमहरू हुन्।

आयोजनाको प्रभाव

ESMP तयारीका क्रममा आयोजना निर्माण तथा सञ्चालन चरणमा हुने सकारात्मक तथा नकारात्मक प्रभावहरू पहिचान गरिएको छ।

सकारात्मक प्रभाव

सकारात्मक प्रभावहरूमा आयोजनाको निर्माण तथा सञ्चालन चरणमा स्थानीय जनसंख्याका लागि रोजगारीका अवसर सिर्जना हुने, स्थानीय बजारमा आर्थिक गतिविधि बढ्ने, गुणस्तरीय विद्युत आपूर्तिको विश्वसनीयता बढ्ने तथा स्थानीय अर्थतन्त्र सुदृढीकरणमा योगदान पुग्ने अपेक्षा गरिएको छ।

नकारात्मक प्रभाव



आयोजनाका नकारात्मक प्रभावहरूमा निर्माण चरणमा ध्वनि तथा वायु प्रदूषण, तुलनात्मक रूपमा जोखिमयुक्त फोहोर उत्पादन, यातायात अवरोध तथा अस्थायी विद्युत कटौतीजस्ता विभिन्न प्रभावहरू अपेक्षा गरियका छन यसका साथसाथै विद्युतीय झट्का, दुर्घटना तथा कामदारमा हुने बिरामीजस्ता व्यावसायिक स्वास्थ्य तथा सुरक्षा जोखिमहरू पनि आंकलन गरियोको छ ।सामाजिक जोखिमहरूमा समुदायबीच द्वन्द्व, गुनासो, सरुवा रोग, ज्याला विवाद, कार्यस्थलमा हुने दुर्व्यवहार, यौन शोषण तथा दुर्व्यवहार, लैङ्गिक हिंसा, बालश्रम तथा जबर्जस्ती श्रम आदि रहेका छन। यी प्रभावहरू सामान्यतया अस्थायी प्रकृतिका हुन्छन् र उपयुक्त वातावरणीय, व्यावसायिक स्वास्थ्य तथा सुरक्षा तथा सामाजिक न्यूनीकरणका उपायहरू लागू गरेर न्यूनीकरण गर्न सकिन्छ।

नकारात्मक प्रभावका न्यूनीकरणका उपायहरू

आयोजनाले निर्माण चरणमा स्वीकृत वातावरणीय तथा सामाजिक व्यवस्थापन योजना मा तोकिएका विभिन्न वातावरणीय, व्यावसायिक स्वास्थ्य तथा सुरक्षा र सामाजिक न्यूनीकरणका उपायहरू कार्यान्वयन गर्नेछ। पहिचान गरिएका प्रभावहरू व्यवस्थापन गर्न निर्माणव्यवसायी ले निर्माण व्यवसायीको सामाजिक तथा वातावरणीय व्यवस्थापन योजना (CESMP), व्यावसायिक स्वास्थ्य तथा सुरक्षा योजना (OHS Plan), आपतकालिन प्रतिकार्य योजना (ERP), तथा श्रमिक व्यवस्थापन योजना (Labor Management Plan(LMP) तयार गरी कार्यान्वयन गर्नेछ। नकारात्मक प्रभाव न्यूनीकरणका मुख्य उपायहरूमा उत्खनन गरियोको सामग्रीको उचित व्यवस्थापन, ध्वनि, वायु प्रदूषण को न्यूनीकरण तथा व्यवस्थापन , निर्माणजन्य फोहोर को उचित व्यवस्थापन , यातायात व्यवस्थापन , जोखिमयुक्त सामग्री तथा विद्युतीय सुरक्षाको उचित व्यवस्थापन रहेका छन्। निर्माण चरणमा उत्खनन गरिएका क्षेत्रहरूमा सुरक्षित रूपमा घेराबार(safety barricades) लगाएत आवश्यकताअनुसार खाल्टो तुरुन्तै पुर्ने तथा उपयुक्त सुरक्षा चेतावनी संकेतहरू राखिनेछ। फोहोरलाई स्रोतमा नै छुट्याइनेछ र 3R सिद्धान्त(न्यूनीकरण , पुनःप्रयोग र पुनर्चक्रण) बिधि अवलम्बन गरिनेछ साथै निर्माण सामग्री ढुवानी गर्ने सवारीसाधन तथा उपकरणहरूको नियमित मर्मतसम्भार गरिनेछ र पानी छर्कने, सामग्री ढुवानी गर्दा त्रिपालले ढाक्ने, ध्वनि तथा वायु गुणस्तर अनुगमन गर्ने तथा PPE प्रयोग गर्ने जस्ता उपायहरू कार्यान्वयन गरिनेछ।

पहिचान सामाजिक प्रतिकुल प्रभावहरू न्यूनीकरण गर्न समुदायसँग परामर्श, गुनासो समाधान संयन्त्र (GRM), आयोजना सम्बन्धी सूचना प्रवाह तथा कामदारहरूको आचारसंहिता र सचेतना तालिम मार्फत व्यवस्थापन गरिनेछ। निर्माण चरणमा सिप र क्षमताका आधारमा स्थानीय कामदारहरूलाई प्राथमिकता दिइनेछ र बालश्रम तथा जबर्जस्ती/अनिवार्य श्रमलाई कडाइका साथ निषेध गरिनेछ, लैङ्गिक हिंसा (GBV), यौनजन्य उत्पीडन (SH) तथा यौन शोषण तथा दुर्व्यवहार (SEA) रोकथामका लागि समेत प्रतिवेदनमा तोकिएका उपायहरू कार्यान्वयन गरिनेछ। साथै बालश्रम तथा जबर्जस्ती/अनिवार्य श्रम,लैङ्गिक हिंसा (GBV), यौनजन्य उत्पीडन (SH) तथा यौन शोषण तथा दुर्व्यवहार (SEA) मा शुन्य सहनसिलताको नीति अवलम्बन गरिने छ।

साथै कामदारहरूको स्वास्थ्य तथा सुरक्षा तालिम, पर्याप्त PPE को व्यवस्था, सुरक्षित खानेपानी, प्राथमिक उपचारका सुविधा, सरसफाइ सुविधा, सुरक्षा संकेत तथा सरुवा रोग र यौनरोग (STIs) सम्बन्धी सचेतना कार्यक्रममार्फत व्यावसायिक स्वास्थ्य तथा सुरक्षा सुदृढ गरिनेछ। निर्माण सम्पन्न भएपछि अस्थायी संरचनाहरू उचित रूपमा हटाई आयोजना स्थल पुनर्स्थापना गरिनेछ।

ESMP कार्यान्वयन तथा अनुगमनको कुल अनुमानित लागत रु. १६,५०,००० रहेको छ।

सरोकारवाला संलग्नता, सूचना प्रवाह तथा गुनासो समाधान संयन्त्र

सरोकारवाला संलग्नता योजना (SEP) पहिले नै तयार गरिएको छ। सरोकारवाला संलग्नता योजनाले सम्पूर्ण आयोजना चक्रभर सार्वजनिक सूचना प्रकाशन तथा परामर्शसहित सरोकारवाला संलग्नताको कार्यक्रम निर्धारण गरेको छ। समुदायसँगको परामर्श SEP को महत्वपूर्ण अंग हो र आयोजना चक्रभर निरन्तर सञ्चालन गरिनेछ। परामर्श प्रक्रियाले प्रभावित समुदाय तथा अन्य



सरोकारवालाहरूलाई आयोजना सम्बन्धी सूचना प्राप्त गर्ने, आफ्ना विचार तथा सरोकारहरू व्यक्त गर्ने, प्रतिक्रिया दिने तथा उनीहरूलाई असर पार्ने सक्ने विषयहरूमा छलफलमा सहभागी हुने अवसर प्रदान गर्नेछ।

वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) तयारीका लागि गरिएको स्थलगत भ्रमणका क्रममा स्थानीय तहका प्रतिनिधिहरूको सहभागितामा नजिकका बस्तीहरूमा चारवटा सामुदायिक परामर्श बैठक तथा समुह केन्द्रित छलफल सञ्चालन गरिएको थियो।

सरोकारवाला संलग्नता तथा परामर्श निरन्तर प्रक्रिया भएकाले आयोजना निर्माण चरणमा पनि निरन्तर सञ्चालन गरिनेछ। वातावरणीय तथा सामाजिक विषयहरूसहित आयोजना सम्बन्धी सूचना संलग्नता बैठकहरूमा सार्वजनिक गरिनेछ तथा ब्रोसर, पर्चा आदि मार्फत पनि वितरण गरिनेछ साथै वातावरण र सामाजिक व्यवस्थापन योजना नेपाल विद्युत प्राधिकरणको वेबसाइटमा प्रकाशित गरिनेछ।

गुनासो समाधान संयन्त्र (Grievance Redress Mechanism) गुनासोकर्ताहरूबाट उठाइएका समस्या वा सरोकारहरू प्राप्त गरी तिनको समाधानमा सहजीकरण गर्न स्थापना गरिएको छ। GRM को मुख्य उद्देश्य सबै पक्षलाई सन्तुष्ट हुने गरी उजुरी तथा गुनासाहरूलाई समयमै, प्रभावकारी तथा दक्ष रूपमा समाधान गर्न सहयोग गर्नु हो।

तह १ को गुनासो सुनुवाई संयन्त्र समिति उप-आयोजना प्रमुखको नेतृत्वमा रहनेछ र गुनासो सम्पर्क व्यक्तिले सहयोग गर्नेछ। त्यसैगरी, तह २ को गुनासो सुनुवाई संयन्त्र समिति आयोजना कार्यान्वयन इकाई का आयोजना निर्देशकको नेतृत्वमा रहनेछ र अन्य चार जना सदस्यले सहयोग रहने छन्।

निष्कर्ष

प्रस्तावित उप-आयोजनाको निर्माणबाट न्यून तथा अस्थायी वातावरणीय तथा सामाजिक प्रभावहरू पर्ने र नकारात्मक प्रभावभन्दा सकारात्मक प्रभावहरू बढी हुने देखिन्छ । पहिचान गरिएका नकारात्मक प्रभावहरूलाई वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) मा उल्लेख गरिएका न्यूनीकरणका उपायहरू कार्यान्वयन गरेर प्रभावकारी रूपमा न्यून गर्न सकिन्छ। स्थानीय समुदायहरूले आयोजनाप्रति आफ्नो पुर्ण समर्थन व्यक्त गरेका छन्। त्यसैले, सिफारिस गरिएका न्यूनीकरणका उपायहरू कार्यान्वयन गरी प्रस्तावित आयोजना निर्माण तथा सञ्चालनका लागि उपयुक्त रहेको निष्कर्ष निकालिएको छ।



EXECUTIVE SUMMARY

Introduction

The Government of Nepal (GoN) has received US\$120 million of IDA credit to implement the Electricity Supply and Reliability Improvement Project (ESRIP or the Project). The objective of the Project is to improve the distribution network and enhance the quality, resilience and reliability of electricity services in different areas of Nepal. The Project is also expected to bring expanded and more dependable electricity service to the consumers and supplement the GoN's and other development partners' efforts in enhancing the distribution system in Nepal. The Project is implemented by Nepal Electricity Authority (NEA).

The proposed 33 kV Kakarvitta Substation subproject lies under Package -3, Lot-2 of ESRIP. The proposed substation is located in Ward No. 6 of Mechinagar Municipality, and the sub-transmission line will pass through ward no 10, 7, 8, and 6 wards of Mechinagar Municipality. The proposed substation will be constructed on NEA owned land and the line will be constructed within the right of way (RoW) of the East-West Highway and local road. The line will be tapped from the existing 33 kV line at Dhajjan Dhat, ward no.10 of Mechinagar Municipality and end at proposed Kakarvitta substation. The proposed sub transmission line length is approximately 9 KM. Daijhanghat, Dhulabari, Jorsimal, Ittabhatta, Ayabari, Kakarvitta (Shantigaun, Ramailo tole and Dakshinkali tole) are the major settlement located in the project area. This subproject aims to strengthen the distribution system of Mechinagar, Buddhashanti and Bhadrapur Municipality.

Scope of Study

The Scope of the Environmental and Social Management Plan (ESMP) defines the environmental and social measures, responsibilities, and procedures required to minimize, mitigate, and monitor adverse risks/impacts during the construction and operation phases.

Objective of ESMP

The objective of this ESMP is to identify the potential beneficial and adverse environmental and social risks/impacts of the proposed subproject. It defines appropriate mitigation measures to maximize project benefits while minimizing adverse impacts throughout the project lifecycle.

Methodology of ESMP

Applicable government laws, rules, policies, and guidelines, and WB Environment and Social framework (ESF), Environmental and Social Standards (ESSs), guidelines, policies, and



directives, and the project-related documents, including the environmental and social commitment plan, stakeholder engagement plan, and other technical documents, have been reviewed. In addition, various meetings were held with the concerned NEA (Nepal Electricity Authority) officials and the World Bank (WB) officials to obtain the information at this stage. During the preparation of this ESMP, stakeholder consultations were carried out with local communities in the presence of local-level representatives in and around the project area.

The field surveys were carried out to collect the baseline information of physical, biological, and socio-economic conditions of the project area. Air quality data were collected by Temptop M2000, noise level by CURCOXISA-SL720 Mini Sound Meter (dB), and water samples were collected from Kalikhola and the drinking water distribution system. Water samples were tested in the laboratory, and drinking water test results were compared with national drinking water quality standards 2079 and river water sample result were compared with generic standards and IFC guidelines. Walkthrough surveys and consultation with local people, focus group discussion (FGD), and key informant interview (KII) were also conducted to collect social, biological, and physical data.

Once the baseline data collection was completed, an impact evaluation was conducted to identify the potential adverse impacts of the proposed subproject activities.

The ESMP report has been prepared as per the Environmental and Social Framework (ESF) of the World Bank. The ESMP has been prepared based on the findings of the baseline data collection, stakeholder consultations, and the evaluation of potential environmental and social impacts.

Description of project Area

Physical Environment

The Subproject components are located within the Terai region of Nepal. The tapping point is situated at Ward No. 10 of Mechinagar Municipality, Dhajjan Dhat, Latitude 26°39'18.39"N and Longitude 88°04'47.15"E, with an elevation of 76 m masl. The proposed substation lies at Latitude 26°39'39.58"N, Longitude 88°09'20.23"E, and an elevation of 80m masl. The site lies in depressed, NEA-owned flat land. Geologically, the proposed Kakarvitta 33/11 kV Substation and the associated sub-transmission line alignment are located within the Recent (Quaternary) alluvial formations of the Terai plain. The primary sources of air pollution identified within the subproject area include vehicular emissions and fugitive dust generated by ongoing construction activities along the East–West Highway. During the baseline air quality monitoring, the PM10



was recorded $52.2 \mu\text{g}/\text{m}^3$ and $49.8 \mu\text{g}/\text{m}^3$ while $\text{pm } 2.5$ was recorded $20.9 \mu\text{g}/\text{m}^3$ and $18.2 \mu\text{g}/\text{m}^3$ at tapping point and proposed substation area respectively. Key sources of noise pollution in the subproject vicinity comprise vehicle movement and construction work along the East–West Highway. The recorded noise level was within the prescribed national limits.

Biological Environment

The proposed subproject does not fall within a forest area or any officially designated conservation area. The subproject components (substation and 33 kV sub-transmission line) do not intercept any forest area; therefore, there will be no issue of tree loss and no significant impacts on the biological environment. The dominant species include Shisham (*Dalbergia sissoo*), Saal (*Shorea robusta*), Common Bamboo (*Bambusa vulgaris*), and Burflower Tree (*Anthocephalus chinensis*) were observed around the project area. The major wildlife species found in the vicinity of the subproject area are Golden Jackal (*Canis aureus*), Indian Hare (*Lepus nigricollis*), and Rhesus Macaque (*Macaca mulatta*) and the major avifauna species observed in the vicinity of the subproject area are House Crow (*Corvus splendens*), Common Myna (*Acridotheres tristis*), Red-vented Bulbul (*Pycnonotus cafer*), Rose -ringed Parakeet (*Psittacula kramera*), and Black Drongo (*Dicrurus macrocerus*). The major avifauna species observed in the vicinity of the Subproject area are House Crow (*Corvus splendens*), Common Myna (*Acridotheres tristis*), Red-vented Bulbul (*Pycnonotus cafer*), Rose -ringed Parakeet (*Psittacula kramera*), and Black Drongo (*Dicrurus macrocerus*). The important habitat of wildlife and avian fauna was not observed in the DIA of the project. Similarly, the major fish species were recorded Copper Mahseer (*Neolissochilus hexagonolepis*), Gangetic Mystus (*Mystus cavasius*), Assamese Snakehead (*Channa stewartii*), and Swamp Barb (*Puntius chola*) in Dhukure Khola, Nagardubba Khola, Timai Khola, Ninda Khola, Pali Khola, and Kali Khola which are the major streams crossed by the proposed distribution line.

Social Environment

The proposed Kakarvitta Substation subproject is located in Mechinagar Municipality of Jhapa District, Koshi Province. The substation of this subproject is proposed in ward no 6 of Mechinagar Municipality, and the sub-transmission line traverses ward no. 6, 7, 8, and 10 of Mechinagar Municipality. Daijhanghat, Dhulabari, Jorsimal, Ittabhatta, Ayabari, Kakarvitta (Shantigaun, Ramailo tole and Dakshinkali tole) are major settlements located in the project area. According to the National Population and Housing Census 2021, the total population of the project-affected Mechinagar Municipality is 133073, including 64001 male and 69072 female. The average household size of the project-affected Municipality is 4.07, and sex ratio is 92.66.



Different caste and ethnic groups reside in the project-affected Mechinagar Municipality where population of Janajati is 42.93 percent, followed by Brahmin/Chhetri 42.93 percent, Dalit 7.22 percent, Madhesi 3.55 percent, Muslim 1.18 percent, and other groups 1.42 percent. Nepali is the major language spoken in the project-affected Municipality. Most of the population of the project-affected Municipality follows the Hindu religion where 80.93 percent of the total population follow Hindu religion. Approximately 34.31 percent economically active population is engaged as skilled agriculture, forestry & fishery workers and 27.15 percent population is engaged as elementary workers in the project-affected Municipality. Almost all of the households in the Municipality use electricity for lighting purposes. The literacy rate of the project-affected Municipality is 83 percent. There are various levels of schools and colleges and hospitals are available around the project area. Mobile phone, internet service, television, and FM radio service are the main means of communication in the project area.

Impact of the project

Both beneficial and adverse impacts during the construction and operation phases have been identified during the preparation of the ESMP.

Beneficial Impact

During the construction and operation phase of the project, beneficial impacts are expected to generate employment opportunities for the local population, increase economic activities in local markets, enhance reliability of quality of electrical supply , and contribute to strengthening the local economy.

Adverse Impact

During the construction phase, several adverse impacts are expected, noise and air pollution, comparatively hazardous waste generation, traffic obstruction, and temporary power outages. Occupational health and safety risks such as electrocution, accidents, and worker illnesses may also occur. Social risks may include community conflicts, grievances, communicable diseases, wage disputes, workplace harassment, sexual exploitation and abuse, gender-based violence, child labor, and forced labor. These impacts are generally temporary and can be minimized by applying appropriate environmental, occupational health and safety, and social mitigation measures.

Mitigation Measures of Adverse Impact

The project will implement various environmental, occupational health and safety, and social mitigation measures during the construction phase. The contractor will prepare and implement the CESMP, OHS Plan, and Labor Management Plan (LMP) to manage identified impacts. Key measures include proper management of excavation, noise, air pollution, construction waste, traffic, hazardous materials, and electrical safety. Excavated areas will be safely barricaded and promptly backfilled, while appropriate warning signs will be installed. Waste will be segregated at source, and the 3R principle, composting, recycling, and appropriate disposal of hazardous and non-recyclable waste will be followed. Construction vehicles and equipment will be regularly maintained, and measures such as water sprinkling, covered transportation of materials, noise and air quality monitoring, and use of PPE will be implemented. Social impacts will be managed through community consultation, grievance redress mechanisms (GRM), dissemination of project information, and workers' codes of conduct, awareness training, and restrictions on inappropriate worker behavior. Priority will be given to qualified local workers, while child and forced labor will be strictly prohibited. Measures will also be implemented to prevent gender-based violence (GBV), sexual harassment (SH), and sexual exploitation and abuse (SEA). Occupational health and safety will be strengthened through worker training, provision of adequate PPE, safe drinking water, first-aid facilities, sanitation facilities, safety signage, and awareness programs on communicable diseases and STIs. Temporary facilities will be properly dismantled and sites restored after construction. The total estimated ESMP implementation and monitoring cost is NRs 16,50,000.

Stakeholder Engagement, Information Dissemination and Grievance Redress Mechanism

The stakeholder engagement plan (SEP) has already been prepared. The stakeholder engagement plan defines a program for stakeholder engagement, including public information disclosure and consultation throughout the entire project cycle. Community consultation is an important component of the SEP and is carried out throughout the project cycle. The consultation process provides opportunities for affected communities and other stakeholders to receive project information, express their views and concerns, provide feedback, and participate in discussions on issues that may affect them.

During the field visit for ESMP preparation, four community consultations and FGDs have been carried out at nearby settlements with the participation of local-level representatives.

The stakeholder engagement and consultations are an ongoing process and will be carried out continuously during the project construction phase. Project-related information, including



environmental and social issues, will be disclosed during the engagement meetings and will also be distributed through brochures, leaflets, etc. The ESMP will be published on the NEA website.

Grievance Redress Mechanism has been established to receive and facilitate the resolution of issues or concerns and grievances raised by complainants. The main objective of a GRM is to assist in resolving complaints and grievances in a timely, effective, and efficient manner that satisfies all parties involved.

The Level 1 GRM Committee is led by the Sub-project In-charge and supported by the Grievance Focal Person. Similarly, the Level 2 GRM Committee is headed by the Project Director of the PIU and supported by four other members.

Conclusion

The construction of the proposed sub-project is expected to have minimal temporary environmental and social impacts with more beneficial impacts than adverse impacts. The identified adverse impacts can be effectively minimized through the implementation of the mitigation measures outlined in the ESMP. Local communities have expressed their support for the project. Therefore, the project is considered suitable for construction and operation with the implementation of recommended mitigation measures.



1 PROJECT INTRODUCTION

1.1 PROJECT BACKGROUND

The Government of Nepal (GoN) has received US\$120 million of IDA credit to implement the Electricity Supply and Reliability Improvement Project (ESRIP or the Project). The objective of the Project is to improve the distribution network and enhance the quality, resilience and reliability of electricity services in different areas of Nepal. The Project is also expected to bring expanded and more dependable electricity service to the consumers and supplement the GoN's and other development partners' efforts in enhancing the distribution system in Nepal. The Project is implemented by Nepal Electricity Authority (NEA). The proposed project includes construction of 33/11 kV substations at nine different locations in Koshi Province, along with the construction of the associated 33 kV sub-transmission lines. The project also includes the upgrading of existing distribution networks in Koshi and Sudurpaschim Province by replacing old conductors, poles, and distribution transformers. In addition, the project also covers the installation of smart meters in Kailali and Kanchanpur Districts, as well as the implementation of feeder automation systems across Koshi, Madhesh, Bagmati, Karnali, and Sudurpashchim Provinces.

The proposed 33/11 kV Kakarvitta Substation lies under Package -3, Lot-2 of ESRIP. The proposed substation of this project is located in Ward No. 6 of Mechinagar Municipality, and the sub-transmission line will pass through the 10, 7, 8, and 6 no. wards of Mechinagar Municipality. The proposed project substation will be constructed on NEA owned land and the line will be constructed within the right of way (RoW) of the East-West Highway and local road. The line will be tapped from the existing 33 kV line at Dhajjan Dhat, ward no.10 of Mechinagar Municipality and end at proposed Kakarvitta substation, ward no. 6 of Mechinagar Municipality. The proposed sub transmission line length is approximately 9 KM. Daijhanghat, Dhulabari, Jorsimal, Ittabhatta, Ayabari, Kakarvitta (Shantigaun, Ramailo tole and Dakshinkali tole) are the major settlement located in the project area. This subproject aims to strengthen the distribution system of Mechinagar, Buddhashanti and Bhadrapur Municipality.

1.2 SCOPE OF STUDY

The Scope of Environmental and Social Management Plan (ESMP) defines the environmental and social risk management measures, responsibilities, and procedures required to minimize, mitigate, and monitor adverse risks/impacts during the construction and operation phases.



1.3 OBJECTIVE OF ESMP

The ESMP has been prepared for the proposed subproject to identify the potential beneficial and adverse environmental and social impacts and set appropriate mitigation measures to maximize the project's benefits and minimize any adverse environmental and social impacts created by the project. The objectives of the ESMP are as follows

- Describe the existing physical, biological and socio-economic conditions in and around the project area.
- Identify the potential significant environmental and social impacts during the project implementation and operation.
- Identify and recommend appropriate mitigation measures to minimize potential adverse impacts of the subprojects/activities.
- To specify appropriate roles and responsibilities of all implementing agencies and define monitoring and reporting procedures.
- To determine the training, capacity building and technical assistance to successfully implement the provisions of ESMP.
- To comply with the national rules and regulations and World Bank (WB) policy requirements.

1.4 METHODOLOGY OF ESMP

The following methodology has been followed in preparing the ESMP.

a. Review of Literature

The project-related documents, including the environmental and social commitment plan, stakeholder engagement plan, and other technical documents, have been reviewed. In addition, various meetings were held with the concerned NEA (Nepal Electricity Authority) officials and the World Bank (WB) officials to obtain the information at this stage. Similarly, Applicable government laws, rules, policies, and guidelines, and WB environment and social framework (ESF), environmental and social standards (ESSs), guidelines, policies, and directives have been reviewed. In addition, the Municipality and its wards' profiles and the reports of the national population and housing census have also been reviewed to collect the socio-economic baseline information of the subprojects.

b. Community/Public Consultation

During the preparation of this ESMP, stakeholder consultations were carried out with local communities in the presence of local-level representatives in and around the project area. Prior information regarding the consultation was given through public notices indicating venue, time,



and date, which were posted at the ward offices of project-affected wards. The ward offices were requested to inform the local stakeholders. Comments and suggestions of local communities were collected and considered in the preparation of this ESMP

c. Field Survey

The field surveys were carried out to collect the baseline information of physical, biological, and socio-economic conditions of the project area. Air quality data were collected by Temtop M2000, noise level by CURCOXISA-SL720 Mini Sound Meter (dB), and water samples were collected from Kalikhola and the drinking water distribution system. These water samples were tested in the laboratory, and results were compared with national drinking water quality standards 2079. Walkthrough surveys and consultation with local people (Focus group discussion (FGD), Key informant interview (KII)) were also conducted to collect social, biological, and physical data. A Merlin Bird ID app was also used to collect data on birds in the surrounding project area.

d. Data Evaluation

Once the baseline data collection was completed, an impact evaluation was conducted to identify the potential adverse impacts of the proposed subproject activities. Subsequently, appropriate mitigation measures were identified to address the identified potential impacts. To the extent possible, both the impact assessment and the corresponding mitigation measures were subproject- and site-specific.

e. ESMP Preparation

The ESMP report has been prepared as per the Environmental and Social Framework (ESF) of the World Bank. The ESMP has been prepared based on the findings of the baseline data collection, stakeholder consultations, and the evaluation of potential environmental and social impacts. This ESMP report includes an Executive Summary, Project introduction, description of subproject, Description of subproject site, Environmental and Social Management Plan, stakeholder engagement plan (SEP), and grievance redress mechanism (GRM).

1.5 CLASSIFICATION OF IMPACT AREA

The impact areas have been defined as direct and indirect impact areas based on the nature and extent of the subproject's impacts during the construction and operation phases for the study of ESMP.

a. Direct Impact Area (DIA)

The Direct Impact Area (DIA) comprises the project footprint area, including the proposed substation boundary and the Right of Way (RoW) of the alignment. It covers the areas directly affected by project activities during the construction and operation phases. The proposed substation area (0.1523ha) and the 8.960 km-long RoW of the 33 kV sub-transmission line (STL) are considered as the direct impact area. The Directly impacted area are Daijhanghat, Dhulabari, Jorsimal, Ittabhatta, Ayabari, Kakarvitta (Shantigaun, Ramailo tole and Dakshinkali tole) within Wards No. 6, 7, 8, and 10 of Mechinagar Municipality of Jhapa District

b. Indirect Impact Area (IIA)

The Indirect Impact Area (IIA) includes areas that may experience indirect impacts as a result of project implementation. Wards No. 6, 7, 8, and 10 of Mechinagar Municipality of Jhapa District are considered as the indirect impact areas.



2 DESCRIPTION OF THE SUBPROJECT

2.1 LOCATION OF THE PROJECT

The Kakarvitta Substation subproject is located in Wards No. 6, 7, 8, and 10 of Mechinagar Municipality, Jhapa District, Koshi Province. The proposed substation of this project is located in Ward No. 6 of Mechinagar Municipality, and the sub-transmission line will pass through the word no 10, 7, 8, and 6 no. wards of Mechinagar Municipality. The proposed project substation will be constructed on NEA-owned land and the line will be constructed within the RoW of the East-West Highway and local road. The line will be tapped from the existing 33 kV line at Dhajjan Dhat, ward no.10 of Mechinagar Municipality. The proposed sub-transmission line length is approximately 8.960 KM. The proposed subproject area is easily accessible. Approximately 7 km of the proposed sub-transmission line runs through the RoW of the East–West Highway, while the remaining alignment runs along local roads. The proposed substation site is also accessible via a blacktopped road and is located approximately 2 km from the East–West Highway

2.2 SILENT FEATURE OF THE SUBPROJECT

The project features are presented in below table.

TABLE 1: THE DETAILS SILENT FEATURES OF SUBPROJECT

Description	Features
Proponent	Nepal Electricity Authority
Project	Electricity Supply Reliability Improvement Project (ESRIP)
Sub Project	33/11kV Kakarvitta Substation project
Funding Agency	The World Bank
Project Location	Ward No. 6,7 8 and 9 of Mechinagar Municipality, Jhapa District, Koshi Province.

Description	Features
Sub transmission Line	
33kV Line Starting Point	Dhaijan Dhat, Ward No. 10, Mechinagar Municipality, Jhapa District.
33kV Line End Point	Kakarvitta (Ramailo tole), 3 Ward no 6, Mechinagar Municipality, Jahapa District.
Type of Land	Nepal Electricity Authority
System Voltage	33 kV
Max, Min System Voltage	36, 30 kV
Climatic Condition	Wind Speed: As per IS 802-1-1 Maximum Ambient Temperature: 45 °C Altitude (Min, Max): 230, 280 masl
Length of Line /Number of poles	9 km 33/11/0.4kv structure)/ No. of Poles: 300
Right of way	6 m
Number of Circuit	1
Conductor	100 sqmm medium voltage covered conductor
Line Capacity/Thermal Limit (approx.)	13.4 MW at 0.9 power factor
Type of Poles	Steel Telescopic Pole, 13m height
Pole Configurations	Single Pole Structures, H-Pole Structures etc. (With and without Stay Sets)
Diameter of a Single Pole (approx.)	454mm (bottom diameter)
Planting Depth of Pole	2.1m
Insulators	Porcelain Disc and Pin Insulator
Substation	



Description	Features
Location	Proposed Kakarvitta Substation at ward no. 6, Mechinagar Municipality, Jhapa District
Type of Land	NEA Owned Land
Voltage Level	33/11 kV
Substation Capacity	2*10/13.3/16.6 MVA
Number and Capacity of Transformer	2 nos., 33.2 MVA
Type of Transformer	3-phase, ONAN/ONAF, Mineral Oil
Type of Substation	AIS (33kV) and Indoor (11kV)
Number of 33kV Line Bays	2
Number of 33kV Transformer Bays	2
Number of 11kV Feeders	6
Substation Area	(0.1523ha) 1523.88sqm

2.3 COMPONENTS OF THE SUBPROJECT

The major components of the Subproject are the 33/11 kV substation and 33 kV line (also called Sub transmission line (STL)). The 33 kV STL is tapped from an existing 33 kV network line and acts as a source feeding to the proposed 33/11 kV substation. 11 kV feeders emerge from the substation, eventually supplying the electricity to the consumers. The structures of the Subproject are briefly described below.

2.3.1 33 kV SUB- TRANSMISSION LINE (STL)

The 33 kV STL serves as the pathway for feeding electricity to the proposed substation. Medium Voltage Covered Conductors are strung on Telescopic Pole from the starting point of the line. The 33 kV lines comprises of the Steel Telescopic Poles, Insulators, Conductors and Supporting Stays. In accordance with the provisions of the Nepal Electricity Authority, Electricity Distribution Regulations, a minimum clearance distance of 2 meters is required between the 33 kV line corner conductors and residential buildings. Accordingly, a right-of-way (RoW) of 3

meters on either side of the pole, totaling 6 meters, has been established for the proposed 33 kV line.

The 33 kV line for the proposed Kakarbhitta Substation will be constructed along the East–West Asian Highway, which is currently under construction. During the construction of the highway, all physical structures, trees, and vegetation falling within the 50-meter road right-of-way have already been removed. Similarly, there are no physical structures, trees, or vegetation within the 15-meter right-of-way of the existing local road.

Therefore, there is no anticipated obstruction or difficulty in carrying out the required works within the established 6-meter right-of-way of the proposed 33 kV line.

Steel Telescopic Poles: Steel telescopic poles will be installed in this Subproject. 13-meter-long poles either for single circuit or composite circuit compromising 11 and 0.4kv shall be used depending upon the location of 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. Length of 33 kV stringing line route is 9 km and the total number of steel Telescopic poles to be erected are estimated as 300.

Insulators: The insulators provide insulation to the poles from 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 its dielectric strength, better compressive strength, higher resistance to degradation, suitability for extreme climate, and environment friendly characteristics over its counterparts.

Conductor: Medium Voltage Covered 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.

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.

2.3.2 SUBSTATION

The proposed substation 33/11 kV is of capacity 33.2 MVA (10/13.3/16.6*2 transformers). The substation plays the role of lowering the 33 kV voltage level to 11 kV, which will then be stringed as 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.



Transformers: Transformer is the major component of the substation. It transforms power from higher voltage to lower voltage for distribution purposes. 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 substation in Nepal are typically of 1 MVA, 3 MVA, 8 MVA, 16 MVA and 24 MVA depending upon the load supplied by the substation. This Subproject comprises of two power transformer of 16.6 MVA ONAF type.

Electrical Switchgear: Electrical Equipment comprising of Circuit Breaker, Earth Switch, Current Transformer, Potential Transformers, etc. installed in the substation are called Electrical 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 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 the power transformer and other components. The substation location also serves as a site store for storage of distribution system components.

2.4 MAJOR CONSTRUCTION ACTIVITIES IN THE SUBPROJECT

The project activities can be categorized into three phases, namely pre-construction, construction, and operation phases. The proposed sub-transmission line runs within the RoW of roads, and the substation is proposed on NEA-owned land; therefore, there will be no issues of tree cutting and bush clearing in this sub-project.

I. **Preconstruction phase:** The activities to be carried out before the construction phase are:

- Demarcation of land area for the proposed substation
- Conduct public consultation and collect public opinion
- Clearance of the substation land area permanently
- Sub-transmission line route selection



II. **Construction phase:** The activities to be carried out during the construction phase are:

- Assign the land area for 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 Line.
- Stringing of 33 kV lines along with 11 kV and low-tension line where necessary.

III. **Operation phase:** The activities to be carried out during the operation phase are:

- Operate and maintenance of the substation and 33 kV line route.

2.5 LAND REQUIRED

The proposed Kakarvitta 33/11 kV Subproject, including the 33 kV sub-transmission line require approximately 5.5323 hectares of land. The substation of the proposed subproject will be constructed on 0.1523 hectares of land, which NEA has already acquired. The proposed sub-transmission line length is 9 KM. The line will pass through the East-West Highway, Patalgaganga Marg, and local roads. The detailed required land for the substation and RoW of the sub-transmission line is presented below.

TABLE 2: LAND REQUIRED FOR THE PROPOSED SUB PROJECT

Land Use Type/Ownership	NEA /GoN Land	Private	Total Area
Substation			
NEA-owned land	0.1523	0	0.1523
Total	0.1523	0	0.1523
RoW of Sub-transmission Line (Government land along the road)			
RoW of Existing Road	5.08	0	5.08
River Crossing	0.30	0	0.30
Total	5.38	0	5.38

Grand Total (Substation and RoW of Sub-transmission line)	5.5323	0	5.5323
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2.6 LAND USE RESTRICTION ALONG THE 33 kV SUB-TRANSMISSION LINE CORRIDOR

Considering safety and based on NEA Electricity Distribution Regulations, there will be land use restrictions under overhead 33kV sub-transmission lines. The land use restrictions is within 3 m on either side of the pole. No buildings are permitted within the wire zone under the overhead sub-transmission lines. At the pole sites in the wire zone, i.e., within a radius of 3m around each pole, no structure (e.g., livestock enclosures, fences), mechanized equipment and trees/crops taller than 2m are permitted. Following the construction of the line, the Nepal Electricity Authority (NEA) shall be responsible for ensuring the safe operation and maintenance of the line. This include the removal of any physical structures, trees, or vegetation that may grow within the established right-of-way or may be located in close proximity to the line and pose a risk of coming into contact with the conductors or poles.

For this purpose, the NEA shall coordinate with other relevant government agencies and local governments to undertake the necessary measures for maintaining the required clearance and ensuring the safe and reliable operation of the line.

2.7 ENERGY REQUIRED

Construction power will be managed by the single-phase line from the nearby distribution pole with co-ordination with the local NEA Distribution Center. For this, single-phase meter in the name of the construction company will be provided by DCS office, LPG gas will be used for cooking at all camp sites.

2.8 MATERIAL REQUIRED AND SOURCES

Steel reinforcement, cement, coarse aggregates and fine aggregates (sand), boulders and bricks will be required in civil works. Similarly, conductors, electricity poles, cross-arms, insulators, stay bars, stay wires, and other related materials will be required for the construction of the proposed 33 kV sub-transmission line. The following materials have been estimated from preliminary estimation:

TABLE 3: APPROXIMATE STEEL QUANTITY OF MATERIAL FOR 33kV DISTRIBUTION LINE

SN	Particular	Unit	Requirement
1	Amount of Steel	Ton/km	6.18

2	M15 concrete for Pole base	Cum/km	1.5
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TABLE 4: APPROXIMATE QUANTITY OF MATERIAL FOR 33/11kV SUBSTATION

SN	Particular	Unit	Support Structures	Control Building	Staff Quarter	Office Building	Guard House	Total
1	M15 Concrete	cum	67	15	16	2	67	
2	M25 Concrete	Cum	75	20	22	22	75	
3	Reinforcement bar	Ton	157	105	172	22	157	

The materials required for the Project construction will be procured only from legally operating markets/ vendors.

2.9 VEHICLE AND CONSTRUCTION EQUIPMENT

The following equipment will be required during the Project construction phase.

TABLE 5: LIST OF EQUIPMENT

S.N	Equipment Type	Minimum No Required
1	Excavation and transportation equipment	1
2	Roller	1
3	Crane	1
4	Hydraulic crimping tool	1
5	Megger	1
6	Current Injector	1
7	Electrical Tool set	3
8	Electrical Testing and commissioning equipment	1



2.10 WORKFORCE REQUIREMENTS

During the construction phase, skilled, semi-skilled, and unskilled workforce will be required for the construction of the substation and 33 kV Sub-transmission line. The workforce will include engineers, supervisors, technicians, masons, steel fixers, carpenters, and unskilled helpers. Based on the skills and qualifications, local people will be given priority for employment in construction activities. The following workforces have been estimated for the proposed sub project

TABLE 6: REQUIRED HUMAN RESOURCE PER DAY

SN	Human Resource/day	Sub-transmission Line	Substation	Sum
1	Engineer	1	2	3
2	Supervisor	2	4	6
3	Foreman	3	5	8
4	Skilled (Lineman/Electrician)	5	5	10
5	Helper	2	10	12
6	Labour	12	15	27
	Total			66

2.11 PROJECT IMPLEMENTATION SCHEDULE

The estimated time for the construction of the proposed 33/11 kV substation, along with the associated 33 kV sub-transmission line, is 24 months. The details of the construction schedule and major activities are presented in the following sections.

TABLE 7: 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						

SN	Activities/ Months	Months (After the completion of Detailed Survey Study)					
		1-3	4-6	7-10	11-15	16-20	20-24
	award/						
2.	Implementation of ESMP						
3.	Erection of Poles						
4.	Stringing of conductor						
5.	Construction of substation						
6.	Charging and Testing						

3 DESCRIPTION OF THE ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

Topography and Land Use

The Subproject area lies in Ward No. 10, 8, 7, and 6 of Mechinagar Municipality, Jhapa District of Koshi Province, Eastern Nepal. The Subproject components are located within the Terai region of Nepal. The tapping point is situated at Ward No. 10 of Mechinagar Municipality, Dhajjan Dhat, Latitude 26°39'18.39"N and Longitude 88°04'47.15"E, with an elevation of 76 m masl (Refer to Figure 1). The location map is presented below.



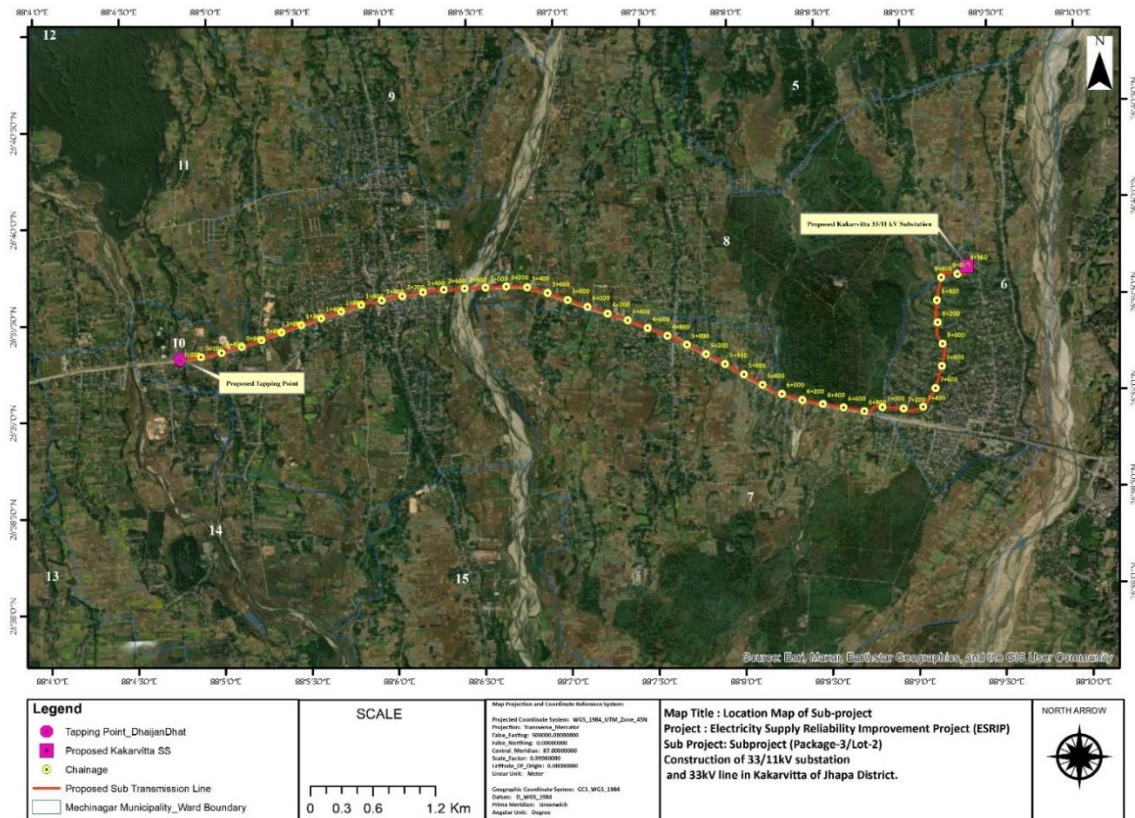


FIGURE 1: LOCATION MAP

The proposed substation lies at Latitude 26°39'39.58"N, Longitude 88°09'20.23"E, and elevation of 80 m masl. The site lies in depressed, NEA-owned flat land. The proposed substation boundary lies within a 0.1523 ha area. None of the private and public entities will be affected due to the implementation of the proposed Subproject. The 33 kV line for the proposed Kakarbhitta Substation will be constructed along the East–West Asian Highway, which is currently under construction. During the construction of the highway, all physical structures, trees, and vegetation falling within the 50-meter road right-of-way of high way have been removed already. Similarly, there are no physical structures, trees, or vegetation within the 15-meter right-of-way of the existing local road.

Therefore, there is no anticipated obstruction or difficulty in carrying out the required works within the established 6-meter right-of-way of the proposed 33 kV line.

Geology:

Geologically, the proposed Kakarvitta 33/11 kV Substation and the associated sub-transmission line alignment are located within the Recent (Quaternary) alluvial formations of the Terai Plain. These surficial deposits consist predominantly of unconsolidated alluvium comprising boulders, cobbles, pebbles, gravel, coarse- to fine-grained sand, silt, and clay, deposited by the Koshi River

system and its tributaries. The geological formation represents an active floodplain and alluvial terrace environment characterized by highly permeable granular sediments with localized fine-grained over bank deposits. No consolidated bedrock is exposed within the project area, as the underlying lithological units are buried beneath thick Quaternary alluvial sediment. The geological Map is presented below

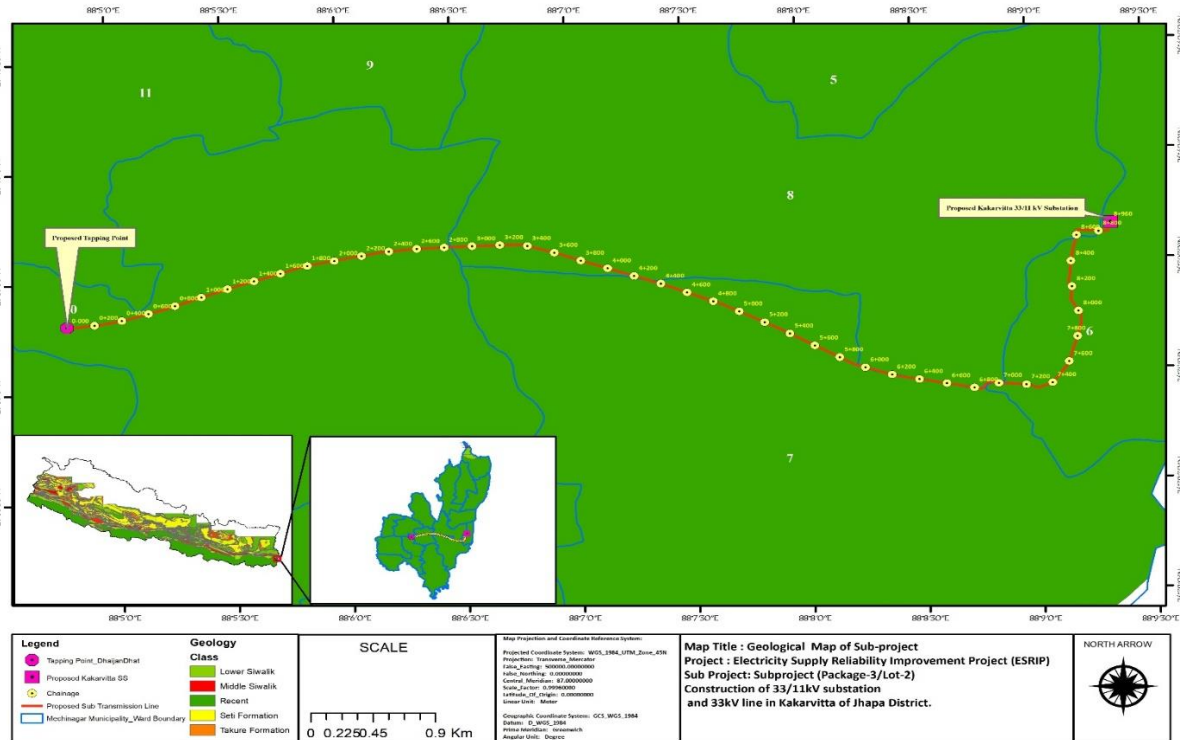
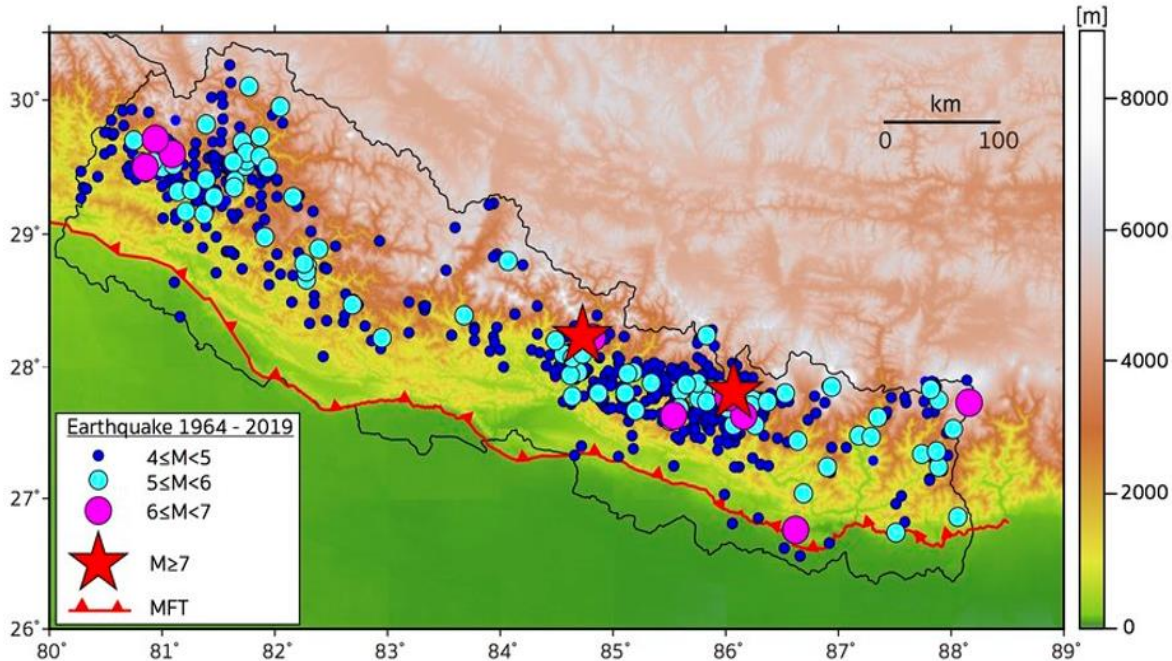


FIGURE 2: GEOLOGICAL MAP OF PROPOSED SUBPROJECT

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 below

FIGURE 3: SEISMICITY MAP OF NEPAL FROM 1964 -2019¹

Air Quality

The primary sources of air pollution identified within the subproject area include vehicular emissions and fugitive dust generated by ongoing construction activities along the East–West Highway. Because the majority of the proposed alignment traverses the Right-of-Way (RoW) of the East–West Highway, ambient air quality monitoring was conducted during field investigations at the Dhaijan Dhat tapping point and the proposed Kakarvitta 33/11 kV substation site. The baseline air quality monitoring results, which were found to be within the prescribed standards, are presented below in table.

TABLE 8: AMBIENT AIR QUALITY WITHIN THE PROPOSED SUBPROJECT SITE

S. N	Location /Chainage	Air Quality ² ($\mu\text{g}/\text{m}^3$)					Used Instrument for Monitoring /Model number.
		PM _{2.5}	Level	PM ₁₀	Level	Average Time of Measurement	

¹ Source: USGS catalogue, 2019

² National Indoor Air Quality Standard, 2009

S. N	Location /Chainage	Air Quality ² ($\mu\text{g}/\text{m}^3$)					Used Instrument for Monitoring /Model number.
		PM _{2.5}	Level	PM ₁₀	Level	Average Time of Measurement	
1.	Tapping Point Dhaijandhat /0+000	20.9	100	52.2	200	1 Hours	Temptop/ M2000
2.	Proposed Substation area/8+960	18.2		49.8			

Noise Level

Key sources of noise pollution in the subproject vicinity comprise vehicle movement and construction work along the East–West Highway. Baseline noise monitoring was carried out at the tapping point and substation site, and the results were compared with the National Ambient Sound Quality Standard (2012). Measured noise levels at both locations remain within prescribed national limits, as presented in below table.

TABLE 9: NOISE LEVEL OF PROPOSED SUBPROJECT SITE

S. N	Location /Chainage	Noise Level ³ (DB)				Area
		Measured	Average time of measurement	Ref ²	Used Instrument for Monitoring /Model number.	
1.	Tapping Point Dhaijandhat	52.2			CURCONSA/ SL720	Urban residential

³ National Ambient Sound Quality Standard, 2012



S. N	Location /Chainage	Noise Level ³ (DB)				Area
		Measured	Average time of measurement	Ref ²	Used Instrument for Monitoring /Model number.	
	/0+000		1 Hours	55		area.
2.	Proposed Substation area/8+960	49.8				

Water Quality

For water quality analysis water quality sampling and laboratory analysis were conducted for two distinct sources within the study area during the field assessment:

1. **Drinking Water Sample:** Collected from the settlement area in Ramailo Tole, Ward No. 6, Mechinagar Municipality, near the substation (GPS: 26°39'39.73"N, 88°9'23.15"E).
2. **Surface Water Sample:** Collected from the Kali Khola stream adjacent to the substation area (GPS: 26°38'55.28"N, 88°8'45.92"E).

The drinking water test parameters were evaluated against the **National Drinking Water Quality Standards (NDWQS, 2079)**, while the stream water results were compared with the **Generic Standards and IFC Standard**. Laboratory test results for both water samples strictly comply with their respective standard limits. The complete water quality test certificates and laboratory analysis results are annexed herewith in Annex 9.

3.2 BIOLOGICAL ENVIRONMENT

The proposed Subproject does not fall within a forest area or any officially designated conservation area. The Subproject components (substation and 33 kV sub-transmission line) do not intercept any forest area; therefore, there will be no issue of tree loss and no significant impacts on the biological environment. During the field visit, biological data on trees, avifauna, wildlife, fish, and herpetofauna in the nearby project area were collected and are described below.

Tree and Vegetation:

Within the boundary of the proposed Kakarvitta 33/11 kV Substation and along the RoW of the



proposed sub transmission line alignment, no trees are present. However, several common tree species were observed in the surrounding project area during the field survey. The dominant species include Shisham (*Dalbergia sissoo*), Saal (*Shorea robusta*), Common Bamboo (*Bambusa vulgaris*), and Burflower Tree (*Anthocephalus chinensis*). These species represent surrounding vegetation of the project area. The tree species recorded in the vicinity of the Subproject is presented in below table.

TABLE 10: LIST OF TREE AND VEGETATION

S.N.	Local Names	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
1	Sisau	shisham	<i>Dalbergia sissoo</i>	-	LC	II
2	peepal	sacred fig	<i>Ficus religiosa</i>	-	LC	-
3	Simal	cotton tree	<i>Bombax ceiba</i>		LC	-
4	Rohini/Si ndure	kamala tree	<i>Mallotus philippensis</i>	-	LC	-
5	Saal	Saal	<i>Shorea robusta</i>		NT	-
6	Amala	Indian gooseberry	<i>Phyllanthus emblica</i>	-	LC	-
7	Aap	Mango	<i>Mangifera indica</i>	-	DD	-
8	Baans	Common bamboo	<i>Bambusa vulgaris</i>	-	-	-
9	Sirish	Persian Silk Tree	<i>Albizia julibrissin</i>	-	LC	-
10	Kadam	Burflower tree	<i>Anthocephalus chinensis</i>	-	-	-



S.N.	Local Names	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
11	Nariwal	Coconut palm	<i>Coccus Nucifera</i>	-	-	-
12	Supadi	Betel nut palm	<i>Areca catechu</i>	-	-	-

Source: Field Survey, 2026.

Wildlife Species

During the site visit, the major wildlife species occur in the vicinity of the Subproject area are Golden Jackal (*Canis aureus*), Indian Hare (*Lepus nigricollis*), and Rhesus Macaque (*Macaca mulatta*). The important habitat of wildlife and avian fauna was not observed in the DIA of the project. The following table presents the wildlife species recorded in the nearby Subproject area.

TABLE 11: WILDLIFE SPECIES IN THE VICINITY OF THE SUBPROJECT AREA

S.N.	Local Name	English Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
1	Syal	Golden Jackel	<i>Canis aureus</i>	-	LC	III
2	badar	Rhesus macaque	<i>Macaca mulatta</i>	-	LC	II
3	bandel	Wild Boar	<i>Sus scrofa</i>	-	LC	-
4	Hatti	Wild Asian elephants	<i>Elephas maximus</i>	Protected	EN	I
5	Kharayo	Indian Hare	<i>Lepus nigricollis</i>	-	LC	-
6	wan biralo	Jungle cat	<i>Felis chaus</i>	-	LC	II



Source: Field Survey, 2026.

Bird Species (Avifauna)

The major avifauna species observed in the vicinity of the Subproject area are House Crow (*Corvus splendens*), Common Myna (*Acridotheres tristis*), Red-vented Bulbul (*Pycnonotus cafer*), Rose -ringed Parakeet (*Psittacula krameria*), and Black Drongo (*Dicrurus macrocerus*). The following table presents the bird species recorded in the nearby Subproject area.

TABLE 12: LIST OF BIRD SPECIES IN THE VICINITY OF THE SUBPROJECT AREA

S.N.	Local Name	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
1	Sano Matikore	Common Kingfisher	<i>Alcedo atthis</i>	-	LC	-
2	Kalo Chibe	Black Drongo	<i>Dicrurus macrocerus</i>	-	LC	-
3	Ghar Kag	House Crow	<i>Corvus splendens</i>	-	LC	-
3	Kalo Kag	Large-billed Crow	<i>Corvus macrorhynchos</i>	-	LC	-
4	Dangre Rupi	Common Myna	<i>Acridotheres tristis</i>	-	LC	-
5	jureli	Red-vented Bulbul	<i>Pycnonotus cafer</i>	-	LC	-
6	Paat Siune Fisto	Common Tailorbird	<i>Orthotomus sutorius</i>	-	LC	-
7	Ghar	House Sparrow	<i>Passer</i>	-	LC	-



S.N.	Local Name	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
	Bhangera		<i>domesticus</i>			
8	Kanthe Suga	Rose -ringed Parakeet	<i>Psittacula krameri</i>	-	LC	-
10	Kurle Dhukur	Spotted Dove	<i>Stigmatopelia chinensis</i>	-	LC	-
11	Malewa	Common Pigeon/Rock Dove	<i>Columba livia</i>	-	LC	-
12	Madhuha	Oriental Honey-buzzard	<i>Pernis ptilorhynchus</i>	-	LC	II

Source: Field Survey, 2026.

Fish

Dhukure Khola, Nagardubba Khola, Timai Khola, Ninda Khola, Pali Khola, and Kali Khola are the major streams crossed by the proposed distribution line. The major fish species reported in these rivers include Copper Mahseer (*Neolissochilus hexagonolepis*), Gangetic Mystus (*Mystus cavasius*), Assamese Snakehead (*Channa stewartii*), and Swamp Barb (*Puntius chola*). The fish species recorded in the rivers within the project area, along with their conservation status, are presented in the table below

TABLE 13: LIST OF THE FISHES IN THE SUBPROJECT AREA

S.N.	Local Name	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
1	Buduna	Sucker Fish	<i>Garra mullya</i>	-	LC	-
2	Katle	Copper mahseer	<i>Neolissochilus hexagonolepis</i>	-	NT	-



S.N.	Local Name	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
3	Kabre	Sucker throat catfish	<i>Pseudecheneis sulcata</i>	-	LC	-
4	junge	Gangetic mystus	<i>Mystus cavasius</i>	-	LC	-
5	Bam	tire-track spiny eel	<i>Mastacembelus armatus</i>	-	LC	-
6	Nadihari	Swamp Barb	<i>Puntius chola</i>	-	LC	-
7	Seti Fish	Gangetic hairfin anchovy	<i>Setipinna phasa</i>	-	LC	-
8	Hile	Assamese snakehead	<i>Channa stewartii</i>	-	LC	-

Herpetofauna

The major herpetofauna found in the sub-project area are Asian Common Toad (*Duttaphrynus melanostictus*), Common Karait (*Bungarus caeruleus*), Garden lizard (*Calotes versicolor*) and Common Rat Snake (*Ptyas mucosa*) herpetofauna species found in the sub project area, along with their conservation status, are presented in the table below.

TABLE 14: LIST OF THE HERPETOFAUNA IN THE SUBPROJECT AREA

S.N.	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
1	Asian Common Toad	<i>Duttaphrynus melanostictus</i>	-	LC	-
2	Garden lizard	<i>Calotes versicolor</i>	-	LC	-



S.N.	Common Name	Scientific Name	National Protected Status	IUCN Status	CITES Appendix
3	Common Rat Snake	<i>Ptyas mucosa</i>	-	LC	-
4	Common Karait	<i>Bungarus caeruleus</i>	-	LC	-
5	Common Cobra	<i>Naja naja</i>	-	LC	II
6	MacClelland's coral snake	<i>Sinomicrurus macclellandi</i>	-	LC	-
7	Two-striped grass frog	<i>Hylarana taipehensis</i>	-	LC	-

3.3 SOCIAL ENVIRONMENT

The proposed Kakarvitta Substation subproject is located in Mechinagar Municipality of Jhapa District, Koshi Province. The substation of this subproject is proposed in ward no 6 of Mechinagar Municipality, and the proposed sub-transmission line traverses ward no. 6, 7, 8, and 10 of Mechinagar Municipality. Daijhanghat, Dhulabari, Jorsimal, Ittabhatta, Ayabari, Kakarvitta (Shantigaun, Ramailo tole and Dakshinkali tole) are major settlements located in the project area.

Demography

According to the National Population and Housing Census 2021, the total population of the Mechinagar Municipality is 133073, including 64001 male and 69072 female. The average household size of the project-affected Municipality is 4.07, and sex ratio is 92.66. The detailed demographic information of the project-affected Municipality and its affected wards are presented in the table.

TABLE 15: THE DETAILED POPULATION COMPOSITION OF THE PROJECT-AFFECTED MUNICIPALITY AND WARDS

Local Level	Number of	Population	Average	Sex ratio
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	households	Male	Female	Total	household size	
Mechinagar Municipality	32695	64001	69072	133073	4.07	92.66
Ward no. 6	4004	7478	8260	15738	3.93	90.53
Ward no. 7	3135	6425	6763	13188	4.21	95.00
Ward no. 8	2050	3923	4373	8296	4.05	89.71
Ward no. 10	3656	7612	7888	15500	4.24	96.50

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

According to the information shared by participants during the Focus Group Discussion (FGD), approximately 2,360 households with a total population of 10,750 are situated in the settlements surrounding the project area (Field Survey 2026).

Cast and Ethnicity

Different caste and ethnic groups reside in the project-affected Mechinagar Municipality. According to the National Population and Housing Census of Nepal 2021, the population of Janajati is 42.93 percent, followed by Brahmin/Chhetri 42.93 percent, Dalit 7.22 percent, Madhesi 3.55 percent, Muslim 1.18 percent, and other groups 1.42 percent in the project-affected Municipality. The caste and ethnic composition of the project-affected Municipality is presented below.

TABLE 16: CAST AND ETHNICITY OF PROJECT-AFFECTED MUNICIPALITY

Cast and Ethnicity	Population	Percent
Brahman/Chhetri	57128	42.93
Janajati	58157	43.70
Dalit	9613	7.22
Madhesi	4718	3.55
Muslim	1574	1.18
Others	1883	1.42
Total	133073	100

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

The project-affected settlements have a diverse caste and ethnic composition. Among the total population, Brahman/Chhetri are 50.42 percent, followed by Janajati 42.16 percent, Dalits 4.24 percent, Madhesi 1.68 percent, and others 1.48 percent (Field survey 2026)

Mother Tongue

Nepali is the major language spoken in the project-affected Municipality. According to the National Population and Housing Census 2021, 65.19 percent of the population speaks Nepali as their first language. Similarly, Rajbanshi, Yakthung/Limbu, Rai, Meche, Nepal Bhasha, Magar, Santali, Dhimal, and other languages are also spoken in the project-affected Municipality. The detail of mother tongue in project affected Municipality is presented in below.

TABLE 17: POPULATION OF PROJECT AFFECTED MUNICIPALITY BY MOTHER TONGUE

SN	Mother Tongue	Population	Percent
1	Nepali	86749	65.19
2	Rajbanshi	11157	8.38
3	Yakthung/Limbu	5747	4.32
4	Tamang	3832	2.88
5	Maithili	3092	2.32
6	Rai	2821	2.12
7	Meche	2274	1.71
8	Nepalbhasha(Newari)	2042	1.53
9	Magar Dhut	1836	1.38
10	Santhali	1762	1.32
11	Dhimal	1420	1.07
12	Others	10341	7.77



SN	Mother Tongue	Population	Percent
13	Total	133073	100.00

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

In the project-affected settlements, most of the population speaks the Nepali language (63.77 percent), followed by Rajbanshi (22.80 percent), Tamang (2.75 percent), Rai (4.66 percent), Limbu (3.39 percent), and other (2.54 percent).

Religion

Most of the population of the project-affected Municipality follows the Hindu religion. According to National Population and Housing Census 2021, 80.93 percent of the total population follow Hindu religion in the project-affected Municipality. Similarly, 6.60 percent population follow Buddha religion, 7.74 percent follow Kirat religion, 2.66 percent follow Christian religion, 1.41 percent follow Islam religion, and 0.57 follow the Prakriti religion of project affected population. The population of project affected municipalities by religion is presented in below.

TABLE 18: POPULATION OF THE PROJECT-AFFECTED MUNICIPALITY BY RELIGION

Municipality		Religion							
		Hindu	Bouddha	Islam	Kirat	Christian	Prakriti	Others	Total
Mechinagar	Population	107700	8789	1876	10297	3541	759	111	133073
	%	80.93	6.60	1.41	7.74	2.66	0.57	0.08	100.00

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

In the project-affected settlements, approximately 88.60 percent population follow the Hindu religion and followed by Bouddha religion 4.92 percent, and Christian 6.48 percent. (Field survey 2026)

Occupation

According to National Population and Housing Census 2021, among the economically active population 15 years of age and above of the project-affected Municipality, 34.31 percent is engaged as skilled agriculture, forestry & fishery workers. Similarly, 27.15 percent population is

engaged as elementary workers, 9.08 percent is engaged service & sale workers, 8.47 percent is engaged as managers and others population is engaged in various occupations. Occupational status of economically active population of the project affected Municipality is presented in below table.

TABLE 19: OCCUPATIONAL STATUS OF PROJECT-AFFECTED MUNICIPALITY

SN	Occupation	Population	Percent
1	Armed forces	142	0.21
2	Managers	5821	8.47
3	Professionals	2482	3.61
4	Technicians and associate professional	1373	2.00
5	Office assistance	1213	1.77
6	Service & sale workers	6238	9.08
7	Skilled agri.,forestry & fishery workers	23570	34.31
8	Craft and related trades workers	5741	8.36
9	Plant & machine operators & assemblers	3414	4.97
10	Elementary workers	18652	27.15
11	Occupation not stated	42	0.06
Total		68688	100.00

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

In the project-affected settlements, approximately 33.5 percent of the population is engaged in daily wage labor. Similarly, 27.5 percent of the population is engaged in agriculture, 18.75 percent in service, 18.75 percent in foreign employment and 2.5 percent in trade. (Field Survey 2026)

Source of Cooking Energy

According to the National Population and Housing Census 2021, 66.86 percent of households in the project-affected Municipality use liquefied petroleum gas and 30.5percent use wood/



firewood for cooking purposes. Among the project-affected wards, 92.63 percent of households of 6 no. ward of the Mechinagar Municipality use liquefied petroleum gas, which is the highest proportion among these wards. Cooking energy sources in the project-affected Municipality and wards are presented in below table.

TABLE 20: SOURCE OF COOKING ENERGY IN THE PROJECT AFFECTED MUNICIPALITY AND WARDS

Local Level	Type of fuel for Cooking								
	Wood/ firewood		Liquefied Petroleum gas		Electricity		Others		Total HHs
	HHs	%	HHs	%	HHs	%	HHs	%	
Mechinagar	9965	30.5	21861	66.86	123	0.38	746	2.28	32695
Ward no. 6	264	6.6	3709	92.63	11	0.27	20	0.50	4004
Ward no. 7	1000	31.9	2023	64.53	20	0.64	92	2.93	3135
Ward no. 8	547	26.7	1463	71.37	14	0.68	26	1.27	2050
Ward no. 10	623	17.0	2950	80.69	7	17.04	76	17.04	3656

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

Source of Lighting

According to the National Population and Housing Census 2021, almost all of the households in the project-affected Municipality use electricity for lighting purposes. Among the total households of project affected Municipality, 98.40 percent households use electricity for lighting purposes. The source of lighting energy in the project-affected Municipality and wards is presented in below Table

TABLE 21: SOURCE OF LIGHTING ENERGY IN THE PROJECT-AFFECTED MUNICIPALITY AND WARDS

Local Level	Usual source of lighting				
	Electricity	Solar	Kerosene	Others	Total

	HHs	%	HHs	%	HHs	%	HHs	%	HHs
Mechinagar Municipality	32173	98.40	298	0.91	172	0.53	52	0.16	32695
Ward no. 6	3968	99.10	28	0.70	6	0.15	2	0.05	4004
Ward no. 7	3050	97.29	61	1.95	21	0.67	3	0.10	3135
Ward no. 8	2018	98.44	15	0.73	11	0.54	6	0.29	2050
Ward no. 10	3614	98.85	18	0.49	20	0.55	4	0.11	3656

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

In the project-affected settlements, 100 percent of households use electricity for lighting purposes.

Toilet Facilities

The availability of toilet facilities reflects the sanitation condition of the project-affected area. According to the National Population and Housing Census 2021, 97.95 percent have toilet facilities in the project-affected Municipality. Among the project-affected wards, Ward No. 6 has the highest proportion of households with toilet facilities 99.70 percent, followed by Ward No. 10 98.63 percent), Ward No. 8 (97.41 percent), and Ward No. 7 (96.52 percent). Toilet facility status in the project-affected Municipality and wards are presented in below.

TABLE 22: TOILET FACILITY STATUS IN THE PROJECT AFFECTED MUNICIPALITY AND WARDS

Local Level	Type of toilet used						Without toilet facility		Total HHs
	Flush toilet		Pit toilet		Public toilet				
	HHs	%	HHs	%	HHs	%	HHs	%	
Mechinagar Municipality	20392	62.37	11482	35.12	152	0.46	669	2.05	32695
Ward no. 6	3055	76.30	930	23.23	7	0.17	12	0.30	4004
Ward no. 7	1782	56.84	1230	39.23	14	0.45	109	3.48	3135
Ward no. 8	874	42.63	1107	54.00	16	0.78	53	2.59	2050
Ward no. 10	2483	67.92	1113	30.44	10	0.27	50	1.37	3656

Source: National Population and Housing Census of Nepal 2021, National Statistics Office,



2023

Literacy Status

According to National Population and Housing Census 2021, 83 percent of the population aged 5 years and above is literate in project affected Municipality. Among the project affected wards, 6 no. ward has a highest literacy rate (88.02 percent), followed by ward no 10 (84.46 percent), ward no. 8 (81.93 percent) and ward no. 7 (81.73 percent). Literacy Status in the project affected Municipality and Wards are presented in below.

TABLE 23: LITERACY STATUS OF PROJECT AFFECTED MUNICIPALITY AND WARDS (PERCENT)

Municipality	Male		Female		Total
	Literate	Illiterate	Literate	Illiterate	Literate
Mechinagar Municipality	88.54	11.46	78.42	21.58	83.26
Ward no. 6	92.98	7.02	83.56	16.43	88.02
Ward no. 7	87.84	12.16	75.94	24.06	81.73
Ward no. 8	87.90	12.10	76.62	23.38	81.93
Ward no. 10	88.74	11.26	80.38	19.62	84.46

Source: National Population and Housing Census of Nepal 2021, National Statistics Office, 2023

Education Facilities

There are various levels of schools and colleges are available around the project area, including basic schools three secondary schools and colleges.

Communications

Mobile phone, internet service, television, and FM radio service are the main means of communication in the project area.

Health Facilities

There are various levels of health institutions in the project area including basic health post, city hospital and other hospitals that provide specialist services, OPD, vaccination service, maternity facilities, x-ray/video x-ray service and lab facilities, physiotherapy, and 24-hour emergency service.

Transportation Facilities



The East-West highway, Patalganga marga, and other blacktopped local roads are located in the vicinity of the project area. These roads provide access and connectivity to the local community, facilitating the transportation of goods and services. The proposed 33 kV sub-transmission line will be traversed within the RoW of East-West highway and Patalganga marga local roads.

Religious, Cultural, and Historical Sites

Shibalay Mandir, Hanuman Mandir, Ganesgh Mandir, Hauladuppa Gumba, Kali Mandir, Bishnu laxmi Mandir, Shibalay, Ganesh Mandir, Shiba Mandir, Durga Mandir and Sakhela Than are the religious and cultural sites located in the project-affected settlements.

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This chapter analyzes the potential beneficial and adverse impacts of the proposed subproject and also provides mitigation measures to enhance the beneficial impacts and minimize the adverse impacts. This chapter also includes the monitoring and budget for implementing activities and stated mitigate the adverse impacts, along with the major responsibilities of different institutions.

4.1 INSTITUTIONAL ARRANGEMENT

Nepal Electricity Authority (NEA) is responsible for implementing the Electricity Supply and Reliability Improvement Project (ESRIP). The project is under the Distribution and Consumer Services Directorate (DCSD) of NEA. The Project Implementation Unit (PIU) has been established under the DCSD and serves as the implementing unit for the project. The Environmental and Social experts are deployed within the PIU and support for the management of environmental, social, health, and safety (ESHS) risks and impacts of the Project. The structure of the PIU is presented below.



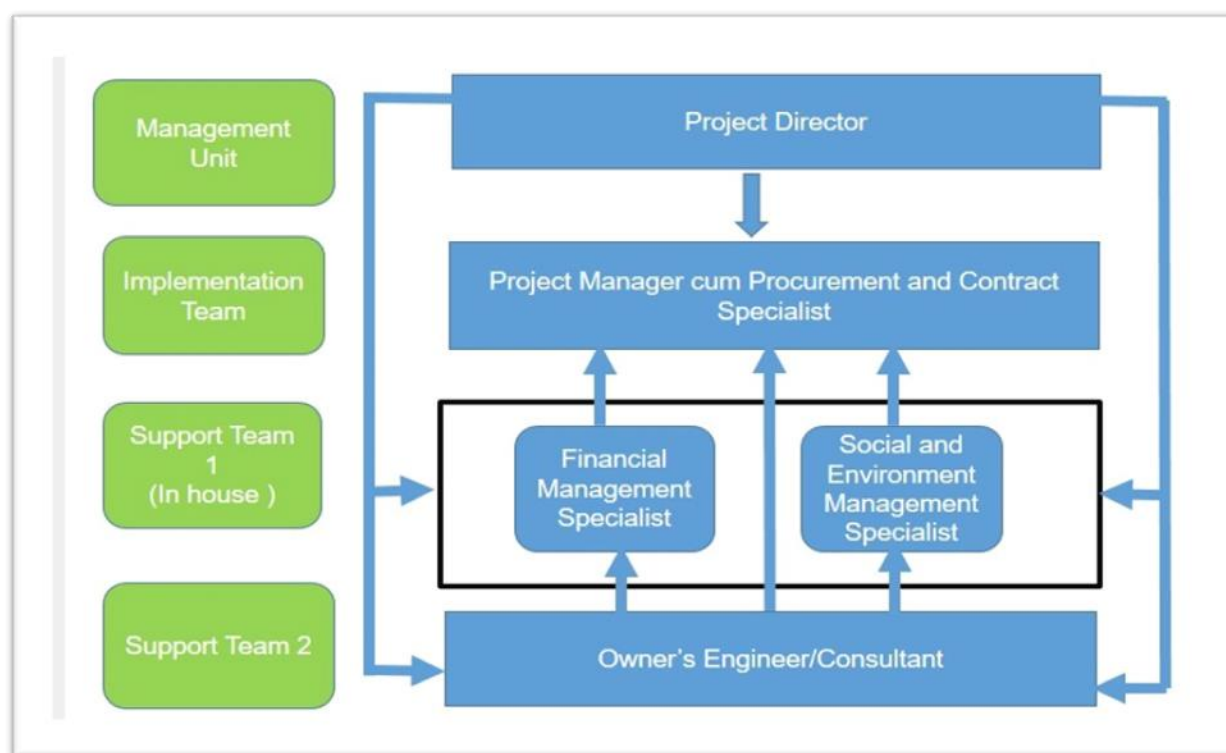


FIGURE 4: THE STRUCTURE OF PIU

Owner's Engineer /Consultant: Owner's Engineer /consultant will be responsible for construction supervision of this subproject and implementing supervision of this ESMP and other environmental and social documents and plans.

Contractor: The contractor will be responsible for implementing the ESMP and ensuring full compliance. The contractor shall have its own Environmental and Social specialists to implement the ESMP, prepare the contractor's environmental social management plan (CESMP) and other related sub-plans, and ensure compliance with these plans.

TABLE 24: LIST OF ORGANIZATIONS AND RESPONSIBILITIES

Organization	Responsibilities
NEA (PIU)	Coordination with all stakeholders. Procurement of goods and services. Environment and social management of

Organization	Responsibilities
	subprojects. Operation and maintenance of the subprojects after commissioning.
Owner's Engineer/Consultants	Supervise construction of electrical works. Supervise civil works. Responsible for implementation of ESMP. Prepare monthly progress and monitoring report and submit to PIU.
Contractor	Design Supply Installation Testing and Commissioning of Electrical Equipment, along with construction of civil work. . Prepare contractor's site specific environment social management plan (C-ESMP) with labor management plan, occupational health & safety plan, waste management plan, and any other site-specific requirement. The C-ESMP shall be submitted prior to the commencement of construction works. Deploy environment and social specialists. The environmental and social specialists should have bachelor's degrees in relevant subjects and a minimum of five years of experience in environmental and social safeguards in donor-funded projects. The environment and social specialists shall prepare and submit progress and monitoring reports to PIU through the contractor management team and consultant Implementation of Mitigation measures

Organization	Responsibilities
	proposed in the ESMP and regular monitoring to ensure compliance. The Contractor shall review the C-ESMP every six months and update it as required.

4.2 CAPACITY BUILDING AND TRAINING

The capacity building training will be provided to the PIU staff and contractors for strengthening capacity to implement the ESMP and other required environment and social policy and standards. PIU will provide training for staffs and contractor. The local level representatives (project affected local level Mayor/Deputy Mayor/ and Ward Chairpersons and members)will be made aware of the project and its implementation procedure including environment and social issues, impact and its mitigation measures through consultation meeting. The contractor will be also responsible to conduct the training for their staffs and workers. The contractor training plan must be included in their CESMP. The capacity building and training for PIU staff and contractors has been presented below

TABLE 25: CAPACITY BUILDING AND TRAINING

SN	Participants	Contents	Methodology	Trainer	Time
1	Technical staffs of PIU	The World Bank Environment and Social Framework. WB Environmental and Social Standards 1–10 The contents of ESMP. Environment and social impacts and its mitigation measures. Stakeholder	Power point presentation and lecture	Environment and social Specialist of PIU. External resource persons having knowledge about WB ESF and ESSS may be hired if required	Initial phase of project implementation and yearly

SN	Participants	Contents	Methodology	Trainer	Time
		mapping and engagement , GRM, SEA/SH, OSH LMP and waste management			
2	Contractor's site management team, engineers and environment and social staffs	The project ESMP, Environment and social impacts and its mitigation measures during the construction works. GRM, SEA/SH, OHS LMP and waste management . The content of CESMP and Site specific subplans	Power point presentation and lecture	Environment and social Specialist of PIU.	Before the contractor mobilization in site and semi annually

4.3 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN AND MITIGATION MEASURES

The overall Environmental and Social Management Plan of the Subproject is presented in the table

Table 26: Environmental and Social Management Plan

S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
Beneficial Augmentation Measures						
A.	Pre-Construction and Construction Phases					
1.	Local employment	Employment opportunities for local	- During the construction phase, local people will be given priority for employment opportunities based on their skill and capacity. - Enhance the working capacity of local people by working together with skilled workers from outside	No additional Cost	Contractor /Field office	PIU/NEA
2.	Local economic activities	Increased economic activities at local market	Locally available construction materials will be brought from near Kakarvitta, Dhulabari, and Ittabhatta market.	No additional Cost	Contractor /Field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
B.	Operation Phase					
1.	Electricity supply improvement	Enhancement of local electricity supply and local Economy	Proper and timely maintenance of the Substation will be done to maintain reliable power supply.	-	NEA DCS	NEA DCS/GoN
Adverse Impact Mitigation Measures						
A. Pre-Construction Phase						
		C-ESMP	Preparation of Contractor’s Environmental and Social Management Plan (C-ESMP). The C-ESMP should be submitted prior to the commencement of construction works, and no construction activities will be carried out under the project until approval of the	All costs will be included in contracts	Contractor	NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			C-ESMP. The Contractor shall review the C-ESMP in every six months and update it as required.			
		C-ESMP	Mobilization of E&S Specialists- The E&S Specialists should be mobilized during pre-construction for the preparation of C-ESMP.	All cost will be included in contracts	Contractor	NEA
		Labour management	Hiring procedure for construction workers, including the signing of code of conduct. Provisions in labour management procedures (LMP) will be followed. All workers shall sign the code of conduct and they will be terminated from employment if not complied with the code of conduct.	All cost will be included in contracts	Contractor	NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
		Construction storage facilities	The contractor will need areas for setting up storage areas. The contractor shall set up storage facilities within sites approved by NEA	All cost will be included in contracts	Contractor	NEA
B- Construction Phase						
1.	Excavation for substation, poles/stays	Soil disturbance, open excavation hazards, and localized soil erosion due to excavation for the substation, poles, and stays	- Contractor shall prepare and implement C-ESMP to address these issues. - Excavation work will be conducted in the dry season if possible - Excavated area will be barricaded and Pit holes dug for the installation of poles shall not be left open. - Backfill excavated areas promptly and compact the backfilled soil. - Install warning signage at	All cost will be included within Project Cost	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			the excavated area. Pole protection work will be done at the crossing section of the sub-transmission line in Ninda Khola and Timai Kola, and the contractor shall propose appropriate poles.			
2.	Noise pollution	Temporary nuisance to nearby residents and employees, workers and sensitive receptors due to noise pollution.	- Contractor shall prepare and implement CESMP to address these issues. - Contractor shall service and maintain all vehicles and equipment on a timely basis in accordance with applicable time and maintain the record. - Noise levels will be measured at the substation area on a semiannual basis.	Noise Level Monitoring: 80000	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			- Vehicle speeds will be kept low, and horns will not be used near the communities. - Earplugs will be provided to the workers if required. - Night work will be avoided near the settlements area; however, if the work is required, the prior notice will be given to the nearby communities.			
3.	Dust, Air pollution	Temporary nuisance to nearby people, employees, workers and sensitive receptors due to the air pollution.	- Contractor shall prepare and implement C-ESMP to address these issues. - The construction materials will be covered during transportation and storage. - Water sprinkling will be carried out near the	Air quality monitoring: 100000 Water Sprinkling: 1,00,000.00	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			earthen roads of the substation and within the substation area if required. • Air quality monitoring will be carried out on a semiannual basis. • Face masks will be provided to the workers engaged in dusty areas and cement handling.			
4.	Waste generation	• Waste generated in construction area and campsite	• Contractor shall prepare and implement C-ESMP to address these issues. • The waste should be segregated into organic and inorganic in source. • 3R principle shall be followed. • Kitchen waste shall be provided to local farmers to be used as animal feed where possible.	1,50,000.00	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			• Bio degradable waste will be managed through the compost bin. • Recyclable wastes like left out/non-usable reinforcement bars and packing materials will be sold to scrap vendors • Three colors dustbins will be kept in construction site and camp site. • Soak pits will be constructed for management of Gray water of labor camps • If generated non-recyclable and hazardous waste will be managed in coordination with local level (Mechinagar Municipality)			



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
5.	Traffic disturbance	Traffic congestions and blocking of access to side roads (to be confirmed), Road obstruction during transportation of substation heavy equipment and construction of the 33 kV line along the main road and side road	- Traffic signage will be installed in local roads. - Designated flag man will be deployed during the transformer transformation and construction of the 33 kV line along the main road and side road period - Coordination will be done with local traffic police during transformer transportation and construction of the 33 kV line along the main road and side road.	25,000.00	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
6.	Electrical safety	Electrocution during live-line proximity, installation of heavy electrical equipment in substations testing or energization and construction of 33kV lines	- Warning signs will be installed at the substation area and pole erection area. - The Boundary wall will initially be constructed at the substation. - Only trained personnel will handled electrical work - Shutdown shall be taken during maintenance work. - Use of insulation, guarding, grounding, electrical protective devices, and safe work practices is advised.	This cost will be included within project cost	Contractor/field office	PIU/NEA
7.	Hazardous materials and chemical wastes	Improper storage, handling, and disposal of hazardous materials and chemical wastes.	Proper use of PPEs (such as safety boots, helmets, masks, gloves, protective clothing, goggles, etc) for	This cost is included in project cost.	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			handling hazardous and chemical substances . PPEs should be so chosen that they should meet the technical standard to be used in electrical work propose. • Contractor shall prepare and implement C-ESMP and occupational health and safety plan (OHS) to address these issues. • Fuel, oil, and chemicals shall not be stored near water sources • Spill response kits will be provided • Dedicated storage areas for fuel, oil, and chemicals will be established using drums, containers, or tanks.			



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
8.	Site restoration	Poor backfilling, depressions, debris, and visual nuisance during site restoration	All temporary facilities will be dismantled and returned to a better condition than original or equal.	This cost is included in project cost.	Contractor/field office	PIU/NEA
9.	Influx of labour	- Conflicts with the community regarding the use of public facilities and social and cultural differences, - Spreading communicable disease from workers to the local community or vice versa.	- Contractor shall prepare and implement C-ESMP and labor management plan (LMP) to address these issues. - Local people will be provided priority for employment based on their skills and experience. - Labor camps will be constructed separately from the local community. - Proper and regular sanitation facilities will be provided and	Training cost: 1,00,000.00 and other costs will be included in project cost	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			maintained at labor camp • Provide awareness training to workers on respecting the local people, culture, religion, and communicable diseases, etc. • Restrict unnecessary movement of workers outside the camp at night. • The workers' code of conduct will be prepared and all workers and employee will be required to comply it. • Restrict alcohol consumption in the labor camp.			
10.	Community grievance and project	• Grievances and complaints from community members	• Contractor shall prepare and implement C-ESMP to address these issues.	For project related information	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
	information	caused by project activities and the lack of project information Specific Grievance handling related to OHS and SEA/SH	- GRM will be effectively implemented during the construction phase. - Periodic consultation with project stakeholders will be done, as envisaged in the stakeholder's engagement plan (SEP). - Project-related information materials (Brochure, posters, and flyers) will be prepared and distributed to the local community. - Anonymous complain system will be established (Install the grievance box at site)	materials d (Brochure, posters, flyers, media campaign, etc.) -25,000.00 Consultation meeting – 1,60,000.00 GRM Implementation: 1,50,000.00 Specific GRM Implementation related to OHS and SEA/SH 1,00,000.00		



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
11.	Worker grievance	Workers' wage payment dispute between workers and contractor, harassment, and physical assault	- Contractor shall prepare and implement C-ESMP and labor management plan (LMP) to address these issues. - Contractor shall strictly follow the GRM - The workers' code of conduct will be prepared and all workers and employee will be required to comply it. - Anonymous complain system will be established (Install the grievance box at site)	GRM implementation cost mentioned in above 9 no.	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
12.	GBV/SEA/SH risk	- Sexual Harassment, Sexual exploitation and abuse at Workplace - Gender-based violence at work place	- Contractor shall prepare and implement C-ESMP and labor management plan (LMP) to address these issues. - Awareness training will be conducted for employees and workers on GBV, SH SEA. - The workers' code of conduct will be prepared, and all workers and employees will be required to comply with it. - Worker's behavior will be regularly monitored and appropriate disciplinary action will be taken against the any violations of rule. - GRM will be effectively implemented during the	Awareness training - 50,000.00	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			construction phase. - Male and female camp will be constructed separately - Anonymous complain system will be established (Install the grievance box at site)			
13.	Child labor and forced labor	Employment of below-age workers and forced labor	- Contractor shall prepare and implement CESMP and labor management plan (LMP) to address these issues. - No workers below 18 years age will be employed at site or camp. - Forced labor will be prohibited. - The contractor shall be maintain and document	No additional cost required	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			age verification records.			
14.	Occupational health and safety	- Accidents and incidents involving workers, - Sickness of workers	- Contractor shall prepare and implement CESMP and occupational health and safety plan (OHS) to address these issues. - The contractor shall prepare and implement emergency response plan (ERP). - All workers will be provided OHS awareness training. - All workers will be provided adequate PPE(such as safety boots, helmets, masks, gloves, body harness,	- OHS training and awareness program- 2,40,000.00 - Water quality test- 70,000.00 - Other cost will be include project cost	Contractor/field office	PIU/NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			protective clothing, goggles, fully face eye shields and ear protection) as required. • Safe drinking water will be provided at worksite and labor camp. • First aid box will be provided at the construction site. and labor camps, • The Contractor shall coordinate with local hospital and ambulance service providers for workers' health check-ups and emergency situations. Safety and warning signage will be installed at the construction site. • Temporary resting shed and toilet (Separate male and female) will be	• Awareness programs on STIs and communicable diseases - 50000		



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			constructed at the construction site. Awareness programs on STIs and communicable diseases will be conducted.			
15	Utility interruption	Temporary power outage during line/substation installation and commissioning.	- Minimize outage duration; - Undertake planned shutdowns with proper advance to users.	No additional cost required	Contractor/field office	PIU/NEA
B. Operation Phase						



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
1	Workers' health and safety during routine maintenance work/ Workers' exposure to Electric shock and fire hazard during O&M activities	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	-	Local DCS office of NEA	NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
2	Oil leakage and contamination of nearby surface water from substation	Oil leakage and contamination of nearby surface water from substation caused by water pollution	- Containment bunds for transformers will be managed - Regular inspection and maintenance will be carried out. - Spill kits will be kept and immediately used in case of any oil leakage or spill.	The spill kits and other associated costs will be managed by DCS through its regular operational budget during the operation phase if any issue arises.	Local DCS office of NEA	NEA
3	Bird electrocution and collision	Electrocution can cause a risk to bird species that perch on power line infrastructures	The cover conductor will be used.	No additional cost required	Local DCS office of NEA	NEA



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
4.	Community GRM	Grievances and complaints from community members caused by project activities	- The grievance will be record in concerned Dhulabari DCS - The grievance and complains will be redressed through the NEA regular Grievance Redress Mechanism - DCS Chief is responsible to redress the community grievance - If the decision is not satisfactory or no decision is made within the specified timeframe, the grievance will be escalated to the Provincial Office for further review and resolution. The complaints will be registered either in Dhulabari DCS directly		Local DCS office of NEA	NEA Provincial office



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			or through the NEA's toll free number of 1150.			
5.	Worker GRM	- Worker and Employee wage payment dispute harassment, and physical assault	- The grievance and complains will be redressed through the NEA regular Grievance Redress Mechanism - DCS Chief is responsible to redress the employee/worker grievance - Grievance and complains will be redressed through the NEA regular Grievance Redress - If the decision is not satisfactory or no decision is made within the specified timeframe,			NEA Provincial office



S.N.	Issues	Environmental and Social Issues	Mitigation and Management Measures	Mitigation Costs (NRs.)	Institutional Responsibility	
					Implementation	Supervision and Monitoring
			the grievance will be escalated to the Provincial Office for further review and resolution.			





4.4 KEY CONTENT OF C-ESMP

The C-ESMP will include the following site-specific management plans on:

- Occupational health and safety management plan (also referred as health and safety manual in the bidding documents)
- Community health and safety management plan.
- Waste management plan.
- Wastewater discharges management plan.
- Air and noise emissions management plan.
- Hazardous material management and spill control plan.
- Workers Accommodation Plan.
- Labor Management Plan (Management of labour influx, facilities for the foreign workers. labour recruitment procedures and labour management.
- Traffic management plan.
- Training plan for E&S risks including HIV/AIDS, sexual exploitation and abuse, and gender-based violence.
- Emergency Response Plan.
- Grievance Redress Mechanism.
- Site restoration (Demobilization) plan after completion of works.

4.5 EMERGENCY RESPONSE PLAN (ERP)

An Emergency Response Plan (ERP) will be prepared and implemented by the Contractor. The ERP shall address fire, electrical accidents, serious injuries, natural disasters, and other project-related emergencies. The ERP will define emergency response procedure, roles and responsibilities, emergency contract persons, communication procedure, assembly points, evacuation routes, coordination with local hospitals and ambulance service providers. Evacuation drills will be conducted periodically in different emergency incidents to confirm that the workers are familiar with evacuation procedure.

4.6 ACCIDENT AND INCIDENT REPORTING

Contractors shall promptly notify NEA's PIU and relevant agencies of any project-related incident or accident, including incidents involving death or significant injury, violence, protest, and disease outbreaks. NEA's PIU shall notify the World Bank no later than 48 hours after becoming aware of the incident or accident. The contractor shall conduct an appropriate investigation to identify the immediate, underlying, and root causes and shall prepare and implement a corrective action plan, agreed with NEA's PIU, to address the incident and prevent its recurrence. The investigation report and Corrective action plan shall be submitted to NEA's



PIU no later than 7 days after the initial notification. NEA's PIU shall submit the investigation report and corrective action plan to the World Bank no later than 10 days after receiving them from the contractor, unless another timeframe is agreed in writing.

4.7 WORKERS AND EMPLOYEES CODE OF CONDUCT

The Workers and Employees Code of Conduct will be prepared by NEA (PIU) and shall be shared with the Contractor prior to the preparation of the Contractor's ESMP. All workers and employees shall adhere to the Workers and Employees Code of Conduct from the time they commence work on the project until the completion of their assigned work. The Code of Conduct shall comply with all applicable GoN laws, regulations, standards, and other project requirements; follow occupational health and safety and environmental protection measures; maintain professional and respectful behavior; prevent discrimination, sexual exploitation and abuse (SEA), sexual harassment (SH), and violence; protect community health, safety, and property; properly manage waste and prevent pollution; and promptly report any accidents, unsafe conditions, environmental incidents, or violations to the designated supervisor or project management.

4.8 MONITORING PLAN

The Contractor's technical, environmental and social safeguards teams will be responsible for implementing the ESMP. Environment and social safeguard teams of the PIU and Consultant team will be responsible for overall monitoring of ESMP implementation during the subproject implementation phase. The monitoring activities will involve site inspections to verify the implementation of mitigation measures specified in the ESMP.





TABLE 27 : ENVIRONMENTAL AND SOCIAL MONITORING PLAN

SN	Issues	Means of Monitoring	Monitoring Location	Frequency	Responsibility		Remarks
					Implementation	Supervision	
1	Local employment	Review of workers record.	Contractor site office	Monthly	Contractor	PIU/Consultant	
2	Open pit hazard and localized erosion	Observation and inspection of mitigation measures activities	Construction Site office	Monthly	Contractor	PIU/Consultant	
3	Air quality	Observation, check logbooks of water spraying and vehicle servicing. Air quality monitoring using calibrated air quality monitoring equipment	Substation area	Annual	Contractor	PIU/Consultant	
4	Noise level	Observation and measurement using a digital sound meter	Construction site	Annual	Contractor	PIU/Consultant	
5	Waste management	Site observation. Check log book of waste collection and disposal.	Labor camp and construction site	Monthly	Contractor	PIU/Consultant	



SN	Issues	Means of Monitoring	Monitoring Location	Frequency	Responsibility		Remarks
		Record of waste bin and compost bin placed at labor camp and site.					
6	Water quality	Laboratory analysis	Drinking water of labor camp and site	Annual	Contractor	PIU/Consultant	
7	Electric hazard	Check incident record. Site inspection	Contractor site office and Construction site	Monthly	Contractor	PIU/Consultant	
8	Hazardous materials and chemical wastes	Site observation	Construction site	Monthly	Contractor	PIU/Consultant	
9	Conflict between the community and workers	Records of GRM, Consultation with community Records of training	Contractor site office, nearby settlements	Semi annual	Contractor	PIU/Consultant	
10	GRM and GBV/SEA/SH risk	GRM Records and interaction with workers	Construction site and contractor site	Monthly	Contractor	PIU/Consultant	



SN	Issues	Means of Monitoring	Monitoring Location	Frequency	Responsibility		Remarks
			office				
11	Occupational health and safety	Inspection of PPE use Records of accident and incident Records of OHS trainings	Construction site and contractor site office	Monthly	Contractor	PIU/Consultant	
12	Traffic Management plan	Site observation Records of community grievance related to traffic Consultation with local people	Construction site and contractor site office	Monthly	Contractor	PIU/Consultant	



4.9 ESTIMATED ENVIRONMENT AND SOCIAL MANAGEMENT PLAN AND MONITORING COST

Estimated ESMP implementation and monitoring cost has been presented in table below. The estimated cost includes mitigation measures to be implemented by the contractor and basic monitoring cost. The total estimated ESMP cost is NRs 16,50,000. Estimation is based on prevailing market rate and practice.

TABLE 28: ESMP IMPLEMENTATION AND MONITORING COST

SN	Budget Items	Unit	Rate (NRs.)	Total Amount (NRs)	Remarks
1	Nose level monitoring	2 (Times)	40000	80000	
2	Air quality monitoring:	2 (Times)	50000	100000	
3	Water sprinkling	LS	100000	1,00,000	The impact of dust and air pollution is expected to be insignificant. However, this budget has been allocated only to address dust and air pollution if any such impacts are observed during project implementation.
4	Waste management (Three-Color waste bins@4 Sets -12000, compost bins@2 sets - 6000, garbage, plastic and others- 12000, and municipality waste collection service fees @ 24 months 120000)	LS	150000	1,50,000	
5	Traffic management (including flags, whistles and traffic signage)	LS	25000	25,000	

SN	Budget Items	Unit	Rate (NRs.)	Total Amount (NRs)	Remarks
6	Awareness training to workers on work culture and environment, respecting the local people, culture, religion etc.	4 (Events)	25000	1,00,000	
7	Capacity Building Training for implementation of ESMP	4(Times)	25000	1,00,000	
8	Project-related information materials (Brochure, posters, flyers, media campaign) @ 500 pieces)	LS	25000	25,000	
9	Consultation meeting	8 (Events)	20000	1,60,000	
10	GRM implementation included regarding GBV, SEA SH related GRM (including stationery, meeting, communication, and other related costs)	LS	250000	250000	
11	Awareness training will be conducted for employees and workers on GBV, SEA/SH.	2 (Events)	25000	50,000	
12	OHS awareness training	8 (Events)	30000	2,40,000	
13	Awareness programs on STIs and communicable diseases	2 (Events)	25000	50,000	



SN	Budget Items	Unit	Rate (NRs.)	Total Amount (NRs)	Remarks
14	Water quality test	2(Times)	35000	70,000	
15	Contingency if any unforeseen E&S risks	LS		1,50,000	
Total				16,50,000.00	

Estimated By: NEA'S E&S Expert on the basis of prevailing market rate and practice.

5 STAKEHOLDER ENGAGEMENT AND INFORMATION DISSEMINATION

The Stakeholder Engagement Plan (SEP) has already been prepared. The stakeholder engagement plan defines a program for stakeholder engagement, including public information disclosure and consultation throughout the entire project cycle. The SEP outlines the ways in which the project team will communicate with stakeholders and includes a mechanism through which people can raise concerns, provide feedback, or make complaints about project activities or any activities related to the project. Stakeholder engagement supports transparency, promotes meaningful participation, addresses concerns, and builds trust among stakeholders throughout the project cycle.

5.1 COMMUNITY CONSULTATION

Community consultation is an important component of the SEP and is carried out throughout the project cycle. The consultation process provides opportunities for affected communities and other stakeholders to receive project information, express their views and concerns, provide feedback, and participate in discussions on issues that may affect them.

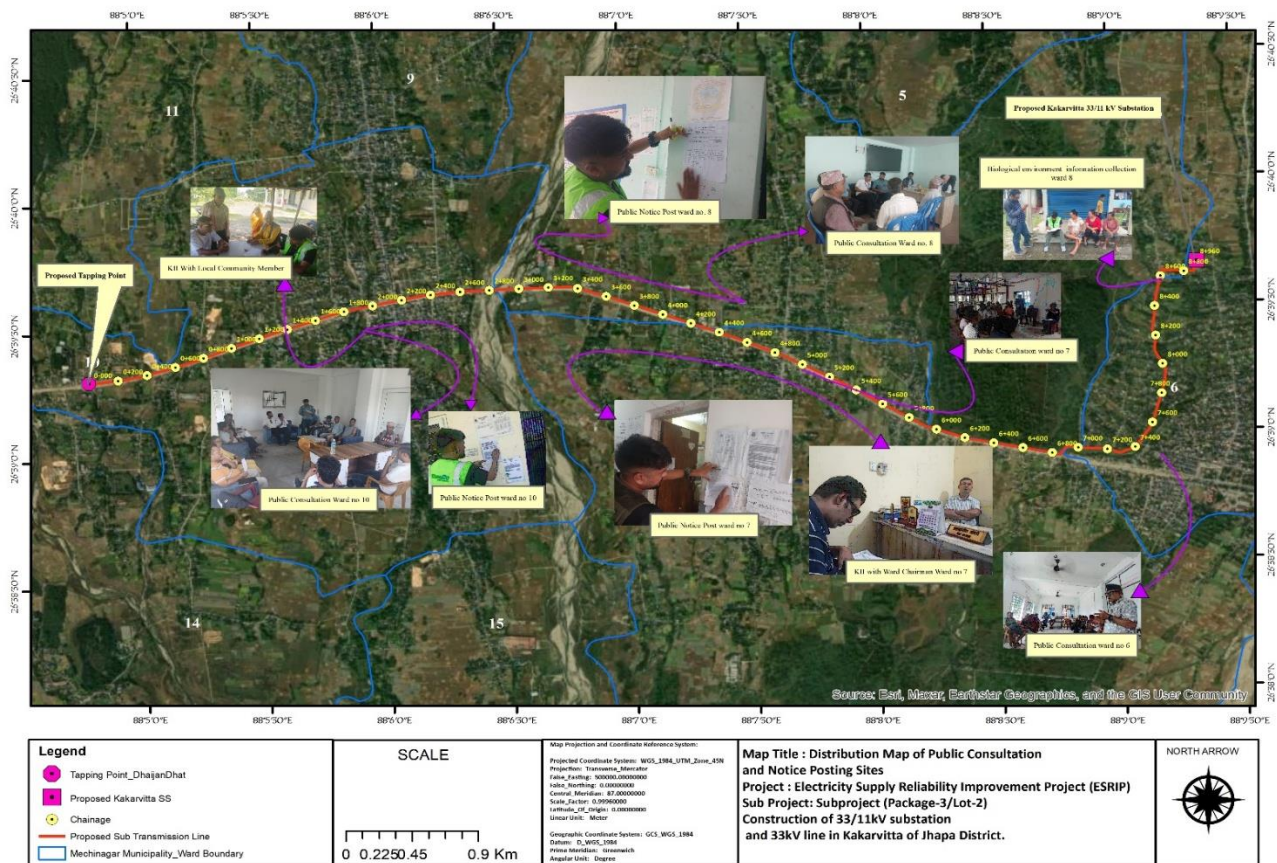


FIGURE 5: COMMUNITY CONSULTATION IN THE SUBPROJECT AREA

During the field visit for ESMP preparation, four community consultations and FGDs have been carried out at nearby settlements with the participation of local-level representatives. For the meetings, public notices have been posted on the notice boards of the ward offices of the project-affected Municipality, and the ward offices have also been requested to inform the local residents about the meetings and their participation. The details of community consultation, including suggestions and concerns of the local community are presented below in table.



TABLE 29: SUGGESTIONS, ISSUES AND COMMENTS RAISED BY THE COMMUNITY

Date	Location	Participants	Issues, comments and suggestions received	Addressed in ESMP Report	Remarks
July 22 2026	Ward no .7 office , Mechinagar Municipality (Ittabhatta)	15	- Project-related information was obtained from the experts and staff representing the project. - As the area is experiencing voltage-related problems, we request that the project be implemented as soon as possible. - The construction of this proposed sub-project will have the support and cooperation of stakeholders. - Local people should be given priority for employment opportunities during the project construction phase based on their skills and qualifications.	- Project objective - ESMP matrix A.1(Beneficial Augmentation Measures)	
July ,23 2026	Ward no 6 office , Mechinagar	22	Project-related information was obtained from the experts and staff representing the project.	- - Project	



Date	Location	Participants	Issues, comments and suggestions received	Addressed in ESMP Report	Remarks
	Municipality (Kakarvitta)		- We request that the project construction be commenced as soon as possible. - The project construction activities should be carried out in a manner that minimizes environmental and social impacts. - The construction of this proposed sub-project will have the support and cooperation of local people. - Local people should be given priority for employment opportunities during the project construction phase based on their skills and qualifications.	objective - In chapter 4 ESMP - ESMP matrix A.1(Beneficial Augmentation Measures)	



Date	Location	Participants	Issues, comments and suggestions received	Addressed in ESMP Report	Remarks
July ,23 2026	Ward no 10 office , Mechinagar Municipality (Dhulabari)	19	- Project-related information was obtained from the experts and staff representing the project. - The project construction activities should be carried out in a manner that minimizes environmental and social impacts. - As this area is experiencing low-voltage problems, the project is highly important. Therefore, the project should be commenced within the scheduled timeframe and completed on time. - Local people should be given priority for employment opportunities during the project construction phase based on their skills and qualifications.	- - In chapter 4 ESMP - Project objective - ESMP matrix A.1(Beneficial Augmentation Measures)	



Date	Location	Participants	Issues, comments and suggestions received	Addressed in ESMP Report	Remarks
July ,23 2026	Ward no 8 office ,Mechinagar Municipality	11	• Project-related information was obtained from the experts and staff representing the project. • The project should be commenced within the scheduled timeframe and completed on time. • The project construction activities should be carried out in a manner that minimizes environmental and social impacts. In addition, the impact mitigation measures specified in the Environmental and Social Management Plan (ESMP) should be strictly implemented. • During project construction, effective coordination should be maintained with the local community. In addition, local people should be given priority for employment	- • objective Project • 4 ESMP In chapter • In SEP and ESMP matrix A.1(Beneficial Augmentation Measures)	



Date	Location	Participants	Issues, comments and suggestions received	Addressed in ESMP Report	Remarks
			opportunities based on their skills and qualifications.		



5.2 INFORMATION DISSEMINATION

The stakeholder engagement and consultations are ongoing process and will be carried out continuously during the project construction phase. The stakeholder engagement and information dissemination process will be carried out as per the Stakeholder engagement plan. Project-related information, including environmental and social issues, will be disclosed during the engagement meetings and will also be distributed through brochures, leaflets, etc. The ESMP will be published on the NEA website.

5.3 GRIEVANCES REDRESS MECHANISM

Grievance Redress Mechanism has been established to receive and facilitate the resolution of issues or concerns and grievances raised by complainants. The main objective of a GRM is to assist in resolving complaints and grievances in a timely, effective, and efficient manner that satisfies all parties involved. GRM flow chart of this project is presented in below.

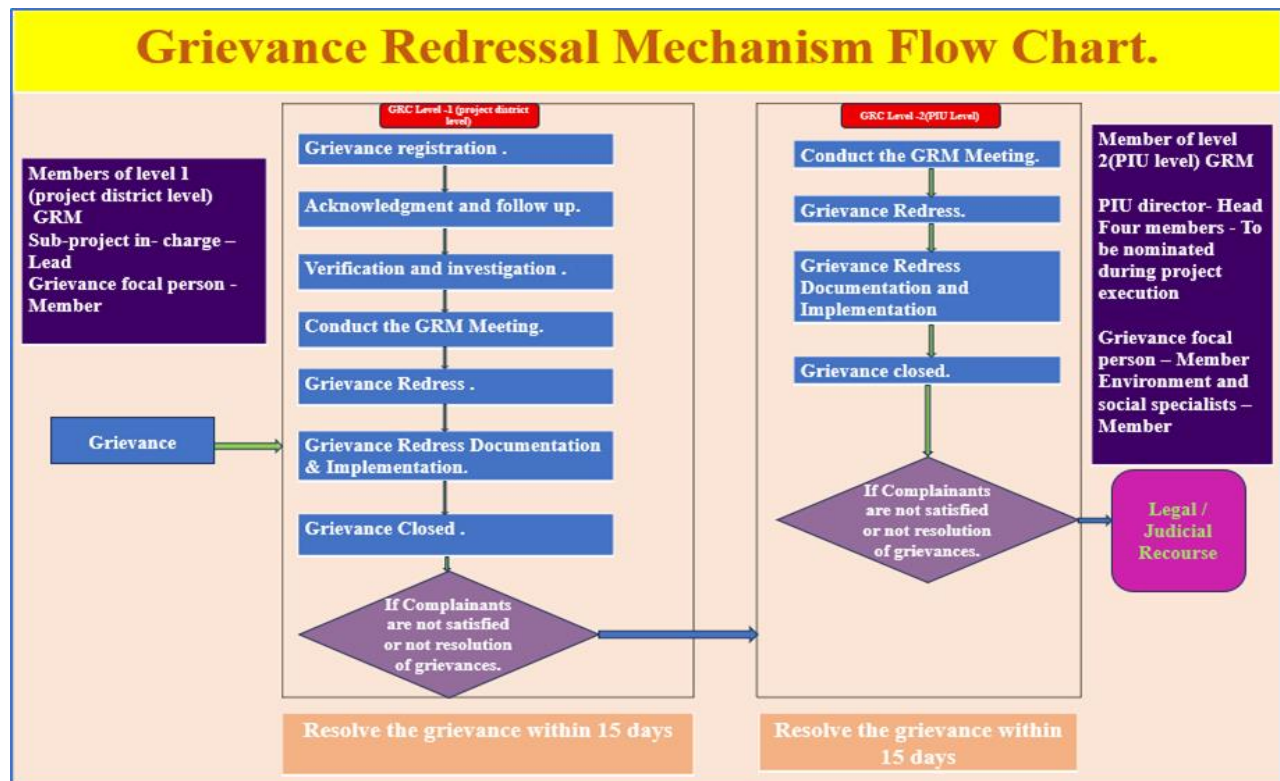


FIGURE 6: GRM FLOW CHART

Description of GRM

The two level GRM has been designed to be transparent and fair to redress the grievances of the project-affected personnel and community. The details operational procedure of the Grievance

Redress Mechanism (GRM) have been presented below.



TABLE 30: OPERATIONAL PROCEDURES OF GRM

Step	Description of Process	Time Frame	Responsibility
GM implementation structure	Grievance Committee at project District level: The first level (level 1) and most accessible and immediate venue for the fastest resolution of grievances will be the Sub-project Offices. This GRM Committee is led by the sub-project in- charge and supported by the grievance focal person. Any person with a grievance related to the project works can contact the grievance focal person, who will document the complaint and put all efforts to address. The GRM committee will resolve the issue within 15 days of receipt/registered of a complaint/grievance The grievance focal person will fully document the following information: (i) name of the person, (ii) date of complaint received, (iii) nature of the complaint, (iv) location of the complaint, and (v) how the complaint was resolved. If the complainants are not satisfied with decision made by the Sub-project GRM (Level 1) GRM, then complainants can appeal to		PIU and sub-project chief



Step	Description of Process	Time Frame	Responsibility
	the PIU level (Level 2) GRM within 15 days from the date of receiving of information about the decision. PIU level Grievance Committee: If the complainant cannot be resolved at the Level 1, or, if the complainants are not satisfied with the resolution, then they can appeal to this level 2. This level 2 will be headed by the Project Director and other four members. The committee is supported the grievance focal person and E&S Specialist. This level is supposed to resolve the grievances within 30 days of receiving the complaints from Level 1 or appeal of the complainants		
Grievance uptake	The grievance focal person will assist in filling out the complaint form (Annex 6) for complainants who are unable to read or write and/or are unfamiliar with the grievance process. The grievance focal person will formally register the grievance by filling out the grievance registration form provided in Annex 7. Upon receipt of the complaints, grievance focal person will provide a unique grievance		Local grievance focal points



Step	Description of Process	Time Frame	Responsibility
	number to each grievance for easy tracking		
Acknowledgment and follow-up	The grievance focal person will then acknowledge the receipt of the complaint through a phone call, text message, or a meeting with the complainant. The acknowledgment will include the grievance registration number so that the complainant can use this as a reference to track the status of the complaint either by visiting or calling the assigned staff. If the grievance is not well understood or if additional information is required, the assigned staff will contact the complainant during this step for further clarification.	Within 2 days of receipt	Local grievance focal points
Verification, investigation, action	The grievance is screened, and the significance of the grievance will be assessed within 5 days of receipt. If the grievance is admissible and related to the project or triggered by the sub-project activities, the Level 1 GRM will start processing the complaint. If not related to the project or not triggered by the sub-project, the grievance will be rejected, and reasons will be properly communicated to the complainant about the decision along with an explanation.	Within 15 working days	Local grievance focal points



Step	Description of Process	Time Frame	Responsibility
Monitoring and evaluation	Upon investigation, the committee will propose a resolution as soon as possible, and in consultation with the complainant and others concerned, not later than 15 days after registration/receive of the grievance at Level 1. The resolution is communicated to the complainant through the proper channel. The Level1 GRM committee will ask the complainant for a written acceptance of the resolution if he/she is satisfied with the resolution. In that case, the agreed set of actions will be implemented and once the set of actions is completed, the grievance will be formally closed by using a Grievance Closure Form provided in Annex 8.	Every six months	Local grievance focal points
Provision of feedback	Feedback from complainants regarding their satisfaction with complaint resolution is collected through the Beneficiaries Satisfaction Surveys	Three times in the Project lifecycle as per the CE	PIU
Training	Upon the commencement of the Project, the Bank in partnership with the PIU will undertake trainings on implementation of the SEP including the periodic stakeholder engagement, information disclosure, and	Within first quarter of the Project commencement	PIU



Step	Description of Process	Time Frame	Responsibility
	management of GRM to the sub-project officers and contractors.		

The GRM will provide appeals process if the complainant is not satisfied with the proposed resolution of the complaint. Once all possible means to resolve the complaint have been proposed and if the complainant is still not satisfied, then they should be advised of their right to legal recourse.

The project will have other measures in place to handle sensitive and confidential complaints, including those related to Sexual Exploitation and Abuse/Harassment (SEA/SH) in line with the World Bank ESF Good Practice Note on SEA/SH.

Though the Project does not include major civil works, requiring engaging many workers, it still will use limited number of workers for minor civil works. Given the low labor risks, the Project GRM will also be assigned to manage complaints related to workers and the Project will provide required skill training to the sub-project grievance focal person to manage workers' grievance. The World Bank and the Borrower do not tolerate reprisals and retaliation against project stakeholders who share their views about Bank-financed projects.

Anonymous Complaints System

The grievance box will be installed at the substation site and labor camp to receive anonymous complaints. The grievance box keys will be handled by the grievance focal person. If any allegation and complaint related to SEA/SH/GBV is received, the safety and well-being of SEA/SH survivor will be the first priority. The complaints will be registered in safe and confidential manner. The personal information of the survivor will be kept confidential. Any SEA SH/and GBV related complaint received, immediately inform to PIU. If it is determined that the case is related to SEA/SH or GBV, it will be immediately referred to the District One-Stop Crisis Management Centre (OCMC). The procedure will be implemented in accordance with the World Bank's Good Practice Note on addressing SEA SH/and GBV.



6 CONCLUSION

The proposed subproject sub-transmission line will be constructed in the RoW of existing roads, and the substation will be constructed in NEA-owned land. Consequently, the construction works are expected to have minimal temporary environmental and social impacts.

Based on the environmental and social assessment of the project and the identified environmental and social impacts, the project is expected to provide more beneficial than adverse impacts. The potential adverse impacts can be minimized and mitigated through the implementation of the mitigation measures outlined in the ESMP. Appropriate measures shall be taken to address any additional adverse impacts that may arise during project implementation.

Furthermore, during the consultation conducted for the ESMP in the settlements, local people requested that the work be started immediately and also committed to fully supporting the project.

Therefore, the proposed project is considered suitable for construction and operation with the implementation of the recommended mitigation measures as defined in this ESMP.



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- www.iucnredlist.org (Accessed on July 30, 2026)
- www.cites.org/eng/search (Accessed on August 2, 2026)



ANNEX 1: PUBLIC NOTICE FOR PUBLIC CONSULTATION.





Nepal Electricity Authority
(Undertaking of Government of Nepal)
Distribution & Technical Services Directorate
Planning and Technical Services Department
Electricity Supply Reliability Improvement Project

Phone: +977-1-4153153
E-mail: esrip@nea.org.np

च.न.: ०८९/८४/२

मिति: २०८३/०४/०५

श्री ०८९/८४/२
मेसिनर २.०१, ०१/०४

विषय: सूचना टाँस गरिदिने सम्बन्धमा ।

उपरोक्त सम्बन्धमा विश्व बैंकको ऋण सहयोगमा नेपाल विद्युत प्राधिकरणद्वारा प्रस्तावित इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत निर्माण गर्न लागिएको ३३/११ के.भि~~काठमाडौं~~.....सर्वेक्षण उपआयोजनाको वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) तयारिका लागि स्थानीय सरोकारवालाहरूसँग छलफल कार्यक्रम सम्बन्धी मिति समय र स्थान खुलाईएको संलग्न सार्वजनिक सूचना तहानै कार्यालयको सूचनापाटीमा टाँस गरिदिनुका साथै सम्बन्धित स्थानीय सरोकारवालाहरूलाई उपस्थितिका लागि जानकारी गराइदिनु अनुरोध छ ।

संलग्न: वातावरणीय तथा सामाजिक अध्ययन प्रतिवेदन तयारी सम्बन्धि सूचना - १


आयोजना प्रमुख
नारायण अर्याल



ANNEX 2: DEED OF PUBLIC NOTICE POSTING (MUCHULKA)



श्री नेपाल विद्युत प्राधिकरण
दरबारमार्ग काठमाण्डौ

विषय :- सूचना टाँस गरिएको सम्बन्धमा

प्रस्तुत विषयमा तहाँ कार्यालयको मिति: २०८२/४/६ च.नं. २२ को पत्र साथ प्राप्त इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्पुव्मेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत ... २०२७ प्रदेश ... २०७५ जिल्ला ... २०७५ गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका) मा निर्माण गर्न लागिएको ३३/११ के.भि. ... २०७५ सव्स्टेशन उपआयोजना वातावरणिय तथा सामाजिक व्यवस्थापन योजना (ESMP) तयारिका लागि स्थानीय सरोकारवालाहरु सँग छलफल कार्यक्रम सम्बन्धी मिति समय र स्थान खुलाईएको सार्वजनिक सूचना यस कार्यालयको सूचना पाटीमा मिति: २०८२/४/२ मा टाँस गरिएको ब्यहोरा अनुरोध छ ।

नाम: विमलदेव मुडा

पद: अस्ट लभिक

हस्ताक्षर:

कार्यालयको नाम: अस्ट र. ट को कार्यालय, नैमिगंगा ७-५८

कार्यालयको छाप

विमलदेव मुडा
वडा समिति



श्री नेपाल विद्युत प्राधिकरण
दरबारमार्ग काठमाण्डौ

विषय :- सूचना टाँस गरिएको सम्बन्धमा

प्रस्तुत विषयमा तहाँ कार्यालयको मिति: २०७३/०५/०९ को पत्र साथ प्राप्त इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गतकोशी..... प्रदेशकोशी..... जिल्लातेह्रथुम..... गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका) मा निर्माण गर्न लागिएको ३३/११ के.भितेह्रथुम..... सबस्टेशन उपआयोजना वातावरणिय तथा सामाजिक व्यवस्थापन योजना (ESMP) तयारिका लागि स्थानीय सरोकारवालाहरु सँग छलफल कार्यक्रम सम्बन्धी मिति समय र स्थान खुलाईएको सार्वजनिक सूचना यस कार्यालयको सूचना पाटीमा मिति: २०७३/०५/०९ मा टाँस गरिएको व्यहोरा अनुरोध छ।

नाम: सोमनाथ ओमा
पद: का.वा. वडा अध्यक्ष
हस्ताक्षर: 
कार्यालयको नाम: वडा नं १० सोमनाथ ओमा
कार्यालयको छाप: कार्यवाहक अध्यक्ष



श्री नेपाल विद्युत प्राधिकरण
दरबारमार्ग काठमाण्डौ

विषय :- सूचना टाँस गरिएको सम्बन्धमा

प्रस्तुत विषयमा तहाँ कार्यालयको मिति: २०७३/१४/४ च.नं. ०२ को पत्र साथ प्राप्त इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत कोशी प्रदेश २०१५१ जिल्ला १११८ गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका) मा निर्माण गर्न लागिएको ३३/११ के.भि. २०७३/१४/४ सव्स्टेशन उपआयोजना वातावरणिय तथा सामाजिक व्यवस्थापन योजना (ESMP) तयारिका लागि स्थानीय सरोकारवालाहरु सँग छलफल कार्यक्रम सम्बन्धी मिति समय र स्थान खुलाईएको सार्वजनिक सूचना यस कार्यालयको सूचना पाटीमा मिति: २०७३/०४/०६ मा टाँस गरिएको व्यहोरा अनुरोध छ।

नाम: खलित बहादुर लामा

पद: वडा अध्यक्ष

हस्ताक्षर:

कार्यालयको नाम:

कार्यालयको छाप

खलित बहादुर लामा
वडा अध्यक्ष
कोशी प्रदेश-६, भाग
ने. वि. प्रा. वि. कार्यालय
६ नं. वडा कार्यालय
कोशी प्रदेश, नेपाल

श्री नेपाल विद्युत प्राधिकरण
दरबारमार्ग काठमाण्डौ



विषय :- सूचना टाँस गरिएको सम्बन्धमा

प्रस्तुत विषयमा तहाँ कार्यालयको मिति: २०८३/०४/०४ च.नं. ...०४... को पत्र साथ प्राप्त इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत ...चौदरी... प्रदेश ...सगरमाथा... जिल्ला ...चौदरी... गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका) मा निर्माण गर्न लागिएको ३३/११ के.भि. ...चौदरी...सव्स्टेशन उपआयोजना वातावरणिय तथा सामाजिक व्यवस्थापन योजना (ESMP) तयारिका लागि स्थानीय सरोकारवालाहरु सँग छलफल कार्यक्रम सम्बन्धी मिति समय र स्थान खुलाईएको सार्वजनिक सूचना यस कार्यालयको सूचना पाटीमा मिति: २०८३/०६/०२ मा टाँस गरिएको व्यहोरा अनुरोध छ।

नाम: प्रकाश मणी आर्जे

पद: एसि अध्यक्ष

हस्ताक्षर: प्रकाश मणी आर्जे

कार्यालयको नाम: एसि ३.६ सँग चौदरी - ३३/११ के.भि.

कार्यालयको छाप: एसि अध्यक्ष



क्र.सं.	नाम	ठेगाना	पेशा/पद	सम्पर्क नम्बर / हस्ताक्षर
११)	श्रीवीरदे कटेल	"	कृषि	९३५५९६४८३ श्रीवीरदे
१२)	शंखलाल चौधरी	"	कृषि	९८२५९६६०५१ शंखलाल
१३)	पद्मकेशपुर कटवल	"	कृषि	९८६३६८८८०
१४)	दिनेश राजवंशी	"	कृषि	९८०६५१५६८१० दिनेश
१५)	शैलराज आरती	"	न्याय	९८०२१०२१०५ शैलराज
१६)	माधव कुमार	"	रजिनीश	९८२२६२४४४४
१७)	राकेश पावल	श्रीविला	श्री केश प्रमुख	९८६२९५०५२५ राकेश
१८)	अर्जुन खत्री	श्री. वि. प्र.	इंजिनियर	९८६१५३३५७९ अर्जुन
१९)	छपी प्रसाद चौधरी	श्री. वि. प्र.	"	९८५१२६५१० छपी
२०)	रमेश च पांडे	"	नाना/नाना	९८६५६५६५७ रमेश
२१)	रमेश च पांडे	"	समाजिक कार्य	९८६५६५६५७ रमेश

Electricity Supply Reliability Improvement Project आयोजना अन्तर्गत प्रस्तावित ३३/११ केभी काँकरभिट्टा सबस्टेशन निर्माणको वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) प्रतिवेदन तयारीको सिलसिलामा स्थानीय सरोकारवालाहरूसँग गरिएको छलफलको माध्यमबाट

राय सुझाव

१. आयोजनाको आउत-चलनेको कम्प्यासी तथा विमलबुद्धा सडक आयोजनाको वीरमा जलवाही फाल्नु पर्ने।
२. सडक सहायता सडक रोडको सुदृष्टता गराउने।
३. पक्का बिछ आयोजना निर्माण गर्ने सुदृष्टता गर्ने।
४. सडक आयोजना निर्माणको स्थानीयमा वाबिन्दको साथ र सहयोग रहने हो।
५. आयोजनाको निर्माण-चरणमा बिपर बसतावा आधुनिक स्थानीय वाबिन्दको रोजगारीमा फायदा पुर्याउने।

(Signatures and stamps)

राय सुझाव

विमल

50/11



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Electricity Supply Reliability Improvement Project अन्तर्गत प्रस्तावित
 ३३/११ के.वी. काठमाडौं जिल्लाको वातावरणीय तथा सामाजिक व्यवस्थापन
 योजना (ESMP) प्रतिवेदन तयारीको सिलसिलामा स्थानीय सरोकारवालाहरूसँग गरिएको छलफलको
 माडन्युट

नेपाल विद्युत प्राधिकरण प्रस्तावक रहेको "Electricity Supply Reliability Improvement
 Project अन्तर्गत प्रस्तावित ३३/११ के.वी. काठमाडौं जिल्लाको वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP)" तयारीका लागि आउनु भएका
 कर्मचारी/विज्ञ रेवेल व. सुब्बा, हेमव अधिकारी, भुवि लामा, रे
स. कर्कोन खतिवडा उपस्थितिमा आज मिति २०८३/४/६ गते
 ...काठमाडौं जिल्ला, मेचीनगर नगरपालिका/गाउँपालिका वडा
 ...६ मा अवस्थित ३३/११ के.वी. प्रस्थानमा निम्नानुसारका व्यक्तित्वहरु सँग छलफल
 गरी राय सुझाव संकलन गरियो।

उपस्थिति

क्र.सं.	नाम	ठेगाना	पेशा/पद	सम्पर्क नम्बर/ हस्ताक्षर
१)	ललित बहादुर लामा	मेची नगर वडा नं. ६	नडध्याका	९८५२६३२११०
२)	ललिता प्रधान	"	बुटि	ललिता
३)	पुष्पलका चौधरी	"	व्यावसायिक (लिटी चालक)	९८२६९२३६८३ २५ फेब्रु २०१५
४)	कैलाश अधिकारी	"	कृषि	९८१६९६६२२१ कैलाश
५)	कादम्बी शर्मा पौड्याली	"	कृषि	९८२७९५९०५ कादम्बी
६)	अरुण प्रधान सिङ्गल	"	"	९८५२६३६९३३ अरुण
७)	राजिव लेखी	"	स्वाधीन चालक	९८२३९३३८११
८)	रमेश कुमार खत्री	"	बुटि	९८२६९५२२० रमेश
९)	पान्ना सिंह लामा	"	कृषि	९७१३११५०३३ पान्ना
१०)	धुव कुमाल राई	"	वडा लडलवा	९८२७०५१२९



क्र.सं.	नाम	ठेगाना	पेशा/पद	सम्पर्क नम्बर/ हस्ताक्षर
90	विठ्ठल पुद्गात	मिर्ची ग. पा. नं. 1-2-3	मोल्दी	मिर्ची 15-2 9806072330
92	जगत बहादुर मल्ल, माल	"	कृषि	9806072330
93	संजय लाल	"	"	9806072330
94	लाल गोपाल	"	कृषि	9806072330
95	इन्दिरा लाल लाल	"	"	9806072330
96	सुनीता अद्वैत	"	कृषि	9806072330
97	डे. ए. के. ला. 36	डे. जे. ला.	वि. ला. ला. वि. ला.	9806072330
98	सु. प्रसाद पोषाण	"	वि. ला. ला. वि. ला.	9806072330
99	अर्जुन अवस्थी	डे. जे. ला.	वि. ला. ला. वि. ला.	9806072330
100	अश्विनी गोपाल	"	वि. ला. ला. वि. ला.	9806072330
101	अश्विनी राज पुष्पा	डे. जे. ला. 36	वि. ला. ला. वि. ला.	9806072330
102	हरिज अश्विनी	डे. जे. ला.	वि. ला. ला. वि. ला.	9806072330

Electricity Supply Reliability Improvement Project आयोजना अन्तर्गत प्रस्तावित ३३/११
केभी कार्करविट्टा सबस्टेशन निर्माणको यातायातणीय तथा सामाजिक कम्युनियम योजना (ESMP)
प्रतिवेदन समायोक्त सिलसिलामा स्थानीय सरोकारवालाहरूसँग गरिएको छलफलको माध्यमबाट

राय सुझाव

- १। आयोजनाबाट आएको शोरमा कार्करविट्टा तथा सिद्धपुरा संवेदित।
स्वस्थता आयोजनाको क्षेत्रमा प्रभावकारी प्रभाव पर्नेछ।
- २। मध्य आयोजना बिच प्रभावित गर्ने क्षेत्रहरू गरिने।
- ३। मध्य आयोजना निर्माण गर्दा वातावरणीय तथा सामाजिक
प्रभावहरू मध्य क्षेत्रको निर्माण गर्नु पर्ने।
- ४। मध्य आयोजना निर्माणमा समीक्षा गर्ने।
सही वातावरण र समर्थन गर्ने हो।
- ५। आयोजना निर्माणको सम्पन्मा स्थानीय बासिन्दा लर्ने
संलग्नको सम्पन्मा हुनु पर्ने।

मार्ग सुझाव

अध्यक्ष
सचिव

लागू

सिद्धान्त

सुमित्रा
मान

सिद्धान्त

सिद्धान्त

सिद्धान्त



Electricity Supply Reliability Improvement Project अन्तर्गत प्रस्तावित
 ...को वातावरणीय तथा सामाजिक व्यवस्थापन
 योजना (ESMP) प्रतिवेदन तयारीको सिलसिलामा स्थानीय सरोकारवालाहरूसँग गरिएको छलफलको
 माइन्सुट

नेपाल विद्युत प्राधिकरण प्रस्तावक रहेको "Electricity Supply Reliability Improvement
 Project अन्तर्गत प्रस्तावित ...को
 वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP)" तयारीका लागि आउनु भएका
 कर्मचारी/विज ...
 ...उपस्थितिमा आज मिति २०८३/१४/०६ गते
 ... जिल्ला, ... नगरपालिका/गाउँपालिका वडा
 ... मा अवस्थित ... स्थानमा निम्नानुसारका व्यक्तित्वहरूसँग छलफल
 गरी राय सुझाव संकलन गरियो।

उपस्थिति

क्र.सं.	नाम	ठेगाना	पेशा/पद	सम्पर्क नम्बर/ हस्ताक्षर
१)	सौ. ज्ञानेश्वर चौधरी	मैची. न. पा. का. ग. १०	का. वडा अध्यक्ष	९८५२६३३३०
२)	शिव शम्शेर	"	उपमेवा	९८५२६३३२
३)	लक्ष्मण बाग्रीपा	"	बापा	९८५२६३३०
४)	समान राम शम्शेर	"	बापा	९८५२६३३३
५)	धर्मेश्वर खड्का	"	"	९७५९२५१३१३
६)	अमरेश्वर खड्का	"	कृषि	९८२८०३६३३३
७)	पुष्पा शम्शेर	"	बापा	९८५२६३३२२
८)	जानक शम्शेर	"	वडा सदस्य (महिला समिति)	९८५२६३३२६६१
९)	कृष्ण खड्का	"	बापा	९८५२६३३३०
१०)	कामेश्वर शम्शेर	"	कृषि	९८५२६३३३३

क्र.सं.	नाम	ठेगाना	पेशा/पद	सम्पर्क नम्बर/ हस्ताक्षर
११)	कृष्ण पटेल	मैत्री नं. पा. वडा नं. १०	कृषि	९८०५१०७०३२ ००००
१२)	चरणार्थ मोहान	नै. वि. प्र.	वि. प्र.	९८५२६८१५३० १२५
१३)	देवेंद्र वे. लाडक	ने. वि. प्र.	वि. प्र.	९८५५५३२८९९ १२५
१४)	सूर्य. प्र. लाडक	नै. वि. प्र.	वि. प्र.	९८५१२६५० १२५
१५)	अर्जुन अखतकिडा	"	"	९८६१५३५७३ १२५
१६)	विष्णु दहल	मैत्री नं. पा. वडा नं. १०	लापर	९८१५०८१३३३ १२५
१७)	राहुन सापकाडा	"	"	९८५२६५५६० १२५
१८)	मलीला कुजगल	"	कृषि	९७६५५७११६३ १२५
१९)	हरम अखिकरी	ने. वि. प्र.	वि. प्र.	९८५५०७२७५० १२५

9. बेदाल विधुत पाकिस्तान तार पाल्नाला विहा लया
कोयादी वाड ३३/११ के.मी माडमिता लवरेलन लया जोडीलो
३३/११ के.मी लव-डाउमिलन लवरेलन को वरेलन लवमिता रुपना जानबाद
माल लया!

उ. यह है Low Voltage को लपटा वोल्टेज का प्रोडन
एक ही महत्वपूर्ण है। यह का प्रोडन निर्माण लपटा
यह है लपटा लपटा इतना।

४. - आद्रोशन। निर्माण धरन मा स्थानिय लार्ड
सिप, उपला र यशना का आवाजा। सेवगारी का
अचल हस्ता प्रपदीकल। विनु पर्ष ।

Handwritten signatures and initials on lined paper:

- Top left: *Jan*
- Top center: *St. M. A. G.*
- Top right: *the*
- Middle left: *Jan*
- Middle center: *Jan*
- Middle right: *Jan*
- Bottom left: *Jan*
- Bottom center: *Jan*
- Bottom right: *Jan*

Electricity Supply Reliability Improvement Project अन्तर्गत प्रस्तावित

.....को वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP) प्रतिवेदन तयारीको सिलसिलामा स्थानीय सरोकारवालाहरूसँग गरिएको छलफलको

माइन्सुट

नेपाल विद्युत प्राधिकरण प्रस्तावक रहेको "Electricity Supply Reliability Improvement Project अन्तर्गत प्रस्तावितको वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP)" तयारीका लागि आउनु भएका कर्मचारी/विज्ञको उपस्थितिमा आज मिति २०८३/४/१६ गते जिल्ला, नगरपालिका/गाउँपालिका वडा मा अवस्थित स्थानमा निम्नानुसारका व्यक्तित्वहरु सँग छलफल गरी राय सुझाव संकलन गरियो।

उपस्थिति

क्र.सं.	नाम	ठेगाना	पेशा/पद	सम्पर्क नम्बर / हस्ताक्षर
१)	गिरीराज धमला	मैथी नगरपालिका वडा नं. ८	बडा इन्जिनियर	९८६१५०२५०८
२)	पुष्प प्रसाद कुवेर	"	सेना निवृत्त शिक्षक	९८५२८५३६२५
३)	विमोद अदराल	"	समाजसेवा	९८५२८५००८६
४)	हर्क कटाल अदराल	"	कृषक	९८०५९२३३५७
५)	पुर्ण अदराल	"	कृषक	९८२६०१५३५०
६)	बमोद प्रसाद क्षेत्री	"	"	९७१३५११६००
७)	लोकमान्य खतिवडा	"	कृषि	९८२५७३५०५
८)	संतोष तिमिल्सिना	"	"	९८५५६३५३२३
९)	कैलाश साउद	कै.वि.प्र.	कक्षावका विज्ञ	९८६३६३२८१५
१०)	अर्जुन खत्री	कै.वि.प्र.	इन्जिनियर	९८६११५३४७९
११)	लोकमान्य	कै.वि.प्र.	स.या.	९८५२८५३५३०

Electricity Supply Reliability Improvement Project आयोजना अन्तर्गत प्रस्तावित ३३/११

केभी काँकरभिडा सबस्टेशन निर्माणको वातावरणीय तथा सामाजिक व्यवस्थापन योजना (ESMP)

प्रतिवेदन तयारीको सिलसिलामा स्थानीय सरोकारवालाहरूसँग गरिएको छलफलको माइन्सुट

राय सुझाव

- १- नेपाल विद्युत प्राधिकरण वट बामुगाए, काँकरभिटामा किडो बट १३/११ केभी
डाक्टरिता सुवेला र ओडीको सब इन्जनीज लइन बायोमा डीवेला बायोमा
बायोमा र बायो बायोमा निर्माण मा स्थानीय के यो निर्माण र बायोमा
- २- बायोमा निर्माण बायोमा निर्माण मा निर्माण मा निर्माण होला।
- ३- बायोमा निर्माण इन्ज बायोमा वातावरणीय र बायोमा निर्माण
इन्ज बायोमा निर्माण इन्ज बायोमा निर्माण बायोमा निर्माण बायोमा

- ४- बायोमा निर्माण बायोमा निर्माण बायोमा निर्माण बायोमा निर्माण

Handwritten signatures and stamps are present in this section, including a circular official stamp of the project.

ANNEX 4: GRM INFORMATION LETTER TO LOCAL LEVEL.





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(Undertaking Government of Nepal)
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च.नं: ०८३/८४: १

मिति: २०८४/०४/०४

विषय: गुनासो निवारण संयन्त्र गठन भएको सम्बन्धमा ।

उपरोक्त सम्बन्धमा विश्व बैंकको ऋण सहयोगमा नेपाल विद्युत प्राधिकरण द्वारा प्रस्तावित इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत निर्माण गर्न लागिएको ३३/११ के.भि सबस्टेशन उपआयोजना अन्तर्गत निर्माण हुने ३३/११ केभी सबस्टेशन तथा ३३ केभी विद्युत लाईन निर्माणका क्रममा स्थानीय तथा सरोकारवालाहरुको निर्माण कार्य सम्बन्धी गुनासो भए सोको सम्बोधनका लागि गुनासो निवारण संयन्त्र गठन गरिएको व्यहोरा सम्बन्धित सबैलाई यसै सूचना मार्फत जानकारी गराइन्छ । यस कार्यसंग सम्बन्धित गुनासोहरु तपशिल उल्लिखितहरुमा जनकारी गराउन सकिनेछ ।

तपशिल

निर्माण कार्य हुने स्थानको गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका को कार्यालय ।

सम्बन्धित वडा कार्यालय ।

आयोजनाको स्थानीय कार्यालय ।

आयोजनाको कार्य हुने स्थानको नेपाल विद्युत प्राधिकरणको वितरण केन्द्र ।

आयोजनाको सामाजिक तथा वातावरण युनिटका अधिकारीहरु ।

(टेकेन्द्र बा. साउद ९८६९६३२८१९ र हेरम्ब अधिकारी harambadhikari@gmail.com)

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आयोजना प्रमुख
नारायण अर्याल



**ANNEX 5: REGISTERED GRM INFORMATION LETTER SUBMITTED TO THE CONCERNED LOCAL
LEVEL OFFICE**





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च.नः ०८३/८४: १

मिति: २०७१/०३/०३

महोदय: श्री. रमेश शर्मा
जम्मागट १.५१, ६ म.प.प.

दस्तावेज नं. ४६
२०८५/१६

विषय: गुनासो निवारण संयन्त्र गठन भएको सम्बन्धमा।

उपरोक्त सम्बन्धमा विश्व बैंकको ऋण सहयोगमा नेपाल विद्युत प्राधिकरण द्वारा प्रस्तावित इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत निर्माण गर्न लागिएको ३३/११ के.भि. सव्स्टेशन उपआयोजना अन्तर्गत निर्माण हुने ३३/११ के.भि. सव्स्टेशन तथा ३३ के.भि. विद्युत लाईन निर्माणका क्रममा स्थानीय तथा सरोकारवालाहरूको निर्माण कार्य सम्बन्धी गुनासो भए सोको सम्बोधनका लागि गुनासो निवारण संयन्त्र गठन गरिएको ब्यहोरा सम्बन्धित सवैलाई यसै सूचना मार्फत जानकारी गराइन्छ। यस कार्यसँग सम्बन्धित गुनासोहरू तपशिल उल्लिखितहरूमा जनकारी गराउन सकिनेछ।

तपशिल

निर्माण कार्य हुने स्थानको गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका को कार्यालय।

सम्बन्धित वडा कार्यालय।

आयोजनाको स्थानीय कार्यालय।

आयोजनाको कार्य हुने स्थानको नेपाल विद्युत प्राधिकरणको वितरण केन्द्र।

आयोजनाको सामाजिक तथा वातावरण युनिटका अधिकारीहरू।

(टेकेन्द्र बा. साउद ९८६९६३२८१९ र हेरम्ब अधिकारी harambadhikari@gmail.com)

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आयोजना प्रमुख
नारायण अर्याल





१०८-४६
२०८३/०८

Nepal Electricity Authority
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च.न.: ०८३/०८: १

मिति: २०८३/०८/०४

श्री ६-१ वडा कार्यालय
मेची नगरपालिका, झापा

विषय: गुनासो निवारण संयन्त्र गठन भएको सम्बन्धमा ।

उपरोक्त सम्बन्धमा विश्व बैंकको ऋण सहयोगमा नेपाल विद्युत प्राधिकरण द्वारा प्रस्तावित इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत निर्माण गर्न लागिएको ३३/११ के.भि सबस्टेशन उपआयोजना अन्तर्गत निर्माण हुने ३३/११ के.भि सबस्टेशन तथा ३३ के.भि विद्युत लाईन निर्माणका क्रममा स्थानीय तथा सरोकारवालाहरूको निर्माण कार्य सम्बन्धी गुनासो भए सोको सम्बोधनका लागि गुनासो निवारण संयन्त्र गठन गरिएको व्यहोरा सम्बन्धित सबैलाई यसै सूचना मार्फत जानकारी गराइन्छ । यस कार्यसँग सम्बन्धित गुनासोहरू तपशिल उल्लिखितहरूमा जानकारी गराउन सकिनेछ ।

तपशिल

निर्माण कार्य हुने स्थानको गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका को कार्यालय ।

सम्बन्धित वडा कार्यालय ।

आयोजनाको स्थानीय कार्यालय ।

आयोजनाको कार्य हुने स्थानको नेपाल विद्युत प्राधिकरणको वितरण केन्द्र ।

आयोजनाको सामाजिक तथा वातावरण युनिटका अधिकारीहरू ।

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आयोजना प्रमुख
नारायण अर्याल





Nepal Electricity Authority

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च.न.: ०८३/८४: १

दि. ११.०५.२०२३

सिद्धि, नैमिगिर १.५५ बमिप

मिति: २०८३/०४/०४
६/४/०२२

नेचीनगर नगरपालिका
१० नं. वडा कार्यालय, बुलाबारी
दर्ता नं.: ६५
दर्ता मिति: २०८३/४/०४

विषय: गुनासो निवारण संयन्त्र गठन भएको सम्बन्धमा।

उपरोक्त सम्बन्धमा विश्व बैंकको ऋण सहयोगमा नेपाल विद्युत प्राधिकरण द्वारा प्रस्तावित इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत निर्माण गर्न लागिएको ३३/११ के.भि सव्स्टेशन उपआयोजना अन्तर्गत निर्माण हुने ३३/११ केभी सव्स्टेशन तथा ३३ केभी विद्युत लाईन निर्माणका क्रममा स्थानीय तथा सरोकारवालाहरूको निर्माण कार्य सम्बन्धी गुनासो भए सोको सम्बोधनका लागि गुनासो निवारण संयन्त्र गठन गरिएको ब्यहोरा सम्बन्धित सवैलाई यसै सूचना मार्फत जानकारी गराइन्छ। यस कार्यसंग सम्बन्धित गुनासोहरू तपशिल उल्लिखितहरूमा जानकारी गराउन सकिनेछ।

तपशिल

निर्माण कार्य हुने स्थानको गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका को कार्यालय।

सम्बन्धित वडा कार्यालय।

आयोजनाको स्थानीय कार्यालय।

आयोजनाको कार्य हुने स्थानको नेपाल विद्युत प्राधिकरणको वितरण केन्द्र।

आयोजनाको सामाजिक तथा वातावरण युनिटका अधिकारीहरू।

(टेकेन्द्र बा. साउद ९८६९६३२८१९ र हेरम्ब अधिकारी harambadhikari@gmail.com)

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आयोजना प्रमुख
नारायण अर्याल





Nepal Electricity Authority
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च.न.: ०८३/८४: १

मिति: २०८३/०४/०४

०८३/८४: १

सिमाना, ने १०/१५ १-५५ मीटर

श्री सुभाष राय जोशी

०८३/८४: १
०८३/०४/०४

विषय: गुनासो निवारण संयन्त्र गठन भएको सम्बन्धमा।

18/04/2083
२०८३/०४/०४

उपरोक्त सम्बन्धमा विश्व बैंकको ऋण सहयोगमा नेपाल विद्युत प्राधिकरण द्वारा प्रस्तावित इलेक्ट्रिसिटी सप्लाई रिलायबिलिटी इम्प्रुवमेन्ट आयोजना (ESRIP) को प्याकेज-३ अन्तर्गत निर्माण गर्न लागिएको ३३/११ के.भि. सव्स्टेशन उपआयोजना अन्तर्गत निर्माण हुने ३३/११ केभी सव्स्टेशन तथा ३३ केभी विद्युत लाईन निर्माणका क्रममा स्थानीय तथा सरोकारवालाहरुको निर्माण कार्य सम्बन्धी गुनासो भए सोको सम्बोधनका लागि गुनासो निवारण संयन्त्र गठन गरिएको ब्यहोरा सम्बन्धित सबैलाई यसै सूचना मार्फत जानकारी गराइन्छ। यस कार्यसँग सम्बन्धित गुनासोहरु तपशिल उल्लिखितहरुमा जनकारी गराउन सकिनेछ।

तपशिल

निर्माण कार्य हुने स्थानको गाउँपालिका/ नगरपालिका/ उपमहानगरपालिका/ महानगरपालिका को कार्यालय।

सम्बन्धित वडा कार्यालय।

आयोजनाको स्थानीय कार्यालय।

आयोजनाको कार्य हुने स्थानको नेपाल विद्युत प्राधिकरणको वितरण केन्द्र।

आयोजनाको सामाजिक तथा वातावरण युनिटका अधिकारीहरु।

(टेकेन्द्र बा. साउद ९८६९६३२८१९ र हेरम्ब अधिकारी harambadhikari@gmail.com)

आयोजना प्रमुख। (Email: esrip@nea.org.np)

आयोजना प्रमुख
नारायण अर्याल



ANNEX 6: SAMPLE GRIEVANCE FORM

Grievance Form				
Grievance registration no.				
Date of registration				
Details of complainant:		☐ (Tick the box for anonymity)		
Name:				
First Name	Middle name	Last name		
Gender:				
☐ Male	☐ Female	☐ Others		
Address:				
Province	District	Municipality	Ward No.	Name of place
Contact details:				
Primary mobile no.			Email	
Secondary mobile no.			Facebook	
Preferred mode of contact: _____				
Brief description of grievance				
Mode of submission of grievance:				
☐ Verbal	☐ Written	☐ Complaint Box	☐ Phone	☐ Email ☐ Others
----- Signature of Complainant		----- Signature of Grievance Officer		



ANNEX 7: SAMPLE GRIEVANCE REGISTRATION TEMPLATE

No	Date of receiving incoming letter / form	Grievance Reference Number	Name / Surname of grievance originator (if not anonymous)	Gender	Type of grievance	Details of grievance	Medium of comm.	Name of staff responsible for managing the grievance	Date of grievance acknowledgement	Date of feedback provision/reference number	Present status	Remarks
1												
2												
3												
4												
5												
6												
7												
8												
9												



ANNEX 8: SAMPLE GRIEVANCE CLOSURE FORM

Grievance Closure Form Resolution	
Grievance Number	
Grievance registered date	
Short describe the of the grievance	
Short describe the of the resolution	
Department: Mode of communication for the reply (meeting/ written/ verbal/ display): Date closed:	
Signatures	
Complainant: Project representative: Date:	



ANNEX 9: WATER QUALITY ANALYSIS REPORT.





**ENVIRONMENT MANAGEMENT
&
ANALYSIS SERVICES P. LTD**

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Dillibazar - 29, Sarbochcha Galli, Kathmandu, Nepal
Contact No.: +977 9851126060
Email: emas@emas.com.np, emasenv@gmail.com

Water Quality Analysis Report

Water Quality Analysis Report

Report No	: 04/W/083-84	Sampling date	: 25 - 07 - 2026
Sample No.	: 04-W/082/83	Received date	: 25 - 07 - 2026
Sample source	: City Supply (Kakarvitta Drinking Water)	Completion date	: 04 - 08 - 2026
Client	: Nepal Electricity Authority /ESRIP/PIU	Sampled by	: Client
Address	: Mechinagar Municipality, Ward No.6		
Project	: Electricity Supply Reliability Improvement Project (ESRIP)		
Sub project	: Subproject (Package-3/Lot-2) Construction of 33/11kV substation and 33kV line in Kakarvitta of Jhapa District		
GPS	: 26°39'39.93"N, 88° 9'23.12"E		

Parameters	Unit	NDWQS	Observed Values	Test Methods
pH	-	6.5 - 8.5	6.7	4500-H ⁺ B, APHA, 22nd EDITION
Colour	-	5 (15)	0.53	2120 B, APHA, 22 nd EDITION
Turbidity	NTU	5 (10)	1.3	2130 B, APHA, 22nd EDITION
Electrical Conductivity	µS/cm	1500	394.0	2510 B, APHA, 22nd EDITION
Total Dissolved Solids	mg/l	1000	236.0	2540 C., APHA, 22nd EDITION
Total Hardness	mg/l as CaCO ₃	500	121.52	2340 C, APHA, 22nd EDITION
Calcium	mg/l	200	93.06	3500 - Ca B, APHA, 22nd EDITION
Chloride	mg/l	250	5.35	4500-Cl ⁻ B, APHA, 22nd EDITION
Ammonia	mg/l	1.5	0.04	4500-NH ₃ C., APHA, 17 th EDITION
Iron	mg/l	0.3 (3)	0.04	3112 B., APHA, 22nd EDITION
Manganese	mg/l	0.2	<0.02	3112 B., APHA, 22nd EDITION
Total Coliform	CFU/100 ml	Nil	Nil	9221 C., APHA, 22nd EDITION
E.Coli	CFU/100 ml	Nil	Nil	9221 C., APHA, 22nd EDITION

NDWQS: National Drinking Water Quality Standard (2079), * - Values are upper and lower limit, () - Values are acceptable only when alternative is not available. BDL: Below Detection Limit

Remarks: Observed values of the specified parameters are within the limit of NDWQS.

Analysed by

Checked by

Authorized Signature

**Environment Management
&
Analysis Services P. Ltd**





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Water Quality Analysis Report

Report No	: 05/W/083-84	Sampling date	: 25 - 07 - 2026
Sample No.	: 05-W/082/83	Received date	: 25 - 07 - 2026
Sample source	: Kali Khola	Completion date	: 04 - 08 - 2026
Client	: Nepal Electricity Authority /ESRIP/PIU	Sampled by	: Client
Address	: Mechinagar Municipality, Ward No.6		
Project	: Electricity Supply Reliability Improvement Project (ESRIP)		
Sub project	: Subproject (Package-3/Lot-2) Construction of 33/11kV substation and 33kV line in Kakarvitta of Jhapa District		
GPS	: 26°39'39.93"N, 88° 9'23.12"E		

Parameters	Unit	Generic Standard*	IFC**	Observed Values	Test Methods
pH	-	5.5 - 9	6-9	7.2	4500-H ⁺ B, APHA, 22nd EDITION
Total Suspended Solids	mg/l	200	50.0	11.0	2540 D, APHA, 22nd EDITION
BOD	mg/l	100	30.0	11.4	5210 B, APHA, 22nd EDITION
COD	mg/l	250	125.0	18.5	5220 B, APHA, 22nd EDITION
Oil & Grease	mg/l	10	10.0	<1.0	5520 B, APHA, 17 th EDITION
Phenol	mg/l	1	1.0	<0.01	5530 D, APHA, 22nd EDITION
Ammonia	mg/l	50	-	0.06	4500-NH ₃ C, APHA, 17 th EDITION
Total Chlorine	mg/l	1.0	-	<1.0	4500-Cl G, APHA, 22 nd EDITION
Fluoride	mg/l	2.0	-	<0.02	4500F- D, APHA, 22 nd EDITION
Sulphide	mg/l	2.0	-	<0.2	4500-S ²⁻ F, APHA, 22 nd EDITION
Copper	mg/l	3.0	-	<0.01	3111 B, APHA, 22 nd EDITION
Zinc	mg/l	5.0	-	0.13	3111 B, APHA, 22 nd EDITION

* - Standard values for water quality to be discharged into surface water. ** - General EHS Guidelines: Environmental Waste Water and Ambient Water Quality, 30 April 2007, APHA – American Public Health Association

Remarks: Observed values of the tested parameters are within the permitted limit of generic standard and IFC guidelines.

Analyzed by

Checked by

Authorized Signature

**Environment Management
&
Analysis Services P. Ltd**



ANNEX 10: PHOTOGRAPHS FROM THE FIELD



Figure 1: Public Consultation Meeting in Ward No. 10, Mechinagar Municipality



Figure 2: Public Notice Pasting at the Government Office.



Figure 3: Proposed Kakarvitta 33/11 kV Substation



Figure 4: Air and Noise Level Monitoring at the Proposed Substation Site.



Figure 5: Social and Biological Information Collection with Local Communities at Mangal Tole Near the Proposed Substation Site.

Figure 6: Discussion with the Ward Chairperson of Ward No. 7 on the Project and the Project Grievance Redress Mechanism (GRM)



Figure 7: Proposed Sub-Transmission Line Alignment Along the

Figure 8: Key Informant Interview with the Ward Chairperson of

ROW of East–West Highway



Ward No. 10



Figure 9: Public Consultation Meeting Ward no.6

Figure 10: Walk-Through Survey and Biophysical Data Collection.



Figure 11: Bird Survey (Visual Observation) Near the Proposed Substation Site



Figure 12: Baseline Ambient Air and Noise Monitoring at the Tapping Point (Dhaijan Dhat).



Figure 13: Drinking Water Quality Sampling.



Figure 12: River Water Sample Collection from Kali Khola Near the Proposed Substation Site.