



नेपाल सरकार

सङ्घीय मामिला तथा सामान्य प्रशासन मन्त्रालय

(वातावरण तथा विपद व्यवस्थापन शाखा)

पत्र संख्या : ०७९/०८०

चलानी नं. : १६२



मिति: २०७९/११/१४

श्री ग्रामीण सडक सञ्जाल सुधार आयोजना,
आयोजना कार्यान्वयन इकाई, ललितपुर ।

विषय: प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन स्वीकृति सम्बन्धमा ।

तहाँ कार्यालय प्रस्तावक रहेको भगवानपुर-धकधई-खैरेनी सडक सम्बन्धी प्रस्तावको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन स्वीकृतार्थ च.नं. ५७७, मिति २०७९/१०/०९ को पत्र प्राप्त भएकोमा वातावरणीय अध्ययन परीक्षण पुनरावलोकन समिति तथा स्थानीय पूर्वाधार विभाग मार्फत प्राप्त सुझाव लगायत समावेश गर्दै तपशील बमोजिम हुने गरी यस मन्त्रालयको मिति २०७९/११/१४ गतेको निर्णयानुसार स्वीकृत भएको व्यहोरा अनुरोध छः

तपशील:

१. प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदनमा पुनरावलोकन समितिले दिएको राय/सुझाव/टिप्पणी प्रारम्भिक वातावरणीय परीक्षण (IEE) प्रतिवेदनको अंश हुने ।
२. आयोजनाको लागि रुख फडाँनी गर्नु पर्दा न्यूनतम क्षती हुने गरी निर्धारित प्रकृया पुरा गरी स्वीकृती प्राप्त भएपछी मात्र गर्ने ।
३. प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदनमा उल्लेख भएका वातावरणीय प्रभावहरु बाहेक थप नयाँ वातावरणीय प्रभावहरु तथा सम्बन्धित अन्य समस्या देखिएमा सोको समेत प्रस्तावकले आफ्नै खर्चमा निराकरण/ न्यूनीकरण गर्ने ।
४. प्रस्तावित सडक खण्डको Camp and stockpiling, spoil disposal site, quarry site लाई समावेश गर्ने ।
५. प्रस्तावित आयोजना अन्तर्गत बाटोमा पर्ने नहर, कुलो, टेलिफोन तथा बिजुलीपोल/ट्रान्सफर्मरहरु, विद्यालय पर्खाल लाई उचित व्यवस्थापन गर्न लाग्ने खर्च, बिधि र व्यवस्थापन EMP मा स्पष्ट गर्ने ।
६. अनुगमन समिति गठन गर्दा स्थानीय तहको समेत प्रतिनिधित्व हुने गरी गर्नुपर्ने ।

(सन्तोष कुमार खत्री)

शाखा अधिकृत



सिंहदरवार, काठमाण्डौं (+९७७)-(१) ४२००४८२

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Government of Nepal
Ministry of Federal Affairs and General Administration
Singhadurbar, Kathmandu
Nepal

**Initial Environment Examination (IEE) Report
OF
Bhagwanpur – Dhakdhai - Khaireni Road (22+820 km)
Rupandehi, Lumbini Province**



Submitted to

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कार्यकारी सारांश

पृष्ठभूमि:

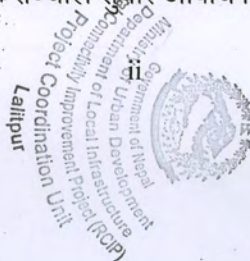
ग्रामिण सडक सञ्जाल सुधार आयोजनाले हाल १६ जिल्लाहरू अन्तर्गत रहेका करिब ३८८ किलोमिटर ग्रामीण सडकहरूलाई कालो पत्रे स्तरमा स्तरोन्नति गर्ने कार्य भइएको छ। ग्रामीण क्षेत्रको दिगो विकासका लागि आयोजनाले ग्रामीण सडक सञ्जालको यातायात दक्षता सुधार, आर्थिक अवसरहरूको विस्तार र गरिबी न्यूनीकरणमा योगदान पुऱ्याउनेछ। यस आयोजनाले ग्रामीण सडक सञ्जालको यातायात दक्षता सुधार गर्ने लक्ष्य राखेको छ। यसले आर्थिक अवसरको विस्तार र गरिबी न्यूनीकरणमा योगदान पुऱ्याउनेछ। यस आयोजनाले (i) जिल्ला सडक सञ्जाल सुधार गर्ने, (ii) सुरक्षित र उपयुक्त सडक उपयोगको सुविधा प्रदान गर्ने, (iii) यातायात सेवाहरूको दक्षता बढाउने, र (iv) स्थानीय पूर्वाधार विकास तथा कृषि सडक विभाग (DOLIDAR) हाल स्थानीय पूर्वाधार विभाग, DoLI सडक को सम्पत्ति विकास र व्यवस्थापनको क्षमता बढाउने कामहरू गर्दछ। आयोजनाले सामाजिक सेवा र बजारको पहुँच सुधार गरिनेछ, इन्धनको क्षमता वृद्धि, आर्थिक केन्द्रहरूको उन्नत पहुँच र आयोजनाले जिल्लाहरूमा औद्योगिक गतिविधि बढाउने, यात्रा समयमा कमि; दुर्घटनामा कमि र कृषिबाहिर रोजगारका उत्तम अवसरहरू सिर्जना गर्ने। यस आयोजनालाई एसियाली विकास बैंक (एडीबी) द्वारा आर्थिक सहयोग गरिएको छ।

उप-आयोजनाको विवरण:

प्रस्तावित सडक रेखाङ्कन लुम्बिनी प्रदेशको रूपन्देही जिल्लाको दक्षिणी भागमा पर्दछ। “भगवानपुर – धकधई – खैरेनी (चेनेज ०+००० – २२+८२०) सडक” रोहिणी गाँउपालिका वडा नं. २, भगवानपुर बजार (नेपाल/भारत बोर्डर) बाट शुरु भई देवदह नगरपालिका वडा नं. ७ को खैरेनी बजार (पूर्व – पश्चिम राजमार्ग) मा अन्त्य हुन्छ। प्रस्तावित सडक रेखाङ्कनमा रूपन्देही जिल्लाको १२ वटा वडाहरू जसमा रोहिणी गाँउपालिकाको वडा नं. २ र ३, ओमसतिया गाँउपालिकाको वडा नं. ५ र ६, देवदह नगरपालिका वडा नं. १, २, ३, ४, ५, ७, ८, ११ र १२ समेटिएको छ। विद्यमान सडकको कुल लम्बाइ २२.८२० किमी र बिटुमिनस सतह भएको ४ मि. देखि ७ मिटर चौडाईमा रहेको छ। यो सडक रूपन्देही जिल्लाको, DTMP २०१६ अनुसार जिल्ला सडकको श्रेणीमा पर्दछ र अहिले लुम्बिनी प्रदेशको प्रादेशिक सडकको रूपमा पर्दछ। सडक रेखाङ्कन समतल भू-भाग, खेतीयोग्य जमिन र बस्ती भएर जान्छ। सडक रेखामा अवस्थित क्रसिडहरूको रूपमा अधिकांश ह्युम पाइपहरू र केही कंक्रीट स्ल्याब कल्भर्टहरू निर्माण गरिएका छन्। उप-आयोजना रूपन्देही जिल्लाको भगवानपुरबाट शुरु हुन्छ जुन २७°२८'२६.६६" उत्तरी अक्षांश र ८३°३१'०२.२५" पूर्वी देशान्तरमा रहेको छ र अन्त्य सोहि जिल्लाको खैरेनीमा हुन्छ जुन २७°३८'३६.०" उत्तरी अक्षांश र ८३°३५'३९.१३" पूर्वी देशान्तरमा रहेको छ। यस उप-आयोजना निर्माणको कुल लागत रु. ८०२,८०५,६९७.७४ रहेको छ।

प्रस्तावक:

प्रस्तावित “भगवानपुर-धकधई-खैरेनी सडक खण्ड (२२.८२ कि.मि.) स्तरोन्नति” गर्ने कार्यको प्रस्तावक स्थानीय पूर्वाधार विभाग अन्तर्गतको ग्रामिण सडक सञ्जाल सुधार आयोजना, श्रीमहल, पुलचोक, ललितपुर, नेपाल हो।



त्यसैले ग्रामिण सडक सञ्जालसुधार आयोजनाको जिम्मेवारी प्रस्तावित आयोजनाको प्रारम्भिक वातावरणीय परिक्षण (प्रा.वा.प.) गर्नु हो। यस प्रा.वा.प. प्रतिवेदन ग्रामिण सडक सञ्जाल सुधार आयोजना मार्फत सङ्घीय मामिला तथा सामान्य प्रशासन मन्त्रालय, सिंहदरबारमा पेश भई स्वीकृति लिनुपर्ने प्रावधान रहेको छ।

प्रस्तावकको ठेगाना :

प्रस्तावकको पूरा नाम र ठेगाना निम्नानुसार रहेको छ:

ग्रामिण सडक सञ्जाल सुधार आयोजना

श्रीमहल, पुल्चोक, ललितपुर

फोन : ०१-५५३८३०६

ईमेल : rcippcu@gmail.com

प्रस्तावको औचित्य:

वातावरण संरक्षण नियमावली, २०७७ को नियम ३ सँग समबन्धित अनुसूची २ (ड) (८) ले आकृष्ट गरे बमोजिम यातायात क्षेत्र अन्तर्गत “१० किलोमिटर भन्दा बढी ५० किलोमिटरसम्म लम्बाईको राष्ट्रिय राजमार्ग वा सहायक सडकको चौडाई वृद्धि हुने गरी स्तरवृद्धि, पुनर्स्थापना वा पुनर्निर्माण गर्ने” प्रस्तावको लागि प्रारम्भिक वातावरणीय परिक्षण गर्नु पर्ने कानूनी प्रावधान रहेको छ। सहायक सडक हैसिएतको यस “भगवानपुर – धकधई – खैरनी” सडकको लम्बाई २२.८२ कि.मि. रहेको र चौडाई वृद्धि हुने गरी स्तरवृद्धि गर्ने योजना रहेकोले प्रस्तावित सडकको प्रारम्भिक वातावरणीय परिक्षण तयार गर्नुपर्ने देखिन्छ। साथै एशियाली विकास बैंकको सुरक्षण नीति सन् २००९ (ADB SPS 2009) अनुरूप ग्रामिण सडक सञ्जाल सुधार आयोजना वातावरणीय सुरक्षणको हिसावले “B” श्रेणीको आयोजना भएकोले उक्त नीति बमोजिम प्रस्तावको प्रारम्भिक वातावरणीय परिक्षण तयार गर्नुपर्ने हुन्छ। वातावरण संरक्षण नियमावली २०७७, नियम ७ (८) बमोजिम यस आयोजनाको बिस्तृत अध्ययन प्रतिवेदन एशियाली विकाश बैंकको आर्थिक सहयोगमा तयार गरिएकोले यस प्रतिवेदन अंग्रेजी माध्यममा तयार गरिएको हो।

प्रस्तावको सान्दर्भिकता:

रोहिणी गाउँपालिका, ओमसतिया गाउँपालिका र देवदह नगरपालिकाका विभिन्न वडाहरू र मुख्य वस्तिहरू भएर रेखाङ्कित भगवानपुर – धकधई – खैरनी सडक खण्डमा हाल आवतजावत गर्न यस भेगका जनतालाई असजिलो भएको छ। सडक निर्माण कार्यले आयोजना क्षेत्रलाई पूर्व-पश्चिम राजमार्ग, वुटवल र भैरहवा सहर साथै देशको विभिन्न स्थानको पहुँच अभिवृद्धि गराउनेछ। ढिलो, खर्चिलो, असुरक्षित र अभरपर्दो विद्यमान यातायात सुविधा वर्षाको समयमा झनै भयाभह हुन्छ। प्रस्तावित आयोजनाले स्थानीय समुदायको आर्थिक तथा सामाजिक अवस्थामा सुधार ल्याउनेछ। सडक स्तरोन्नति कार्यले छिटो, छरितो, सुरक्षित यात्रा, सेवा केन्द्रहरूमा सहज पहुँच र कृषि उत्पादन, औषधि, ढुवानीलाई सहजता प्रदान गर्नेछ। यसबाट स्थानीय स्तरमा उत्पादन हुने तरकारी, दुध र



अन्य उत्पादन बजारसँग जोडि स्थानीय आय आर्जनमा वृद्धि गर्नेछ। सडक स्तरोन्नतिले प्रभावित स्थानीय तहका स्थानियवासीहरूको आवत जावतलाई प्रत्यक्ष रूपमा सहज बनाउनेछ।

प्रस्तावित सडक कुनै पनि राष्ट्रिय निकुञ्जहरू, शिकार आरक्ष भएर जाने छैन।

प्रा.वा.प. का उद्देश्यहरू:

यस प्रा.वा.प. को मुख्य उद्देश्य प्रस्तावित प्रस्तावको कार्यान्वयनबाट उप-आयोजना क्षेत्रको भौतिक, जैविक, सामाजिक, आर्थिक, साँस्कृतिक वातावरणमा पर्न सक्ने सकारात्मक तथा नकारात्मक प्रभावहरूको अध्ययन गरि उप-आयोजनालाई प्राविधिक तथा वातावरणीय पक्षबाट दिगो बनाउनु हो। यसै अध्ययनको दौरान उप-आयोजना कार्यान्वयन गर्दाका सकारात्मक र नकारात्मक असरहरू पहिचान गरी, सकारात्मक पक्षहरूलाई थप बढोत्तरी गर्ने र नकारात्मक असरहरूलाई न्यूनीकरण गर्ने उपायहरू अवलम्बन गरी त्यसको कार्यान्वयन गर्न प्रस्ताव गर्ने र उप-आयोजनाका लागि प्रा.वा.प. अध्ययन अनुकूल छ वा छैन हेर्नु समेत उद्देश्य रहेको छ।

प्रा.वा.प अध्ययनको लागि अपनाइएका विधिहरू:

यो अध्ययन प्रतिवेदन वातावरण संरक्षण नियमवाली २०७७ अनुसार तथा यसै प्रस्तावको मिति २०७७/८/२९ मा स्वीकृत कार्यसूची (Terms of Reference) मा उल्लेख गरिए अनुसार तयार पारिएको हो। यसका लागि सन्दर्भ सामग्रीहरूको पुनरावलोकन तथा आयोजना प्रभावित क्षेत्रको निरीक्षण गर्ने कार्य गरियो। अध्ययन टोलीद्वारा सामूहिक रूपमा २०७८ साल पुस महिनामा स्थलगत सर्वेक्षण गर्ने, आवश्यक सूचनाहरू संकलन गर्ने र स्थानीय समुदाय र सरोकारवालाहरूसँग समुहगत छलफल, परामर्श गर्ने कार्य गरियो। स्थलगत अध्ययन अर्थात सरोकारवालाहरूको जानकारीको लागि “बुटवल दैनिक” मा मिति २०७८ साल पुस १४ गते सार्वजनिक सुनुवाईको सूचना र तथा मिति २०७९ बैसाख १० गते “मध्यान्ह दैनिक” मा सार्वजनिक सूचना प्रकाशित गरियो र मिति २०७८ साल पुस २१ गते सार्वजनिक सुनुवाई गरियो। साथै मिति २०७९ बैशाख १० गतेको “मध्यान्ह दैनिक” मा ७ (सात) दिने सार्वजनिक सुचना प्रकाशित गरि सुझावहरू मागिएको थियो। साथै एशियाली विकास बैंकको इन्भाईरोमेन्टल एसिसमेन्ट गाइडलाईन, सन २००३ र सुरक्षण नीति, सन २००९ को समेतको अनुसरण यस अध्ययनमा गरिएको छ।

विद्यमान वातावरणिय अवस्था:

प्रस्तावित सडक उप-आयोजना क्षेत्र भौगोलिक हिसाबले सिवालिक तथा तराइ क्षेत्रमा पर्दछ। प्रस्तावित उप-आयोजना उपोष्ण क्षेत्रमा पर्दछ। सामान्यतया यस उप-आयोजना क्षेत्रमा मनसुन असार महिनामा सुरु भएर भदौ महिनामा अन्त्य हुन्छ। यस क्षेत्रको तापक्रम अधिकतम ४०.२० डिग्री सेल्सियस र न्युनतम तापक्रम ७.१ डिग्री सेल्सियस रहेको छ। यस उप-आयोजनाको नजिक खैरेनी खोला पर्दछ। आयोजना क्षेत्रमा सरदर वार्षिक १,८०८.३३ मि. मि. वर्षा हुने गरेको छ।

प्रस्तावित सडक उप-आयोजना क्षेत्रमा कुनै सामुदायिक वन परेको छैन। तर यस उप-आयोजना क्षेत्र आसपास पाइने विभिन्न प्रजातिका रुखहरूमा कदम, सिसौ, साल, सिमल, बेल, पिपल, सुपाडी, आँप आदि रहेका छन्। त्यसैगरी यस क्षेत्रमा स्तनधारी वन्यजन्तुमा मृग, चितुवा, खरायो, न्याउरी मुसा, स्याल, बँदेल, पाइन्छन् भने गोमन



सर्प, धामन सर्प, गोहोरो जस्ता सरिसृपहरू पनि यहाँ पाइन्छन्। यस उप-आयोजना स्थलको नजिक हिलेजातका माछा पाइन्छ। यस क्षेत्र आसपास पाइने पंक्षीहरूमा बकुल्ला, ढुकुर आदि पर्दछन्।

यस सडक खण्डमा मुख्य गरि पर्ने वस्तीहरू भगवानपूर, धकधई र खैरनी रहेको छ। प्रस्तावित सडक खण्डको रोहिणी गाउँपालिकामा घरधुरी संख्या १,८७७ तथा जनसंख्या १२,०३७, ओमसतिया गाउँपालिकामा घरधुरी संख्या २,०४४ तथा जनसंख्या १०,९८० र देवदह नगरपालिकाको घरधुरी संख्या ८,५३६ तथा जनसंख्या ४०,९८० रहेको छ (स्रोत: स्थलगत अध्ययन २०७८ र सम्बन्धित गाउँपालिका र नगरपालिकाको योजना पुस्तिका)। यस क्षेत्रमा बसोबास गर्ने मुख्यजातिहरूमा मधेशी ५२.२३ %, मुस्लिम १५.६७ %, ब्राह्मण, क्षेत्रि र अन्य २३.८८ % र दलित २.३ % र अन्य ५.८९ % रहेका छन्। यस क्षेत्रका बासिन्दाको मुख्य आमदानीको श्रोत कृषि, व्यवसाय, श्रम, सरकारी/गैर सरकारी संस्था र यस क्षेत्रको ठुलो जनशक्ति कामको खोजीमा अस्थायी रूपमा भारत, कतार, मलेसिया तथा अरबका अन्य मुलुकहरूमा जाने गरेको छलफलको क्रममा पाइएको छ। यस क्षेत्रमा मुख्य गरि दशैं, छठ, तिहार, नाग पंचमी, कृष्ण जन्माष्टमी, होलि आदि चाडपर्व मनाउने गरिएको छ।

प्रमुख वातावरणीय प्रभावहरू

लाभदायक प्रभावहरू

यस आयोजनाबाट तत्कालै हुने लाभमा स्थानीय स्तरमा सिर्जना हुने रोजगारी हो। आयोजना निर्माण को लागि करिब २०८,०८० मानव दिन बराबर अदक्ष जनशक्ति, ५९,५०० मानव दिन बराबर दक्ष जनशक्ति आवश्यक पर्नेछ। आयोजनासँग सम्बन्धित कार्यमा गरिब तथा आयोजनाबाट प्रत्यक्ष प्रभावित जनताहरूलाई प्राथमिकता दिईनेछ। यस चरणमा हुने अन्य लाभहरूमा व्यापारको वृद्धि हुने अवसर, आयोजनाले प्रदान गरेको शिपमुलक तथा जनचेतना मुलक तालिम तथा आयोजना निर्माण कार्यमा सहभागि भई स्थानिय जनताको शिप वृद्धि हुने अवसर पर्दछन्। सडक स्तरोन्नति भए पश्चात यस क्षेत्रमा ब्राहैमासे यातायात सहज हुनुका साथै समग्रमा यस आयोजनाबाट अप्रत्यक्ष प्रभावित क्षेत्रको जग्गाधनीहरूलाई आर्थिक लाभ हुने पनि देखिन्छ।

प्रतिकूल प्रभावहरू

आयोजना निर्माणको बखत श्रमिक तथा स्थानीय जनता विभिन्न प्रकारका स्वास्थ्य समस्या तथा दुर्घटनामा पर्ने सक्ने सम्भावना रहेको छ। यस आयोजनको लागि थप ४.५६४ हेक्टर निजि र सरकारी स्वामित्वमा रहेको जमिन आवश्यक पर्ने देखिन्छ। रोहिणी खोला, तिनाउ खोला, बाणगङ्गा खोला, भुमहि खोलाबाट आवश्यक निर्माण सामग्री ल्याउने प्रस्ताव गरिएकोले त्यसकारण सम्भावित असर पर्न सक्ने देखिन्छ। क्याम्प निर्माण गर्दा हुन सक्ने क्षति, निर्माण सामग्रीको भण्डारण गर्दा हुन सक्ने क्षति तथा २४ वटा विद्युतका खम्बा, ५७ वटा ह्युम पाइप, २६ स्ल्याब कल्बर्ट, ३ वटा ट्युबवेलहरूमा प्रभाव पर्ने देखिन्छ। यो क्षेत्रमा कुनै वन क्षेत्र पर्दैन। यस आयोजना निर्माण गर्दा व्यक्तिको हकमा रहेका ५ वटा घरमा आंशिक क्षति पुग्ने देखिन्छ भने १३४ घरधुरीको ४.५३ हे. क्षेत्रफल जमिन सडकको आवश्यक चौडाई कायम गर्न अधिग्रहण गर्नुपर्ने देखिन्छ। यसका साथै यस क्षेत्रमा आवतजावतमा समस्या र सहायक सडकमा चाप बढ्ने समस्या पनि देखिन्छ। सडक निर्माणको बखत भौतिक, जैविक र आर्थिक वातावरणमा पर्ने जोखिम जस्तै पानी जम्ने जोखिम र त्यसका प्रभाव पनि पर्ने देखिन्छ।



न्यूनीकरणका उपायहरू

यस उप-आयोजनालाई वातावरणमैत्री बनाउनका लागि सकारात्मक प्रभावलाई बढावा गर्न तथा नकारात्मक प्रभावहरूलाई नियन्त्रण वा न्यूनीकरण गर्न उपायहरू यस प्रतिवेदनमा प्रस्ताव गरिएको छ। सार्वजनिक संरचनाहरूको हकमा आवश्यक संस्थासँग समन्वय गरी तथा नियम अनुसार पुर्नस्थापना गरिनेछ। प्रभावित निजि संरचनाको पुनर्निर्माण र अधिग्रहण गर्नुपर्ने जमिनको क्षतिपुर्तिको निम्ति उपआयोजनाको लागि भिन्दै तयार गरिने सामुदायिक सहभागिता योजना कार्यान्वयन मार्फत जग्गाधनिहरूको स्वच्छित दानबाट सडक भोगाधीकारमा परिवर्तन गरिनेछ। उप-आयोजनाबाट प्रत्यक्ष प्रभावित परिवारहरूलाई रोजगारी तथा शिपमुलक तालिममा प्राथमिकता दिईनेछ। निर्माण स्थलमा प्राथमिक उपचार सामाग्रीको व्यवस्था गरिनेछ, साथै अन्य सुरक्षा सामग्रीहरू जस्तै हेलमेट, माक्स, बुट, पन्जा आदि कामको प्रकृति अनुसार श्रमिकलाई वितरण गरिनेछ। सडकको कारण नजिकैको खेतीपातीमा पानी जम्मा हुन नदिन निकासको प्रबन्ध गरिनेछ। सडक दुर्घटनाबाट बच्ने उपायहरू अवलम्बन गरिनेछ।

वातावरण व्यवस्थापन योजना

यस प्रतिवेदनमा वातावरण व्यवस्थापन योजना अन्तर्गत उप-आयोजनाबाट पर्ने सम्भावित असरहरूको प्रभाव न्यूनीकरण विधि, अनुगमन विधि तथा कार्यतालिका प्रस्तावित गरिएको छ। यसका साथै न्यूनीकरणका उपायहरूको तथा अनुगमन कार्यको कार्यान्वयन गर्ने जिम्मेवार निकायको पनि पहिचान गरिएको छ। अनुगमनका लागि आवश्यक भौतिक, जैविक, सामाजिक, आर्थिक तथा साँस्कृतिक वातावरणका विभिन्न अनुगमन सुचांकहरूको पनि पहिचान गरिएको छ। वातावरण व्यवस्थापनका लागि रु ८,१८५,९७८.३३ प्रस्ताव गरिएको छ।

जलवायु परिवर्तन

जलवायु परिवर्तनको सम्भावित प्रभावहरू ग्रामीण सडकहरूमा विशेष रूपमा पर्ने हुन सक्छन्। वर्षा र वर्षाको तीव्रतामा भएको वृद्धिले क्रस ड्रेनहरूलाई असर पार्न सक्छन्, जसले बाढी, सडक तटबन्ध ढलान, ट्राफिक अवरोध, र सडक खण्डहरू बगाउने जस्ता प्रभाव हुनसक्छ। जलवायु परिवर्तनको संवेदनशीलता र यसको प्रभावबाट पर्ने जोखिमलाई सम्बोधन गर्न र सम्भावित जोखिम न्यूनीकरणको निम्ति सडक उप-आयोजना अन्तर्गतको नाली, पुल लगाएत संरचनाहरूको डिजाइनमा उक्त विषय समावेश गरिएको छ। यसका लागि डिजाइनमा वार्षिक औसत वर्षा, बाढी आदिको तथ्याङ्क पुल र कल्भर्टहरूको संख्या, स्थान र आकारको डिजाइनमा प्रयोग गरिएको छ।



निष्कर्ष

पहिचान गरिएका प्राय वातावरणीय प्रभावहरू मुख्य गरी निर्माण कार्यको बखत सिमित रहेको पाइएको छ। प्रस्तावित न्यूनीकरण विधिको पालना गरिएमा पहिचान गरिएका वातावरणीय प्रभावहरूको नियन्त्रण गर्न सकिनेछ। वातावरण व्यवस्थापन योजना अन्तर्गत उल्लेख गरिएका उपायहरूको अनुगमन गरिएमा यस आयोजनाको कार्यान्वयनले उप-आयोजना क्षेत्रको भौतिक, जैविक, सामाजिक, आर्थिक तथा सांस्कृतिक वातावरणमा धेरै प्रभाव नपर्ने देखिन्छ। यस प्रारम्भिक वातावरणीय अध्ययनको आधारमा यस प्रतिवेदनमा उल्लेख गरिएको वातावरणीय व्यवस्थापन योजनालाई पुर्ण रूपमा लागु गरी प्रस्तावित उप-आयोजना कार्यान्वयन गर्नुपर्ने हुन्छ।



Executive Summary

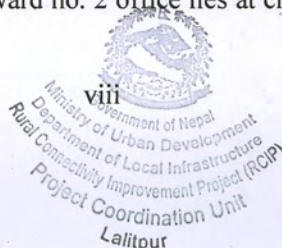
Background

The proposed project of ADB will construct about 388 kilometers of rural roads to an all-weather standard covering 16 priority rural development districts throughout the country. The project will also focus on improving institutional arrangements, business processes, and associated capacity building, particularly on road asset management and road safety. The proposed project will also play a catalytic role in the sustainable development of rural areas. The Project aims to improve the transport efficiency of the rural road network, which will contribute to the expansion of economic opportunities and poverty reduction. This will be realized by: (i) improving the district road network, (ii) facilitating safe and appropriate road usage, (iii) increasing the efficiency of transport services, and (iv) enhancing the Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) (now Department of Local Infrastructure, DoLI) capacity for road asset development and management. Project immediate outcomes will be improved access to social services and markets, increased fuel efficiency, reduced; travel time, accidents, and vehicle emissions, and better employment opportunities outside agriculture, both through improved access to economic centers and increased industrial activities in the project districts. The Project is funded by Asian Development Bank (ADB).

Description of the Sub-project

The proposed road alignment lies in the southern part of the Rupandehi district in Lumbini Province. The alignment of Bhagwanpur - Dhakdahi – Khaireni (Ch:0+000 – 22+820) road starts from Rohini Rural Municipality ward no. 2, Bhagwanpur bazaar (Nepal/India Border) and ends in Khaireni bazaar of Devdaha Municipality ward no. 7 (East-West highway). It covers Rohini Rural Municipality ward no - 2 and 3, Om Satiya Rural Municipality ward no. 5 and 6, and Devdaha Municipality ward no. 1, 2, 3, 4, 5, 7, 8, 11 and 12 of Rupandehi district. The total length of the existing road is 22.82 km and 4 m to 6 m in width with a bituminous surface. This road falls under the category of District Road as per DTMP, 2016 of Rupandehi district and now as Provincial Road of Lumbini Province. The road alignment follows flat and plain terrain. This road section also passes through cultivated lands and settlements. There are numbers of existing crossings majority of which are constructed of Hume pipes and a few concrete slab culverts.

The office of the Rohini Rural Municipal Executive, Dhakdhai lies at chainage 5+340 along the road. Rohini Rural Municipality ward no. 2 office lies at chainage 1+290 at Pokharbhandi



and ward no. 3 office lies at 5+340 at Dhakdhai along the road. Devdaha Municipality ward no. 1 and 2 offices lie at chainage 15+500 of the road. The office of Om Satiya Rural Municipal Executive, Hati-Farsatikkar lies 8.8 km west of Majhauri chowk from the alignment. The office of Dhakdhai Municipal Executive lies 0.8 km east from chainage 20+645 of the alignment. The proposed road alignment starts at Bhagwanpur (27°28'26.66" Latitude and 83°31'02.25" Longitude) and ends at Khaireni (27°38'36.07" Latitude and 83°35'39.13" Longitude). The total cost of this sub-project is NRs. 802,805,697.74.

The Proponent

The proponent of the proposed road alignment Bhagwanpur-Dhakdhai-Khaireni is Rural Connectivity Improvement Project, Department of Local Infrastructures under the Ministry of Federal Affairs and General Administration (MoFAGA).

The address of the proponent is:

Department of Local Infrastructures
Rural Connectivity Improvement Project (RCIP)
Shreemahal, Pulchowk, Lalitpur
Phone: 01-5538306

Email: rcippcu@gmail.com

The rationality of the Proposal

As per the mandate of the EPR, 2020 Schedule (2) rule, 3 (अनुसूची २, नियम ३ सँग सम्बन्धित, ड (यातायात पूर्वाधार क्षेत्रको ८) Transportation Infrastructure sector (E)-8, Initial Environment Examination (IEE) is compulsory before the construction or upgrading of Feeder Road. So, accordingly, for EPR 2020, an IEE report has to be prepared, which has to be approved by the Ministry of Federal Affairs and General Administration (MoFAGA).

The detailed project report (DPR) of this project is prepared in collaboration with Asian Development Bank as a funding agency, per Environmental Protection Rules of 2077, Rule 7 (8) for the foreign investment project, the proponent could prepare an IEE report in English Language. Therefore, IEE report of this project is prepared in the English Language.

Relevancy of the Proposal

Since this project is already an existing road project. The growing population over the project area has demanded high traffic volume. The project affected area wards number 2 and 3 of Rohini Rural Municipality, ward numbers 5 and 6 of Om Satiya Rural Municipality, and wards number 1, 2, 3, 4, 5, 7, 8, 11, and 12 of Devdaha Municipality of Rupandehi district in Lumbini province have created pressure to the existing road. This is because this road connects the rural



area of the Devdaha, Omsatiya, and Rohini Rural Municipality to the East-West Highway. Due to the agricultural products in the project-affected areas, there are chances of high traffic and the area will be more populated in coming days. So, this road needs to upgrade into all-weathered black top road with the full technical standard of Asian Highway class 4.

The proposed road does not pass through any National Parks, Hunting Reserves and Animal reserves.

Objectives of IEE

The objective of IEE is to assess the project from the environmental point of view and make the proposed project technically and environmentally sustainable and identify beneficial and adverse impacts upon the implementation of the proposed project and recommend the measures for the enhancement of beneficial impacts and mitigation measures of adverse impacts. Similarly, to determine whether an IEE is sufficient for the project or not.

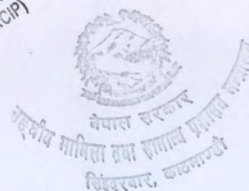
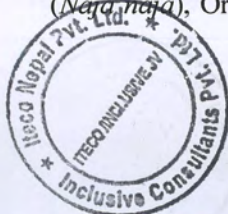
Methods Adopted for IEE Study

The IEE report has been prepared based on the mandate of EPR. For this, Terms of Reference had been prepared and approved by the MoFAGA. Then after the literature review, a field visit (on Poush 2078) to collect environmental baseline and publication of public hearing notice was published on 14th Poush 2078 in Butwal daily and Public hearing was conducted on 21st Poush 2078. Public notice was published on 10th of Baisakh 2079 in Madhyanha national daily to collect the suggestions and comments from concerned stakeholders. Based on the primary and secondary information, impact analysis was carried out, and suitable mitigation measures for each of the significant measures are proposed.

Existing Environmental Condition

The road alignment is located in the Terai region. The project lies in the Sub-Tropical region. Generally, the rainy season starts in June and ends in September. The temperature reaches up to 40.20°C during June/July and falls up to 7.1° during January/February. The average annual rainfall of the district is 1808.33 mm. The nearest distance to the Godaha River is 2.5 km from the proposed road.

This road does not pass through any community forest. However, there are some species of trees found around the project area are Sal (*Shorea robusta*), Indian Rosewood (*Delbergia sisoo*), Stone Apple (*Aegle marmelos*), Fig (*Ficus religiosa*), Bur Flower Tree (*Neolamarckia cadamba*), etc. Langoor, Fox, and Mongooses are the wild mammals found in the project area. The bird species found in the project area are Parrot (*Psittacula alexandri*), Crow, Eurasian Tree Sparrow (*Passer montanus*), Dove (*Streptopelia sps.*), etc. Similarly, Spectacled Cobra (*Naja naja*), Oriental Rat Snake (*Ptyas mucosa*), Yellow Monitor (*Varanus flavescens*) and



Chamaeleon (*Lacertilia spp*) are reptile species recorded in the project area. Fish species found in nearby rivers are Hile (*Channa stewartii*), etc.

The major settlements along the road alignment are Bhagwanpur, Dhakdhai, and Khaireni. The total household within the zone of influence i.e., Rohini Rural Municipality, Om Satiya Rural Municipality, and Devdaha Municipality are 1877, 2044, and 8536 respectively and the population is 12037, 10980, and 40980 respectively. (Source: Field Study during CPP and Municipality and Rural Municipality related books). Major castes in the proposed alignment are Madeshi (52.23%) followed by Muslims (15.67%), Brahaman / Chettri and Other Caste (29.77%), and other occupational castes (2.33%). (Source: Field verification during CPP) The major occupation of the people is agriculture followed by business, labour, and service and a large number of the population migrates temporarily in search of work in India, Qatar, Malaysia, and some Arab countries for enhancement of livelihoods as per the Local during the consultation and meeting.

Major Environmental Impacts

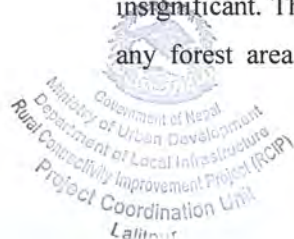
Beneficial Impacts

The immediate benefit from this road project is employment opportunities. The implementation of the project requires 208,080 person-days of unskilled manpower and 59,500 person-days of skilled manpower. The project prioritizes the poor, and project-affected people for employment opportunities. The probable beneficial impacts other than employment could be enhancement of the local business, participation opportunities in skill developing training, awareness training, and involvement in the construction of the project.

After the completion of the upgrading work, there will be easy access, better opportunities, and better transportation condition for the people living in IIZ of the project.

Adverse Impacts

During the upgrading period of the proposed road alignment laborers and local people are prone to health hazards and accidents. During the upgrading process of the proposed road alignment, the proposed project will have an impact on the local infrastructure. The public utilities like 24 electric poles, 57 Hume pipes and culverts, 26 slab culverts, 3 box culverts, 3 tube wells, and 5 Residential structures (Partial) will also be impacted due to the intervention of the proposed project. The impacts on the air quality, water quality, and noise level are moderate and scouring can occur. which have insignificant impacts. Moreover, the impacts due to the inadequate protection and haphazard waste disposal may create the problem with overall impacts as insignificant. There are no biological impacts as the proposed road alignment does not have any forest area. Likewise, reduction in productivity, economic loss, accident, and injury



disturbance on the electric supply and communication will be the potential impacts due to the proposed project intervention.

Mitigation Measures

The various benefit augmentation measures and adverse impact mitigation measures have been proposed in the report to make this project environment friendly. Affected families will be given high priority for employment and skill development training. Restriction on the heavy and old vehicles in the construction activities, use of water sprinkles, and strict use of personal protective equipments are the potential mitigation measures of the impacts. At construction sites, the workers will be provided first aid facilities and safety equipments like helmets, boots, gloves, and mask as per the nature of work.

Proper maintenance and a proper drain system will be provided to prevent the accumulation of water on the nearby agricultural lands during operation. Adequate road safety measures will be provided to minimize road accidents. Encourage community development plan, management of essential commodities for the construction crews, and fully restored campsites are the possible mitigation measures of the potential management measures.

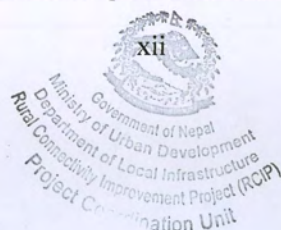
Environment Management Plan

The environmental management plan is prepared to ensure the implementation and monitoring of mitigation measures for minimizing adverse impacts and maximizing the beneficial impacts. The necessary mitigation measures together with the environmental monitoring process and responsible bodies for environmental monitoring have been identified. Similarly, for environmental monitoring, various sections of the physical, biological, socio-economic, and cultural environment have been identified to generate useful information and improve the quality of implementation of mitigation measures. The approximate cost for implementation of EMAP is estimated at around NRs. 8,185,978.33.

Climate Change

The potential impacts of climate change on roads in general and rural roads are particularly well known. The increase in rainfall and rainfall intensity can overwhelm cross drains which can result in localized flooding, road embankment slope failures, vehic geodisruption, and washout of road sections. What is less known are the impacts of slow-onset climate change like the gradual increase in air temperature and its impact on premature rutting and fatigue cracking during a typical 20-year economic life.

The current practices in the structural design of the rural roads make them more sensitive to changes in climate change. Some of these practices like the use of annual average rainfall in



List of Abbreviations and Acronyms

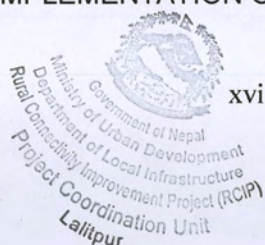
ADB	Asian Development Bank
°C	Degree Celsius
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPP	Community Participation Plan
DoLI	Department of Local Infrastructure
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
EPA	Environment Protection Act
EPR	Environment Protection Rules
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature
km	Kilometer
m	Meter
RCIP	Rural Connectivity Improvement Project
RM	Rural Municipality
RoW	Right of Way
SEMP	Site Specific Environment Management Plan
ToR	Terms of Reference
GoN	Government of Nepal
MoFAGA	Ministry of Federal Affairs and General Administration



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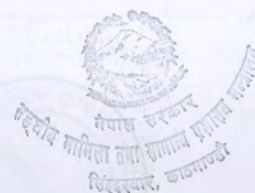


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1. NAME AND ADDRESS OF THE PROPONENT WITH THE ORGANIZATION RESPONSIBLE FOR CONDUCTING IEE

1.1 The Proponent

The proponent of the proposed “Bhagwanpur-Dhakdhai-Khaireni Road” is the Rural Connectivity Improvement Project, Department of Local Infrastructures under the Ministry of Federal Affairs and General Administration (MoFAGA).

The address of the Proponent is

Department of Local Infrastructures
Rural Connectivity Improvement Project (RCIP)
Shreemahal, Pulchowk, Lalitpur
Phone: 01-5538306
Email: rcippcu@gmail.com

1.2 The Consultant

ITECO Nepal and Inclusive JV have undertaken the IEE study of “Bhagwanpur-Dhakdhai-Khaireni Road for and on behalf of the proponent

The address of the Consulting Firm is

ITECO Nepal and Inclusive JV Pvt. Ltd
Sitapaila, Kathmandu, Nepal
Phone: 01-4034880
Email: iteco.inclusive@gmail.com

The following experts have been mobilized to complete the IEE study.

TABLE 1: IEE STUDY TEAM

S. N.	Name	Functional Title	Academic Qualification	Professional Experience	Related IEE/EIA
1.	Mr. Navaraj Pokharel	Environmental Expert (Team leader)	M.Sc. Environmental Science,	15 Years of Experience	More than 3
2.	Mr. Ranjan Suwal	Transportation Engineer	Masters in Transport Engineering	17 Years of Experience	More than 3
3.	Dr. Kumud Raj Kafle	Geologist	M.Sc. Geology and Natural Resource Management	15+ years of Experience	More than 3

4.	Mr. Bhupmani Dahal	Sociologist	MA Sociology,	10+ years of Experience	More than 3
5.	Mr. Prahesh Chalise	Environmentalist	M.Sc. Environmental Science	6 years of Experience	More than 3
6.	Mr. Bhawani Bhandari	Biological Environment Expert	M.Sc. Botany,	6 years of Experience	More than 3
7.	Mr. Bijaya Rai	Environmental Associate	M.Sc. Environmental Science	5 Years of experience	More than 3
8.	Mr. Deepak Tamang	Field Enumerator	Bachelor in Environmental Science	2 Years of experience	More than 3
9.	Mr. Annan Shrestha	GIS analyst	Bachelor of science in environment management	5 Years of experience	More than 3
10.	Ms. Alina Shrestha	Field Enumerator	B. Sc. Environmental Science	2 Years of experience	More than 3



2. SUMMARY OF THE PROPOSAL

2.1 Background

The Government of Nepal has received financial assistance from Asian Development Bank (ADB) for the rehabilitation of rural and agricultural roads through the implementation of the Rural Connectivity Improvement Project (RCIP) for improving connectivity between rural communities, productive agricultural areas, and socioeconomic centers in 16 districts namely Panchthar, Ilam, Jhapa, Morang, Sunsari, Dhankuta, Sindhui, Dolakha, Sindhupalchok, Kavreplanchok, Bhaktapur, Kathmandu, Chitwan, Parbat, Rolpa and Rukum of Nepal by improving rural roads and enhancing the capacity of road implementation agency. RCIP focus on improving 380.686 km of rural roads to all-weather standards, serving the agricultural sector and 7.5 million rural populations in 16 districts located in five provinces ensuring roads are maintained sustainably. RCIP is a follow-on project of the Rural Reconstruction and Rehabilitation Sector Development Project (RRRSDP) and is being implemented with the loan assistance of the Asian Development Bank (ADB) and counterpart funding from the Government of Nepal (GoN). The total project duration is 5 years (2022 to 2027) and it is divided into two parts: the first two years as an upgrading works/construction phase and then one year of Defects Liability Period (DLP) and the remaining two years of the performance-based maintenance period. Besides, upgrading to blacktop standard (Asphalt Concrete) and performance-based maintenance of 380 km of rural roads (27 nos.) in 16 Districts, Social and Environmental safeguard, and Capacity Building of Federal, Provincial and Local Government and DPR preparation of 2000 km of roads.

ITECO Nepal Pvt. Ltd - Inclusive Consultants Pvt. Ltd is responsible to carry out 420 Km of Feasibility Study and 300 Km of DPR preparation in Lumbini Province. Similar to the first phase, Rural Connectivity Improvement Project (RCIP) phase 2 focuses on improving rural roads to all-weather standards and ensuring that the roads are maintained using Performance-Based Maintenance contracts thus serving the agriculture sector and rural population sustainably.

Hence, the proposed project will play a catalytic role in the sustainable development of rural areas. Bhagwanpur – Dhakdhai – Khaireni Road (Province No. 5 Connecting) Road is one of the sub-projects among the roads considered for DPR preparation in Lumbini Province.

2.2 Objectives of the Proposal

The main objective of the assigned project is to upgrade the existing blacktop road to a standard black top (Feeder Road Standard). The road alignment traverses through wards number 2 and 3 of Rohini Rural Municipality, wards number 5 and 6 of Om Satiya Rural Municipality, and wards number 1, 2, 3, 4, 5, 7, 8, 11, and 12 of Devdaha Municipality of Rupandehi district in Lumbini province. The road will make an easy access from Bhagwanpur to Khairani. The total length of the road is 22.820 Km. The proposed road starts at Bhagwanpur Bajar at elevation 111 m., 27°28'26.66" N, 83°31'02.25" E which traverses via Pokharvindi, Dhakdhai, Majhauri, Birta Bazar, Suryapura Chowk, Devdaha Chowk, Saiya Tole and finally ends at Khairani at elevation 148m, 27°38'36.07" N, 83°35'39.13" E. Bhagwanpur lies in Nepal/India Boarder and Khairani lies on East-West/ Mahendra Highway.

2.3 Objective of IEE

The main objective of this study is to carry out an IEE Study of the “Bhagwanpur-Dhakdhai-Khairani Road per the Environment Protection Regulation, 2077 (Amended, 2078/02/10).

Some of the objectives of the IEE are listed below:

- Prepare baseline on the bio-physical, socio-economic and cultural environment of the project area.
- Identify the major issues that may arise because of proposed works and their severity on the bio-physical, socio-economic and cultural environment of the project area.
- Identify easily implementable offsetting measures for the negative environmental and social issues and suggest remedial plans in case of residual impacts if any are identified.
- Identify practical and site-specific environmental mitigation and enhancement measures, and prepare and implement Environment Management Plan for the project.
- Inform decision-makers about the outcome of the implementation of the proposal
- Make sure that IEE is sufficient for project implementation or not.

2.4 Rationality of Conducting IEE

Amendment made on 2078/2/10 of the Environmental Protection Regulations (EPR) 2077: As per Schedule-2 (E-8) Upgradation, restoration, or reconstruction of national highways or feeder roads with a length of more than 10 Km to 50 km (वातावरण संरक्षण नियमावली (वा.सं.नि.) २०७७ को मिति २०७८/२/१० गतेमा भएको संशोधन: अनुसूची-२ को (ड)-८ बमोजिम १० किलोमिटर भन्दा बढी ५० किलोमिटरसम्म लम्बाईको राष्ट्रिय राजमार्ग वा सहायक सडकको चौडाई वृद्धि हुनेगरी स्तरबृद्धि, पुनर्स्थापना वा



पुनर्निर्माण गर्ने) is need to carry out IEE before the implementation of the project. The proposed road falls under the district roads category having a length of 22.820 Km. So, we need to do IEE and its approval from the concerned ministry before the project implementation. This study will evaluate the extent and severity of likely impacts on the environment and society due to the project and propose appropriate mitigation or augmentation measures where needed.

The proposed road does not pass through any Forest area, National Parks, Hunting Reserves and Animal reserves.

The detailed project report (DPR) of this project is prepared in the collaboration with the Asian Development Bank as a funding agency, per The Environmental Protection Rules of 2077, Rule 7 (8) for the foreign investment project, the proponent could prepare an IEE report in the English Language. Therefore, The IEE report of this project is prepared in the English Language.

2.5 Relevancy of the Proposal

Since this project is already an existing road project. The growing population over the project area has demanded high traffic volume. The project affected area wards number 2 and 3 of Rohini Rural Municipality, wards number 5 and 6 of Om Satiya Rural Municipality, and wards number 1, 2, 3, 4, 5, 7, 8, 11, and 12 of Devdaha Municipality of Rupandehi district in Lumbini province have created pressure to the existing road. This is because this road connects the rural area of the Devdaha, Om Satiya, and Rohini Rural Municipality to the East-West Highway. The existing transportation is unreliable, risky, time-consuming, and costly. The situation becomes worst in the rainy season. The implementation of the proposal will bring reliability to transportation through all-year-round access, and an improvement of overall economic and social status. It provides cheap, safe, and fast transport of goods and services from rural areas to the National Highway and nearby market area. And, also there are the chances of high traffic and the area will be more populated in the coming days. So, this road needs to upgrade into the all-weathered black top road with the full technical standard of Asian Highway class 4.

2.6 Impacts on Environment, Human Life, and Population Pressure

The environmental and social impacts will be both beneficial as well as adverse. Some of the adverse impacts caused by the construction work will affect people and the environment in various ways, whereas beneficial impacts will be; easy access of the roads to the people, and enhancement in quality of life. The primary benefit of road upgrading/widening will be improved access, which will result in the overall economic development of the surrounding



areas. Social development benefits will result from improved access, including economic stimulation and employment generation. Local people currently experience access problems due to current road conditions. Improved road access will therefore be a significant benefit of road upgrading/widening.

2.6.1 Impacts on Land Use

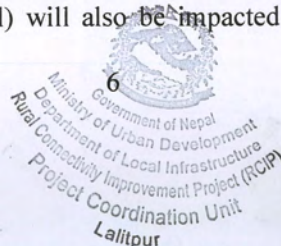
The proposed road upgrading activities will have an impact on the Land-use of the proposed areas. Due to the project intervention, about 4.564 Ha of land (From Barren Land, Cultivated Land, Khaireni Khola, Settlement, and Settlement with Cultivated Land) will be converted into a Road area. An additional area of around 0.8 Ha will be required for establishing a camp site, material storage yard, parking lot, etc. However, the change in land use for this purpose is temporary. The detail of the land area which will be converted into the Road area is summarized in **Table 2: Impacts on Land Use** and details existing land use is mentioned in **Annex 10: Change in Land use**. The impacts may be long-term, direct, local, and significant.

TABLE 2: IMPACTS ON LAND USE

SN	Project Scope	Land-use change along the Road (Ha)							Total Area (Ha.)	
		Agriculture Land		Agriculture Land and Settlement area		Settlement Area	Barren Land			Khola
		Govt.	Pvt.	Gov t.	Pvt.		Govt.	Pvt.		
1	Permanent Land-use Change									
1.1	Formation Width		1.5206		1.3343	1.6751	0.013		0.021	4.564
2	Temporary Land-use Change									
2.1	Camp Site, Parking lots, Material storage yard		0.4				0.4			0.8
	Total									5.364

2.6.2 Impacts on Local Infrastructures

The proposed project will have an impact on the local infrastructure. The public utilities like 24 electric poles, 57 Hume pipes and culverts, 26 slab culverts, 3 box culverts, 3 tube wells, and 5 Residential structures (Partial) will also be impacted due to the intervention of the



proposed project. Likewise, the proposed project intervention will have an impact on the various junctions and the local roads. But no significant impacts have been identified on the large-scale infrastructures.

Moreover, the 64,025 population will get directly impacted during the construction stage due to the construction activities. This may be the disturbance on the movement and other direct and indirect impacts. The impacts on local infrastructures may be insignificant and short-term in nature.

2.7 Beneficial Impacts

The immediate beneficial impacts from the construction of road during the construction phase are the generation of employment for the local people, the opportunity to upgrade technical skills through ‘**on-the-job training**’, which enables local unskilled people to work as a skilled worker, and later on 208,080 person-days of unskilled manpower and 59,500 person-days of skilled manpower is required for the project. Once in the operation of the road, it will be easy access to Bhagwanpur Bajar to Khaireni settlements. The local farmers can easily send their farm products to the market and bring back agricultural inputs.

Likewise, the proposed road alignment will make easy travel for the 64,025 population who lives within the project impact area.

2.8 Adverse Impacts

2.8.1 Physical Impacts

Construction Phase:

Potential adverse physical impacts due to the implementation of the proposal during the construction phase are changes in land use patterns, and impacts due to quarrying activities on farm land and other structures. The impacts associated with stockpiling of construction material and noise/air pollution due to the operation of machines and vehicles. All these impacts can be minimized through the application of proper mitigation measures. During the construction, there will be the chance of air pollution due to the excavation, noise pollution due to the use of heavy types of equipment, and water pollution due to the use of chemicals like petroleum, bitumen, etc.

Operation phase:

The main potential impacts/issues during the operation of the road which require constant monitoring and mitigation are road instability, road accidents, and air/noise pollution due to the movement of vehicles.



2.8.2 Biological Impacts

Construction Phase:

There is no any community forest within the proposed alignment but 63 trees along the alignment lies in private land will be cut down which may result in deduction of the food sources for cattle also these can be shelter to birds, reptiles, insects, etc.

2.8.3 Socio-Economic Impacts

Construction Phase:

Some impacts need to be addressed during the construction phase. Impacts such as occupational safety, health risks to the workers and the public due to the project activities, pressure on existing facilities due to the influx of external workers, possibility of conflict between local and external workers, issue of sanitation all of these issues require appropriate mitigation and monitoring. Ancillary social impacts due to the increased income of the laborers, such as gambling, alcohol consumption, etc. may also emerge.

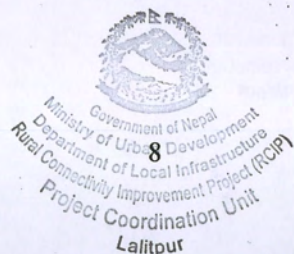
Operation Phase:

Encroachment of RoW, increase in road accidents and associated impacts due to in-migration of the external people for various reasons are the major social impacts during the operation phase of the road. Awareness, appropriate land use planning, monitoring, and provision of the strict rule could moderate these impacts.

2.8.4 Chemical Impacts

Construction Phase:

The spillage of chemicals, fuels, and paints on the soil or water body can adversely affect the environment and ecosystem. This may result in degradation of fertility and may also cause a detrimental impact on aquatic life. Secure storage and safe handling of such chemicals are essential to minimize such impacts.



3. DESCRIPTION OF THE PROPOSAL

3.1 Type of Proposal

This is the upgrading of the existing rural road. This includes road resurfacing, roadside footpaths, roadside drains, road signs, road/pavement markings, intersection improvement, or high mast lighting. This is for the people who will reside in the periphery of the proposed project impacts areas. This is service-oriented road network development. The population which may get benefitted from this upgrading of the road may be 64025 populations. Besides that, people from nearby wards may also get the benefits directly and indirectly as per the officials of the project-affected municipalities.

3.2 Project Description

The proposed road alignment lies in the southern part of the Rupandehi district in Lumbini Province. The alignment of Bhagwanpur- Dhakdahi – Khaireni (Ch:0+000 – 22+820) road starts from Rohini Rural Municipality ward no. 2, Bhagwanpur bazaar (Nepal/India Border) and ends in Khaireni bazaar of Devdaha Municipality ward no. 7 (East-West Highway). It covers Rohini rural municipality ward no-2 and 3, Om atiya rural municipality ward no. 5 and 6, Devdaha municipality ward no. 1,2,3,4,5,7,8,11, and 12 of Rupandehi district. The total length of the existing road is 22.820 km and 4 m to 7 m in width with a bituminous surface. The proposed existing road was constructed by the Department of Roads. This road falls under the category of District Road as per DTMP, 2016 of Rupandehi district and now as Provincial Road of Lumbini Province. The road alignment follows flat and plain terrain. This road section also passes through cultivated lands and settlements Annex 10: Change in Land use. The major settlements along the road alignment are Bhagawnpur Bazaar, Tikkar, Pokharbhindi, Dhakdhai, Kadamhawa, Darkhas, Majhauri, Narayanpur, Narainapur, Shankarpur, Birta Bazaar, Rajabari, Shiwalayatol, Suryapura Pariwartanshiltol, Semrahana, Saiya, Bijayapur, Shigaha and Khaireni Bazar.



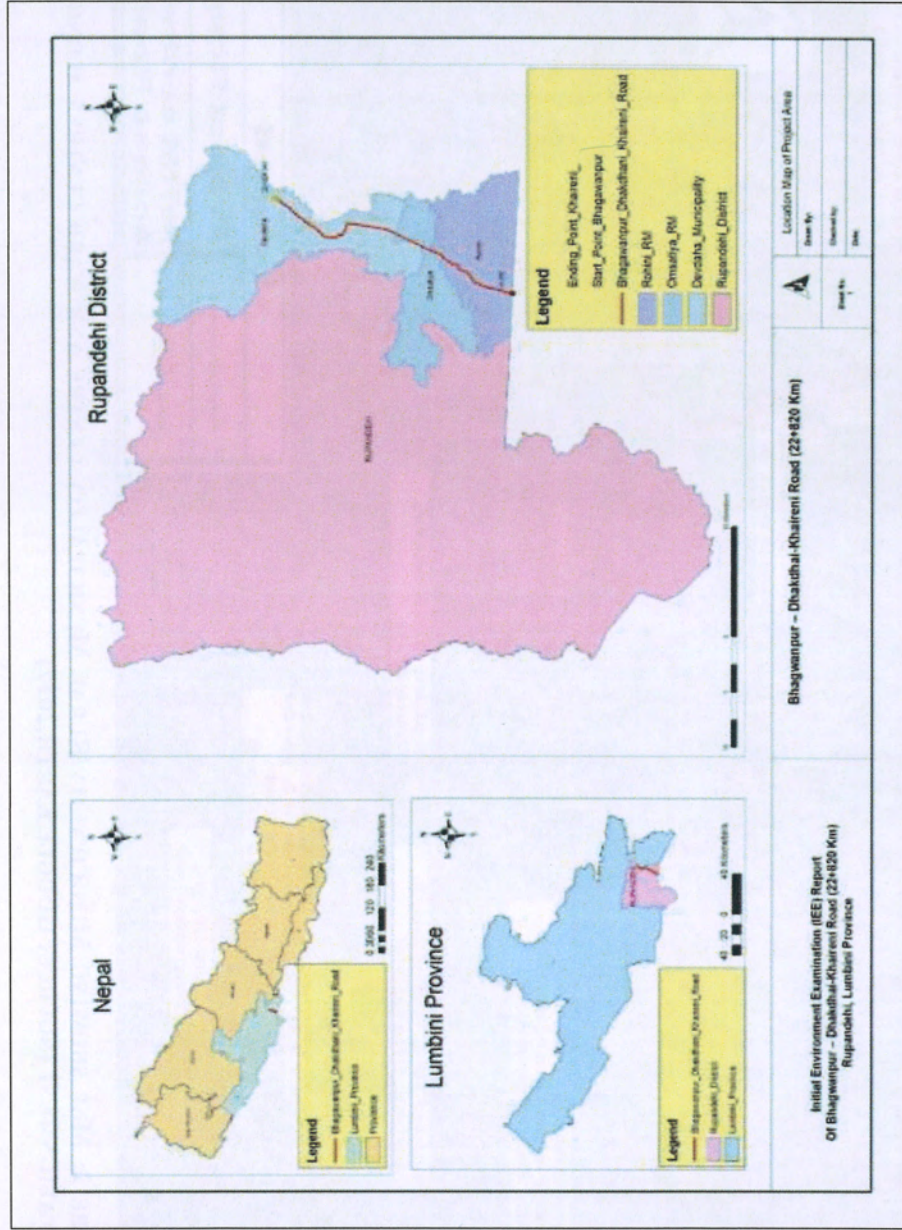


FIGURE 1: PROJECT LOCATION MAP

(SOURCE: DEPARTMENT OF THE SURVEY, GO.N)



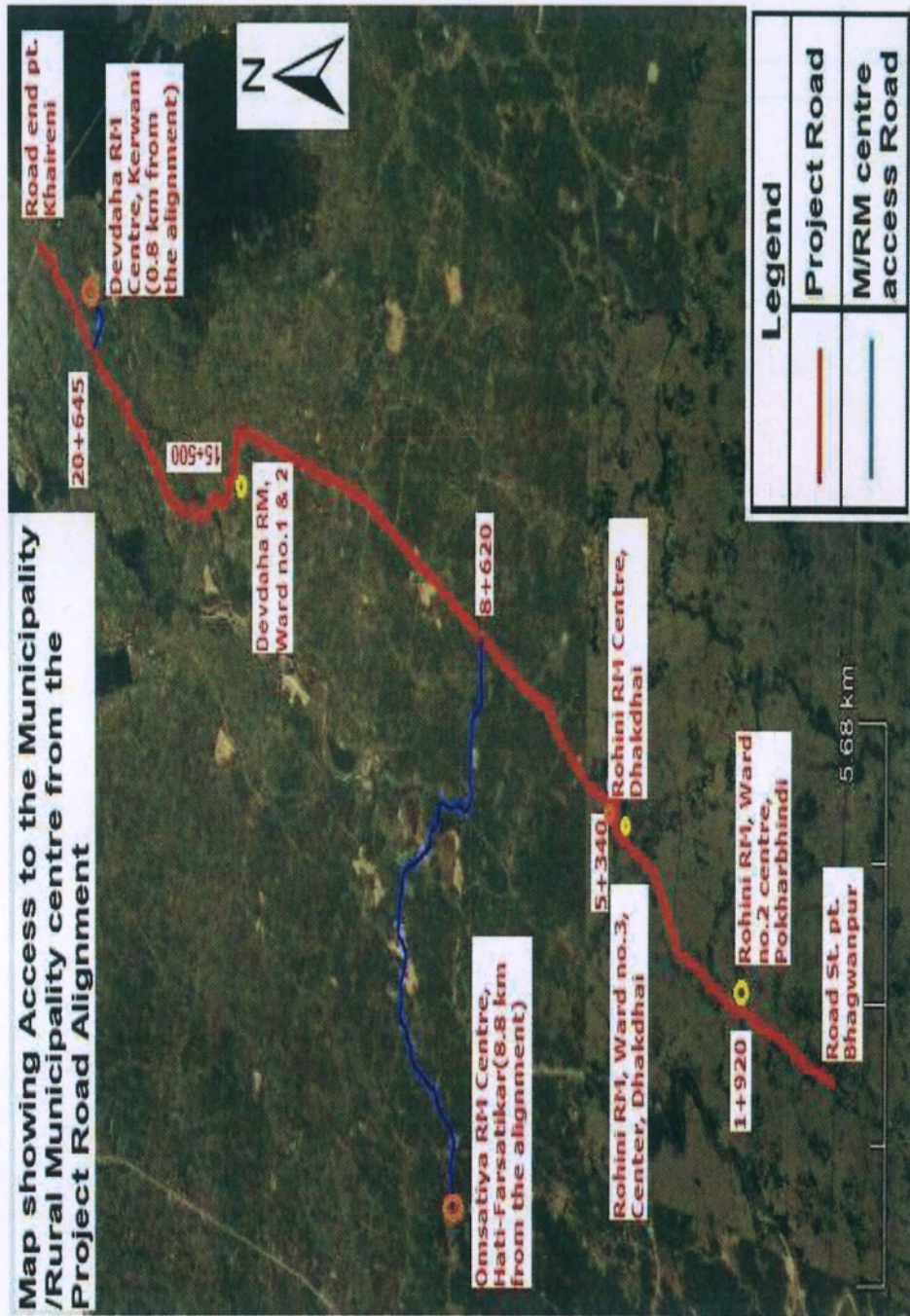


FIGURE 2: MAP SHOWING MUNICIPALITY/RURAL MUNICIPALITY CENTRE AND WARD CENTRES ALONG THE ROAD ALIGNMENT (SOURCE: GOOGLE EARTH,2017)



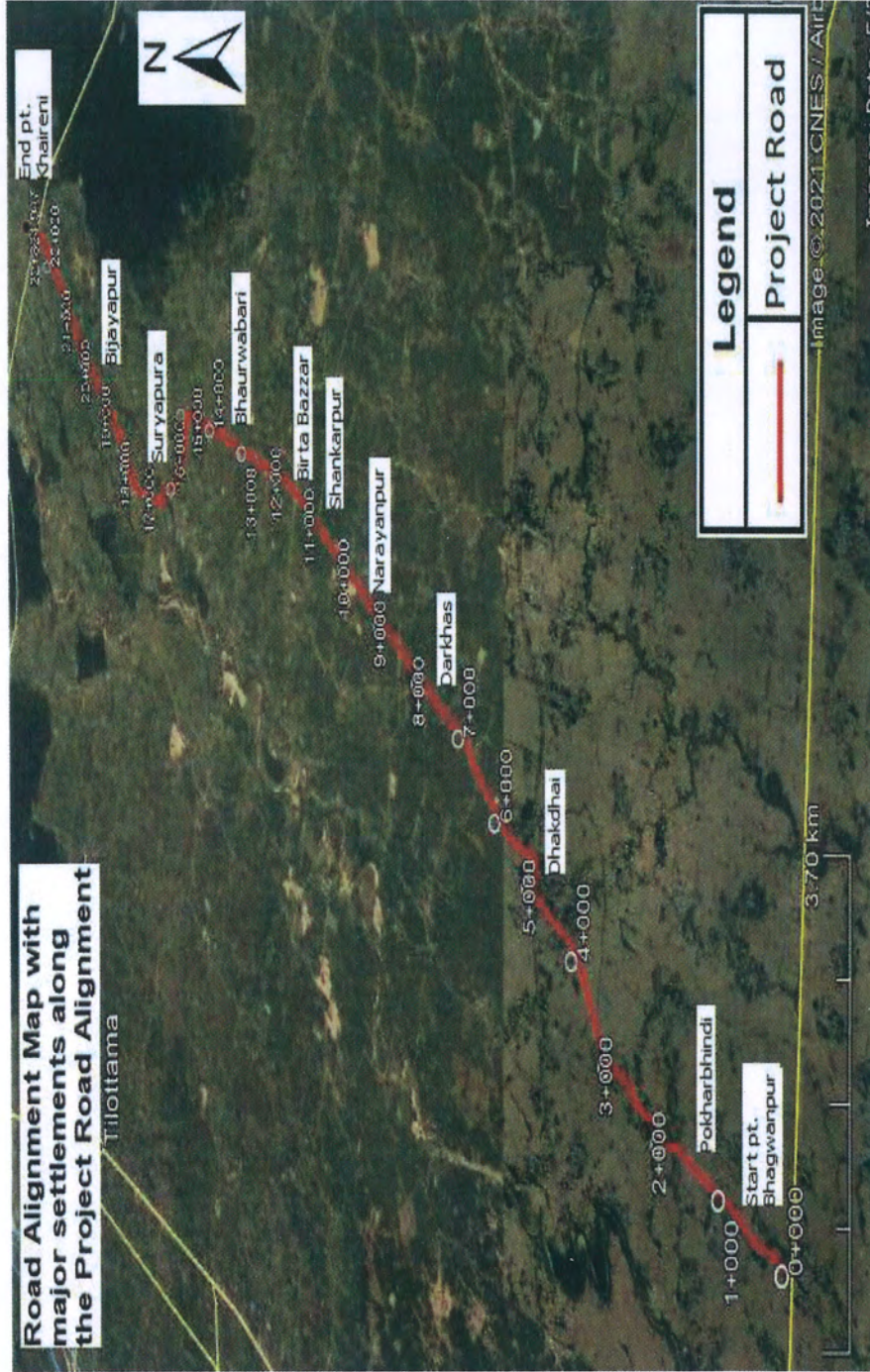


FIGURE 3: PROJECT AREA WITH ROAD ALIGNMENT (SOURCE: GOOGLE EARTH, 2017)



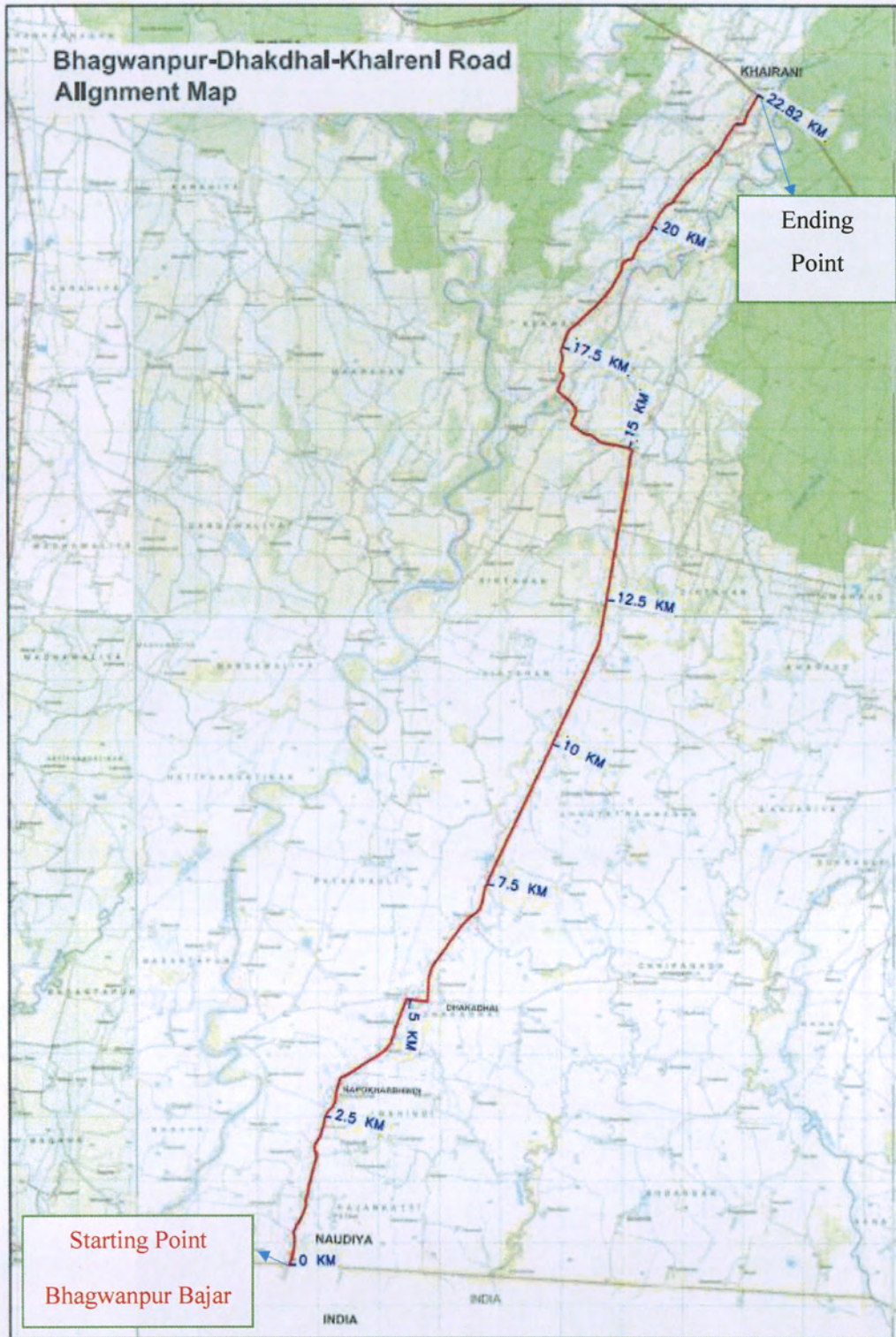


FIGURE 4: TOPOGRAPHIC MAP WITH ROAD ALIGNMENT

(SOURCE: DEPARTMENT OF SURVEY, GON)

Government of Nepal
Ministry of Urban Development
Department of Local Infrastructure
Rural Connectivity Improvement Project (RCIP)
Project Coordination Unit
Lalitpur



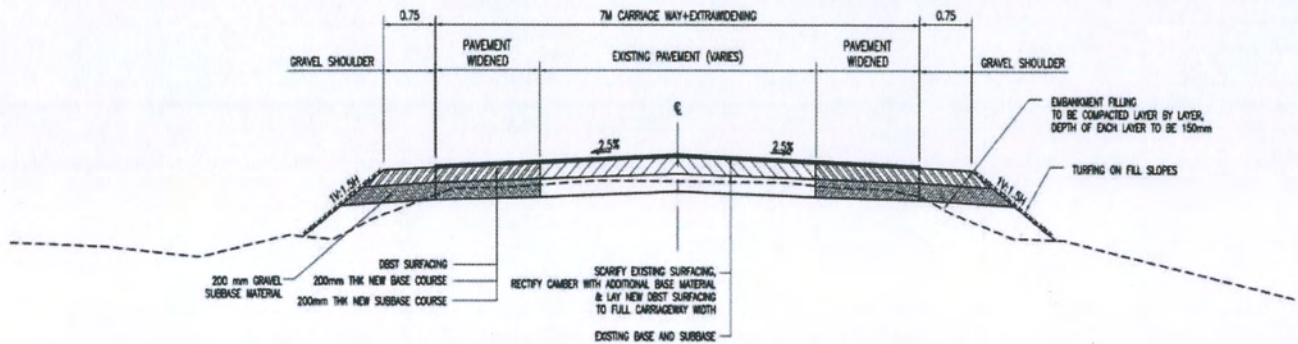


FIGURE 5: ROAD CROSS SECTION

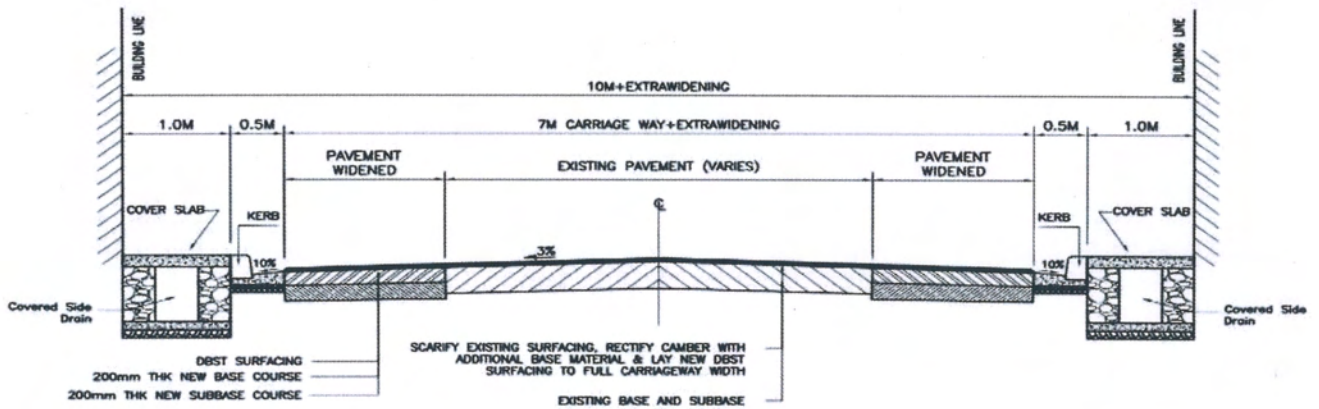


FIGURE 6: ROAD CROSS SECTION AT BAJAR AREA

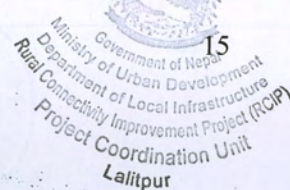


3.3 Salient Features

The Salient features of “Bhagwanpur-Dhakdhai-Khaireni Road” is presented below.

TABLE 3: SALIENT FEATURES OF THE PROJECT

SN.	Components	Details
1.	Name of Road:	Bhagwanpur - Dhakdhai - Khaireni Road
2.	Location:	
	2.1 Geographical location:	
	i) Province:	Lumbini
	ii) District:	Rupandehi
	iii) Local Level:	<ul style="list-style-type: none"> • Rohini rural municipality, • Om satiya rural municipality • Devdaha municipality
	iv) Wards:	<ul style="list-style-type: none"> • Rohini RM ward no. 2 and 3 • Om satiya RM ward no. 5 and 6 • Devdaha Municipality ward no. 1,2,3,4,5,7,8,11, and 12
	2.2 Geographical feature:	
	i) Climate:	Tropical
	ii) Geology:	Terai
	iii) Hydrology:	Khaireni Khola
	iv) Meteorology:	Unevenly Distributed precipitation Controlled by Monsoon
3.	Classification:	
	3.1 Classification:	Provincial Road
	3.2 Existing Surface:	Mostly Blacktopped with partially Gravelled & Earthen
	3.3 Proposed Surface:	Asphalt Pavement and Rigid Pavement
4.	Length of Road:	
	4.1 Starting Point:	Bhagawanpur (Rohini Rural Municipality-2, Rupandehi) Chainage:0+000
	Latitude:	27° 28' 26.66" N
	Longitude:	83° 31' 02.25" E
	Elevation:	111 m
	4.2 End Point:	Khaireni (Devdaha Municipality-11, East-west Highway) (Chainage:22+820)
	Latitude:	27° 38' 36.07" N
	Longitude:	83° 35' 39.13" E
	Elevation:	148 m
	4.3 Length(km):	22.820 Km
	4.4 Design Speed	60 km/hr.
	4.5 Design Life	20 years
	4.6 Maximum Gradients%	7
	4.7 Camber (%)	2.5
	4.8 Super Elevation (%) (max)	7
	4.9 Design Capacity	<2000



SN.	Components		Details			
5	Cross Section:					
	5.1	Right Of Way(m):	20.00 m (From Centreline 10m /10m)			
	5.2	Formation Width(m):	8.50			
	5.3	Carriage Way Width(m):	7.00			
	5.4	Shoulder Width(m):	0.75			
	5.5	Right of Way	10m /10m either side of the road			
	5.6	Drain Width	1.0 m			
6.	Pavement Design:					
	I. Asphalt Surfacing					
	6.1	Layer	Thickness (cm)	Width (m)	Remarks	
	a.	Sub-grade	-	8.50	(Carriageway+2 side shoulder)	
	b.	Sub-base	17.50	8.50	(Carriageway+2 side shoulder+1 Side shoulder of Base layer level)	
	c.	Base	15.00	7.00	(Carriageway)	
	d.	Asphalt	4.00	7.00	(Carriageway)	
	II. Rigid Pavement					
	6.2	Layer	Thickness (cm)	Width (m)	Remarks	
	a)	Sub-grade	-	8.5	(Carriageway+2 side shoulder)	
	b)	Rigid Pavement	20	8.5	(Carriageway+2 side shoulder, M20 RCC)	
	7.	Cross Drainage Structure:				
		7.1	Hume Pipe Culvert:	57.00		Nos
7.2		RCC Causeway			Nos	
7.3		Slab Culverts	26.00		Nos	
7.4		Box Culvert	3.00		Nos	
8	Structures:					
	8.1	Stone Masonry with C/S Mortar	2802.56	m ³	(Retaining/ Breast Wall, drain & X-drainage Structure)	
	8.2	Gabion	241.20	m ³	(Retaining/ Breast Wall, check wall, and Apron)	
	8.3	Plum Concrete	4539.83	m ³	(Improvement on foundation)	
	8.4	M25 RCC	772.01	m ³	(Deck Slab of Slab Culvert)	
	8.5	M20 RCC	1589.10	m ³	(Rigid Pavement & Causeway Slab)	
	8.6	M20 PCC	854.40	m ³	Kerb & Foot Path	
	8.7	M15 PCC	734.35	m ³	(Drain bed & Catchpit)	
	8.8	M10 PCC	614.14	m ³	(Foundation of structure)	
9	Earth Work					

SN.	Components		Details		
9.1	E/W in Excavation		22,998.82	m ³	(Roadway and drain)
9.2	Embankment		39,157.88	m ³	
10	Project Cost NRs.				
10.1	Overall Total Cost including VAT		Rs. 802,805,697.02		
10.2	Cost Per Km		Rs. 30,895,611.74		
10.3	Environment Management (EMP) Cost		Rs. 8,185,978.33		
11.	Others:				
11.1	Population served		64,025		
11.2	Construction Period		18 months		
11.3	Land Requirement for formation width		19.397 ha. (Total including occupied by existing road)		
11.4	Additional Land Requirement		4.564 ha. (From Barren Land, Cultivated Land, Khaireni Khola, Settlement, and Settlement with Cultivated Land)		
11.5	Forest		No Forest area		
11.6	Tree Loss		63 (from private Land)		
11.7	Employment Generation		59,500 person-days skilled; 208,080 person-days-unskilled: & 267,580-total		
11.8	Impacts on Local Infrastructures		24 electric poles, 57 Hume pipes and culverts, 26 slab culverts, 3 box culverts, 3 tube wells, and 5 Residential structures (Partial)		

(Source: DPR, 2022)

3.4 Project Area Delineation

Adverse and beneficial environmental impacts are expressed on basis of proximity of activity and magnitude of impact. Based on the environmental impacts of the project, the project-affected areas are classified as the following;

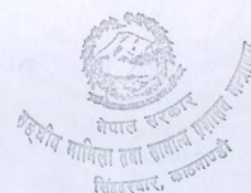


TABLE 4: CATEGORY OF IMPACT STUDY AREA

Impact category	Impact Area
Category A (Direct Impact Zone/DIZ)	Construction areas of project activities (Road alignment, camp facilities, excavation site, Quarry sites, stock piling areas, spoil disposal area, de-vegetated area for site clearance, etc) & RoW of the road.
Category B (Indirect Impact Zone/IIZ)	The area is outside of category A but has a repercussive (indirect effect) impact due to construction activities. However, the precise physical delineation of such impact is difficult at this stage; wards number 2 and 3 of Rohini Rural Municipality, wards number 5 and 6 of Om Satiya Rural Municipality, and wards number 1, 2, 3, 4, 5, 7, 8, 11 and 12 of Devdaha Municipality through which the road alignment passes has been considered in this category.
Category C (Influenced Area)	Project-influenced area is generally considered indirectly affected areas from a socio-economic point of view. The administrative boundary of Rohini Rural Municipality ward 1, 4, 5, 6, and 7, Om Satiya Rural Municipality ward number 1, 2, 3, and 4, and Devdaha Municipality ward 6 is considered in this category.

3.5 Materials to be used

The principal materials required for the construction of the road works are soil, gravel, crushed rock, and bitumen. Earth is used for embankment construction. Gravel is used for sub-base construction. Crushed stone, crushing, screening, and at times blending, is used for base-course construction and bituminous surfacing. Moreover, reinforcement bars and the cement will also be used in construction activities. The proposed construction will emphasize the use of local materials as far as possible. And other materials which cannot be found in the locally are bought from nearby cities of Bhaktapur and Kathmandu.



Table 5: Materials to be used

S. N.	Name of the materials to be used	Unit	Quantity
1.	Bitumen	Ltr.	1,200,000
2.	Chips (Ton)	Ton	9,780
3.	Boulders (Cu.m)	Cu.m	37,600
4.	Sand (Cu.m)	Cu.m	36,630
5.	Cement (Ton)	Ton	25
6.	Aggregate (Cu.m)	Cu.m	66050
7.	Reinforcement (Ton)	Ton	246
8.	Paints (Ltr)	Ltr.	150

(Source: DPR, 2022)

3.6 Energy to be used

The energy required for the construction works is mainly diesel, kerosene, and petrol. The laborers at the camps will need energy for cooking purposes. For this, kerosene and LPG gas will be used. Bitumen will be heated by using kerosene.

TABLE 6: ENERGY TO BE USED (CO₂ EMISSION FACTORS FOR VARIOUS PETROLEUM PRODUCTS AS PER IPCC GUIDELINES)

.32	Petroleum Products	IPCC unit	Unit, liters	IPCC (CO ₂)	CO ₂ emission per liter	Qty, lt	CO ₂ Emission,
				Emission Factor			Kg
1.	Petrol	Gallon	3.79	8.78	2.32	9811.294	22762.202
2.	Diesel Fuel	Gallon	3.79	10.21	2.7	231613.5	625356.534
3.	LPG	Gallon	3.79	5.68	1.5	7159.504	10739.256
4.	Kerosene	Gallon	3.79	75.2	19.87	12638.37	251124.491
Total							909982.483

(Source: Detail Design and as per IPCC Guideline for National Greenhouse Gas Inventors)

3.7 Human Resources Requirement

Unskilled (labor), semi-skilled and skilled manpower will be required for upgrading the proposed project. Depending on their expertise, experience, and knowledge local people will be prioritized for construction-related works. An estimated 2,08,080 man-days (285 people daily) of unskilled labor and 59,500 man-days (82 people daily) of skilled workforce will be required for the completion of the project.



3.8 Resources Required for Project Implementation

3.8.1 Land Use Required

The alignment starts at Bhagwanpur Bajar and passes through major settlements Pokharvindi, Dhakdhai, Majhauri, Birta Bazar, Suryapura Chowk, Devdaha Chowk, Saiya Tole, and ends at Kahireni. The land will be used temporarily used only for quarry sites and stockpiling sites. The temporary land use with chainage is tabulated below.

TABLE 7: TEMPORARY LAND USE FOR QUARRY AND STOCKPILING SITE

S. N.	Location	Types of Land	Ownership
1. Stockpiling and Camp Sites			
	3+700	Agricultural	Private Land
	7+850	Agricultural	Private Land
	12+500	Barren	Government Land
	18+650	Agricultural	Private Land
	22+760	Barren	Government Land

(Source: Field Study, 2078)

3.8.2 Construction Technology and Implementation Mechanism

There are two types of road design and construction approach, conventional and labor approach. In this road, a mixed type of construction approach (conventional and labor-based approach) is proposed for construction. In the conventional method, heavy machinery and equipment, heavy concrete structures with the application of bituminous surfacing, side drains, bridges, and culverts are used and as a labor-based approach, local labor is employed for manual works like bioengineering, gabion wall construction, etc.

Mechanized methods for specialized works will be employed, such as crushing aggregate, sub-base and base course spreading, compacting, and finishing with a bituminous seal. Labor-intensive methods will be used for small earthworks, construction of drains, and retaining structures. Local people will be given priority for work according to their skills and qualification.

Construction activities: Activities during construction includes civil works, social development, and environmental protection activities.

Construction equipment: Equipment like the grader, vibrator, roller, water browser, loader, and mixer will be used at construction sites during construction. Vehicles like trucks will convey the necessary raw materials and equipment to the construction site.

The machinery and tools that are used at the time of construction and operation stages are as:

Labor intensive tools: Wheel Barrow, Shovel, Iron Pan,

Machines and Vehicles required for Road construction: Trucks, Excavator, Dozer, Graders, Bitumen Boiler Machine, Loader, Hauling Scrapers, Bamboos, and rope, Manhole covers lifting hook and tripod

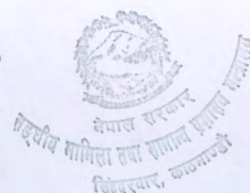
Safety Tools: Helmet, Safety Jacket, Gloves, Boots, Safety rope,

3.8.3 Construction Materials

The materials required for an upgrading or improvement road subproject are Sub-base material (gravel), Base coarse aggregate, Road surfacing aggregate, Aggregates for structural concrete, Filter/drainage material, and Boulder or rock-fill for gabion baskets. The alignment of Bhagwanpur-Dhakdhai-Khaireni Road passes through the Plane, agricultural and built-up area. The study for the availability of construction materials (boulders, cobble, gravel, and sand) is not available along the road corridor. Construction material has to be brought from elsewhere sources such as Ghodahakhola 2.17 Km west from Project endpoint Khaireni, Tinaukhola 11.25 km west from Dhakdhai and Bhumahi, Daunne 7.25 km east from the end point. The location of potential sources of Construction material is presented in **Table 8: Potential Sources of Construction Materials (Sand, Aggregate & Base/Sub-base)** and **Table 9: Potential Sources of Construction Materials (Boulder)**. The construction materials available at nearby local market will be used during construction work. During the upgradation of the road, fresh cuts including soil/sand and gravels can be used for the filling purpose along the roadside so no any spoil disposal site was identified.

TABLE 8: POTENTIAL SOURCES OF CONSTRUCTION MATERIALS (SAND, AGGREGATE & BASE/SUB-BASE)

S.N.	Location (Km)	Material	Grain Size Distribution			Estimated Quantity (m3)	Remarks
			Gravel (%)	Sand (%)	Silt+Clay (%)		
1	Ghodahakhola River	Sand	78.3	21.48	0.22	Sufficient	It will be the construction contractor's responsibility to verify the suitability of
		Aggregate					
		Sub base/ Base					
2	Tinaukhola Basin	Sand				Sufficient	
		Aggregate					



S.N.	Location (Km)	Material	Grain Size Distribution			Estimated Quantity (m3)	Remarks
			Gravel (%)	Sand (%)	Silt+Clay (%)		
	(11.25 km away from Dhakdhai through Bhairahawa – Parasi Road towards Bhairahawa)	Sub-base/ Base	85.83	12.66	1.51		all construction material sources and quarries which will require approval of concerned local bodies.
3	Badganga River	Sand	96.33	3.56	0.11	Sufficient	
		Aggregate					
		Sub-base/ Base					

TABLE 9: POTENTIAL SOURCES OF CONSTRUCTION MATERIALS (BOULDER)

S.N.	Location	Material	Estimated Quantity	Remarks
1.	Ghodahakhola Basin 2.17 km away from Khaireni (endpoint) Through east-west Highway towards Butwal	Boulder	Sufficient	It will be the construction contractor's responsibility to verify the suitability of all construction material sources and quarries which will require the approval of concerned local bodies.
2.	Bhumahi Basin 7.35 km away from Khaireni (endpoint) through MRM towards Daunne	Boulder	Sufficient	



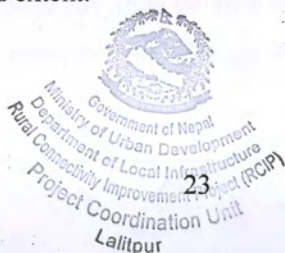
FIGURE 7: MAP SHOWING POSSIBLE QUARRY SITE

3.9 Methodology Adopted During Study

This IEE study has been carried out per the EPR, 2077. However, the National Environmental Impact Assessment Guidelines (1993) were also followed in the study. The IEE of the Project has identified the impacts of the physical, biological, socio-economic, and cultural environment. Local people and stakeholders were contacted and interaction meetings were held to gather the local beneficiaries' perceptions of the proposed Project.

Primary and secondary information was collected from field studies and literature reviews. The primary data were collected employing the following techniques: focus group discussions, key informant survey, field observation, walkthrough along the proposed alignment, and sampling household survey for directly affected people. The trees within the formation width were noted and measured.

Secondary information was collected from various documents, reports, maps, designs, and cost estimates. Socio-economic and cultural information was collected, crosschecked, and analysed. The likely Impacts (both positive and negative) were identified and/ or predicted by adopting the simple checklists. Based on the likely impacts in terms of their magnitude, duration and extent, suitable mitigation measures have been designed. Foreseeable impacts (both positive and negative) were identified and predicted. These impacts have been categorized in terms of their magnitude, duration, and extent.



Similarly, Environmental Monitoring Plans have been prepared to take into consideration the types of impacts and suggested mitigation measures. The following approach and methodology were adopted during the IEE report preparation.

3.9.1 Desk Study

Desk works included a review of relevant literature and reports of similar nature primarily for the collection of secondary data.

The following steps were adopted during the desk study:

- Collection of secondary information from the various source- reports, books, etc.
- Delineation of the geographical boundary of the influence area on the topographical map.
- Preparation of project-specific checklist.

3.9.2 Field Study

3.9.2.1 Survey

During the field, walk over survey was carried out, checklists were filled, and collected baseline information on the physical, biological, socio-economic, and cultural environment. The information such as name and number of trees, public utilities, and, number of houses within 10 m right of way (RoW) on either side of the proposed road and GPS locations were taken during a survey.

To cross-check the local information, local officials, particularly Rural/Municipality offices, Division Forest offices, etc. were contacted to solicit site-specific information.

Similarly, for the collection of primary information from the field, interaction with local people was done by focus group discussion (FGD) and household survey. The survey was conducted to gather information on view on road up-gradation and its effects of it on the livelihood of the local community in DIZ. The identification of flora and fauna present in the proposed road alignment was also conducted through a survey. Necessary photographs were taken to show different environmental features.

3.9.2.1.1 Physical Environment

Topography, climate, meteorological data (precipitation), geological and land use pattern, hydrology, (air and water), and other information concerning physical resources of the project area, possible stockpiling and possible disposal sites, etc. have been collected and presented in IEE report. Site observation and site-specific photography have been presented. Physical



infrastructures that are likely to be affected during the widening of the existing road have been collected and documented.

3.9.2.1.2 Biological Environment

There is no forest area along the proposed road alignment but the number of trees along the RoW that is to be cleared up for implementation of the project has been recorded. Walk-through survey was conducted at project sites to observe the vegetation types. Total count of trees that fall on the formation width of the proposed road sections was counted and their DBH was measured using measuring tape, clinometer. Site visit, interaction with Community, Photography, etc. has been taken for the record.

3.9.2.1.3 Socio-Economic and Cultural Environment

Information on socio-economic and cultural features of the project area including population, ethnic composition, literacy, language, health service facilities, etc. has been collected. Similarly, cultural and religious sites, sources of energy, infrastructures, market centers, etc. have been also collected. The methodology that was applied to collect these data are site visits, site surveys, enumeration of affected structures, interaction and discussion with the peoples of the Rohini and Om Satiya Rural Municipality and Devdaha Municipality, Checklist, etc.

3.9.2.2 Focus Group Discussion, Public Hearing, Publication of notice public notice and Public Consultation

To ensure the public involvement, the following procedures were followed during IEE report preparation:

- **Focus Group Discussion (FGD)**

To conduct consultation with the local communities at different settlements, FGD was organized, and key informants and other knowledgeable persons were consulted. It was done to collect biological, socio-economic, and cultural environment-related information.

- **Public Hearing**

A public hearing was conducted within the sub-project area as per rule 6 (1) of EPR 2077 and collected comments and suggestions from related stakeholders including local people, users' groups, and local representatives. A public hearing notice was published on **Poush 14th, 2078 in Butwal daily newspaper**. Public hearings were organized in ward no 2 of Devdaha Municipality and Dhakdahi, Rohini RM ward no. 3 on Poush 21st, 2078. Minute is attached in

Annex 3: Public Hearing

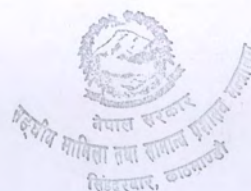


TABLE 10: SUMMARY OF PUBLIC HEARING

S.N.	Date	A place for a public meeting	No. of Participants		Issues and Decisions of Meeting
			M	F	
1.	2078/09/21	Devdaha Municipality ward number 2	38	7	<ul style="list-style-type: none"> Side drain should be made on both sides
2.	2078/09/21	Dhakdahi, Rohini RM ward no. 3	63	10	<ul style="list-style-type: none"> Complete the work as soon as possible, Sprinkling of water daily during the construction of road Job priority should be given to the locals Pipe culverts and bridges should be upgraded with the up-gradation of the road Complete the work as soon as possible.

- Publication of public notice**

As per rule 7 (2) of EPR 2077, a 7-day public notice was posted in offices of the local level affected due to the subproject, health posts, educational organizations, etc. in the format provided in EPR Schedule 9 and deed of inquiry (Muchulkas) was obtained. After this, a similar notice was published on the 10th of Baishak 2079 in the Madhyanha Daily Newspaper seeking written opinion from concerned stakeholders as per rule 7(3) of EPR, 2077. A sample of public notice is given in **Annex 4: Public Notice and Recommendation Letter** And also, and Recommendation letters from Rohini Rural Municipality, Om Satiya Rural Municipality, and Devdaha Municipality were obtained. Public notice, deed of inquiry or Muchulka, and recommendation letters were attached in **Annex 4: Public Notice and Recommendation Letter**

- Public Consultation:** IEE team also carried out interactions with local communities and related stakeholders during the field survey to collect the public concerns and suggestions.

The opinions and suggestions received from concerned people were included in the IEE report.

3.9.2.3 Community Participation Plan (CPP)

The Community Participation Plan (CCP) for the proposed road upgrading project was prepared as a separate volume and its findings are summarized in the IEE report. The CPP will detail the mitigation measures and responsibility for loss of land, loss of structures, loss of livelihood, loss of assets such as trees and ponds, loss of community assets, increased road safety risks other impacts. The relevant information from CPP is described in the IEE report.

3.9.4 Data Analysis/Data Presentation

All the data during the field visit were processed in excel and the data and then the outcome were summarized in the table. Arc GIS 10.3 was used to prepare the topographical maps and geological maps.

3.9.5 Compilation of existing information, impact identification, and prediction

The information collected from different sources was processed and analyzed according to the physical, biological, socioeconomic, and cultural environment. The collected secondary data were the major sources for verification of primary data collected during the field survey. The collected information from the primary source was analyzed, tabulated, and prioritized.

The impacts of the activities on the physical, biological, socio-economic, and cultural environment in a defined proposal influence area have been analyzed and classified in terms of extent (site-specific, local, and regional), magnitude (low, medium, and high) and duration (short term, medium-term and long term).

3.9.6 Mitigation Measures and Monitoring Plan

Based on the identified impacts their nature, extent, duration, and magnitude, the mitigation and monitoring prescriptions were developed. Environmental Management Plan has been prepared including defined activities, their impacts, mitigation measures, and their methodology, and monitoring schedule, responsible and supervisory agency to implement such measures.

3.9.7 Final Report Preparation

The IEE report was prepared by the study team of the consultant and is submitted to RCIP/DOLI and MoFAGA for further processing.



3.10 Baseline Information of Project Area

This section describes the Physical, Biological, Socio-Economic, and Cultural baseline information of the proposed road alignment. The information provided herein is based on (i) primary field studies undertaken by the Consultant's Team, (ii) Public Consultation with the local stakeholders undertaken by the Consultants, and (iii) Data on biophysical, social, and other relevant information taken from secondary sources.

3.10.1 Physical Baseline information

3.10.1.1 Topography

The whole alignment of the road lies in the Terai region of Nepal. It is located between Bhagwanpur Bajar at elevation 111m., Latitude 27° 28' 26.66" N and Longitude 83° 31' 02.25" E and Khairani at elevation 148m, Latitude 27° 38' 36.07" N and Longitude 83° 35' 39.13" E. Geographically, the area is flat and formed from the alluvial deposits. The surface gradually slopes towards the south, hence, the rivers and streams flow in the same direction and the area is fragile due to alluvial deposits.

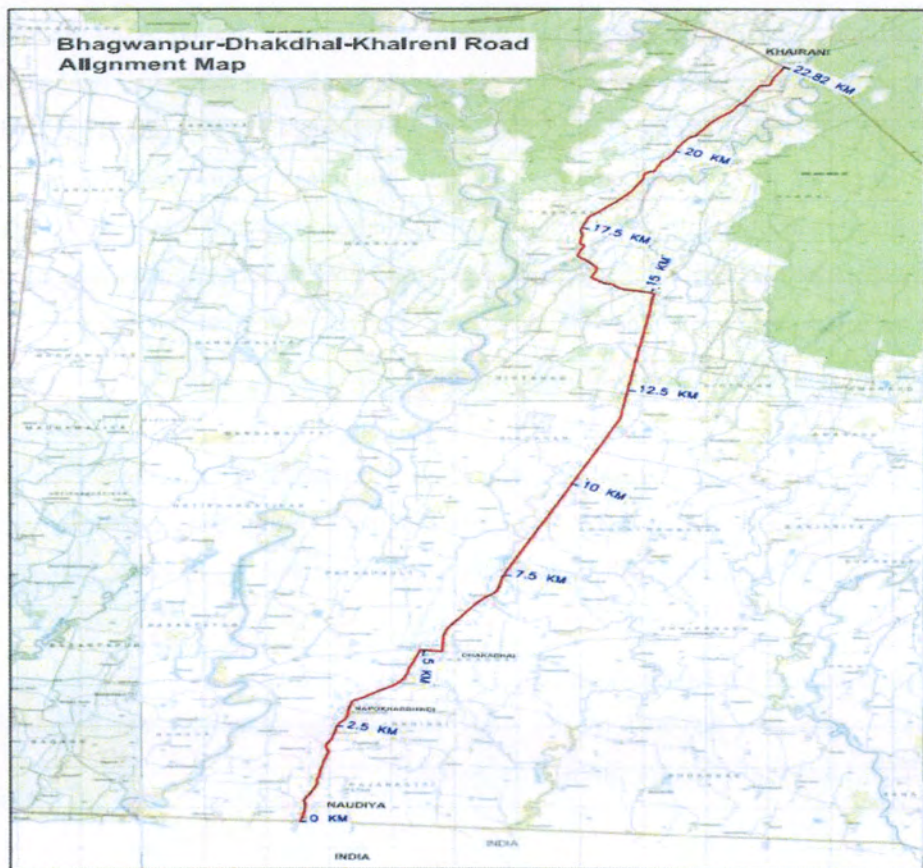


FIGURE 8: ROAD ALIGNMENT IN TOPOGRAPHIC MAP

3.10.1.2 Land Use

A study of land use patterns was carried out along the road alignment. A brief of the land use pattern along the road alignment is presented in Table No.11 and Details of the land use pattern along the road alignment are presented in **Annex 10: Change in Land use**.

TABLE 11: LAND USE

SN.	Landuse	Area of Land with 20m RoW in (Hectare)	Area of the existing road (6.5m) in (Hectare)	Area of Required (8.5m) Road in (Hectare)	Additional Land area required in (Hectare)
A. Permanent Land requirement					
1.	Barren Land	0.13	0.04225	0.05525	0.013
2.	Cultivated Land	15.206	4.94195	6.46255	1.5206
3.	Khairni Khola	0.21	0.06825	0.08925	0.021
4.	Settlement	16.751	5.444075	7.119175	1.6751
5.	Settlement with Cultivated Land	13.343	4.336475	5.670775	1.3343
Total		45.64	14.833	19.397	4.564

3.10.1.3 Geology

The project area consists of quaternary alluvial river deposits. Almost all roads pass through plain terrain of terai zone. This zone is characterized by pebbly and brown to grey-colored unconsolidated sandy sediments with few clay particles.

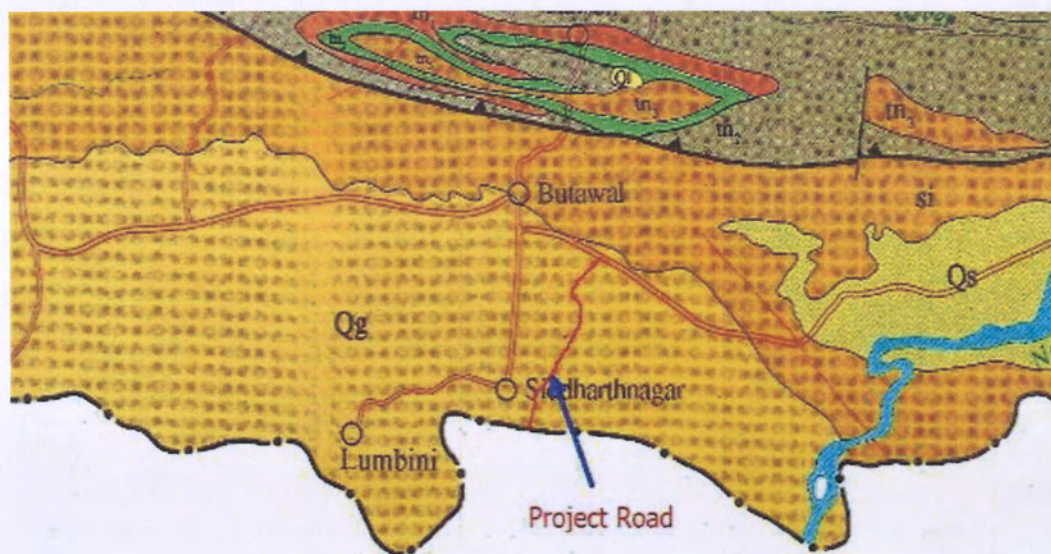
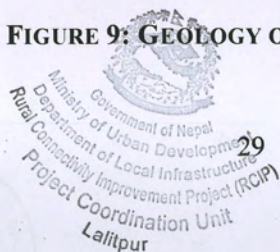


FIGURE 9: GEOLOGY OF PROJECT AREA



*(Qg- quaternary alluvial river deposits; Si- Middle- Miocene to Plio- Pleistocene molassic fluvial deposits, conglomerates, sandstone, and shale with vertebrate fossils)

No rock formation is observed nor expected at shallow depth. These deposits are characterized by a high-water table which in place has caused the formation of marshy lands. Clay in this region is mostly dark grey colored and intercalated with brown-colored sand layers. In general, there isn't any kind of instability problem along road alignment.

3.10.1.4 Climate/ Hydrology

Temperature: The project area lies in the Tropical zone. The temperature in the project area fluctuates from 7.10°C (in January) to 40.20°C (in May) based on DHM temperature records for Rupandehi for the past 30 years. December, January, and February are the coldest months: the minimum temperature ranges from 7.10°C to 10.50°C and the maximum temperature ranges from 21.26°C to 27.9°C during these months. April, May, and June are the hottest months, and the maximum temperature recorded over the past 30 years ranges from 35.61°C to 40.20°C while the minimum temperature recorded during these months' ranges from 16.40°C to 25.56°C.

TABLE 12: TEMPERATURE AVERAGE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Maximum	24.30	27.90	33.80	37.70	40.20	38.30	35.00	34.50	34.50	33.90	30.80	27.20
Average Maximum	21.23	25.68	31.43	36.19	36.55	35.61	33.27	33.43	33.04	32.55	29.44	24.36
Average Minimum	8.55	10.50	14.00	19.03	23.37	25.56	25.99	25.94	24.76	20.49	14.46	10.22
Minimum	7.10	8.10	11.70	16.40	19.20	24.00	24.40	23.60	23.60	18.70	11.90	8.90

(Source: Based on DHM observation)

Precipitation: Precipitation in the district is predominantly led by the monsoon in Nepal. The average annual rainfall received in the district is 1808.33mm and DHM records show the lowest of 1081.6mm in 2005-2006 and a maximum of 2797.4mm in 1998.



TABLE 13: PRECIPITATION AVERAGE

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Min	0.00	0.00	0.00	0.00	0.00	77.60	178.10	115.00	60.40	0.00	0.00	0.00
Max	76.30	68.70	103.10	100.50	335.60	1034.50	1079.90	970.90	550.00	359.60	75	117.10
Mean	15.87	18.42	17.66	23.96	86.34	274.15	587.54	405.97	283.56	75.76	5.75	13.70

(Source: Based on DHM observation)

The monthly average rainfall received ranges from a minimum of 5.75 mm in the driest month of November to 1079 mm in the wettest month, July. Maximum rain falls in June and July that ranges from 115 to 1079.9mm. Average rainfall observed from 1973 through 2012 ranges from 405.97 to 587.54 mm. Pre-monsoon precipitation of 274.15mm on average is received in June and the maximum rainfall received for the observed period is 1034.5mm. Similarly, the post-monsoon month September is a comparatively wet month that receives an average of 283.56mm of rainfall.

Hydrology and Drainage

In Bhagwanpur - Dhakdhai - Khaireni Road there is one existing multi span bridge (length 36 m) in Khaireni Khola (chainage 16+550) constructed on 2054 BS.

3.10.1.5 Seismicity of the project area

As compared to the north to the eastern part of Nepal, the proposed project area is less susceptible to seismic hazards. Based on the probabilistic Seismic Hazard Assessment Map prepared by departments of mine and Geology, Nepal (2002), peak horizontal acceleration at or around the project area is about 100 gal (100 cm/sec²).



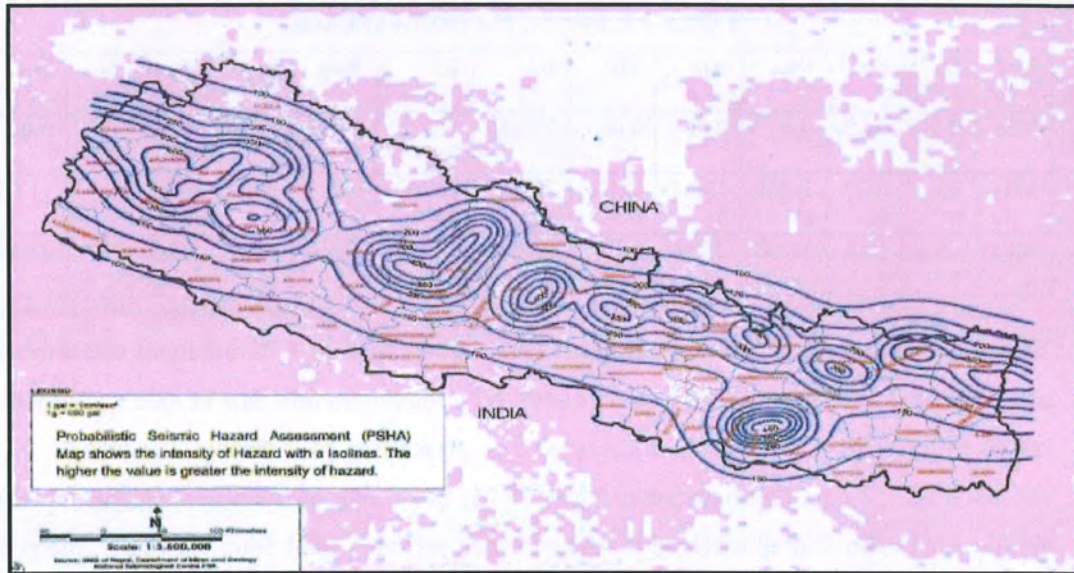


FIGURE 10: PROBABILISTIC SEISMIC HAZARD ASSESSMENT OF NEPAL HIMALAYA

3.10.1.6 Air Quality, Water Quality, and Noise Levels

Air Quality

The ambient air quality, as observed by the visual inspection was found to be generally fair throughout the road section. However, air-borne dust particles resulted due to vehicular movement is of concern. Besides, no significant sources of air pollutants were observed around the road area.

Water Quality

Several small streams both seasonal in nature as well as major Khola the Khaireni Khola and small streams were observed along the road section. Some of these streams pass across the road alignment. The water quality of these Khola and streams observed through the visual inspection is found to be fair. Any significant sources that contribute to Water pollution were not observed along the road alignment.

Noise Quality

The sound level as perceived by the experts was generally calm. Any significant sources that contribute to noise pollution are not observed along the road alignment.

3.10.2 Biological Environment

The road alignment does not pass through any community forest or any type of forest. No protected areas including National Parks, Wildlife Reserve, Hunting Reserve, Wetland, etc., are present nearby of road.

3.10.2.1 Vegetation

The vegetation of the project area belongs to the tropical and subtropical regions. The road alignment does not pass along any forest areas but the common trees found along the road alignment and around the area are Sal (*Shorea robusta*), Indian Rosewood (*Dalbergia sisoo*), Stone Apple (*Aegle marmelos*), Pipal (*Ficus religiosa*), etc. However, during road up-gradation, 63 number of the trees along the road need to be cleared which might have sheltered birds, reptiles, or insects of various species.

TABLE 14: VEGETATION ALONG THE ROW

Local Name	Botanical Name	Use
Saal	<i>Shorea robusta</i>	Timber
Sisoo	<i>Dalbergia Sisoo</i>	Timber
Bel	<i>Aegle marmelos</i>	Timber/Fruit
Simal	<i>Bombex ceiba</i>	Timber
Bar	<i>Ficus benghlensis</i>	Timber
Bakaino	<i>Melia azerdarch</i>	Timber
Pipal	<i>Ficus religiosa</i>	Timber
Tik	<i>Tectona grandis</i>	Timber
Masala	<i>Eucalyptus sps</i>	Timber
Kadam	<i>Anthrocephalus chinensis</i>	Timber
Jamuna	<i>Syzygium cumini</i>	Timber
Dabdabey	<i>Garuga pinnata</i>	
Ashok	<i>Saraca asoca</i>	Timber
Badar	<i>Artocarpus lakoocha</i>	
Swami	<i>Ficus benjamina</i>	
Aap	<i>Magnifera indica</i>	Fruit

3.10.2.2 Wildlife

According to the local people, wild mammals mainly, Langoor, Fox and Mongooses are the wild mammals found in the project area. The bird species found in the project area are Parrot (*Psittacula alexandri*), Crow, Eurasian Tree Sparrow (*Passer montanus*), Dove (*Streptopelia sps.*), etc. Similarly, Spectacled Cobra (*Naja naja*), Oriental Rat Snake (*Ptyas mucosa*), Yellow Monitor (*Varanus flavescens*), and Chamaeleon (*Lacertilia spp*) are reptile species recorded in the project area. Fish species found in the nearby River are Hile (*Channa stewartii*), etc. Of the



reported floral and faunal species, the following species have been identified as species of conservation significance under the conservation list of the Government of Nepal (NPWC Act, 1973), IUCN Red data book, and CITES Appendix.

TABLE 15: WILDLIFE FOUND LISTED IN IUCN AND CITES

SN	Common Names	Scientific Names	IUCN Category	Protected by NPWC Act 2029	Listed in CITES Appendices		
					I	II	III
Tree							
1	Sal	<i>Shorea robusta</i>	-	Protected	-	-	-
Mammals							
1	Langoor	<i>Semnopithecus schistaceus</i>	-	Protected	√	-	-
Avian Species							
1	Bakula	<i>Bubulcus ibis</i>	-	-	-	-	√
2	Dhukur	<i>Streptopelia senegalensis</i>	-	-	-	-	√

Note: IUCN Red List Categories: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Data Deficient (DD)

3.10.3 Socio-Economic Environment

3.10.3.1 Demographic Information

Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, Gurung, Dalit, Madesh, Muslim, and others are a major caste of the zone of influence. It will serve more than 12,457 households as well as the 64,025 population (Male:30,792 and Female:33,233) of the proposed project affected wards (**Annex 6: Demographic Information of Rural Municipality and Municipality of Proposed Road Alignment**).

3.10.3.2 Health and Educational Status

There are altogether 15 health posts and 43 education institutions in the project affected local levels (**Annex 7: Health and Education Status**).

3.10.4 Occupation

People in the project area are found involved in various business and agricultural activities. People near highways and markets like Bhagwanpur Marketplace, Dhakhadhai, and Khairani are

found engaged in business activity along with agriculture. The majority of the population is involved in agriculture (31.73%) followed by business (12.69%), labor (9.64%), Services (6.6%) and 39.34% population migrate to India, Qatar, Malaysia, and some other countries for livelihoods. (Source: CBS, 2011 and field study CPP, 2021)

The upgrading of this road could help to establish business and create employment in this area as the area becomes easily accessible for people and transportation. It will be easier and faster for people to haul their agricultural and other products to a larger market so that they can fetch more money.

3.10.5 Migration Trend

There is no seasonal migration around the project area. Temporary migration can be observed to various parts of India and abroad like Qatar, Malaysia, Arab, Australia, and the USA to earn money for their livelihood or study purpose. Especially youth populations in the area are attracted to move abroad in search of a better life and earning opportunities. Also, there is migration from Palpa and Gulmi to these places for a better life.

3.10.6 Agriculture

Agriculture is the mainstay of the people of the project area. The cash and commercial crops are negligible. Paddy, wheat, pulses, maize, mustard, millet, and potato are major crops in this area. Cows, buffaloes, and goats, poultry are the main livestock reared along the proposed road.

3.10.7 Market Centre

Bhagwanpur, Dhakdhai, Birta Market, Suryapura, and Khairnei have several shops, people can purchase their daily needs there.

3.10.8 Public Infrastructure

Communication and Electricity

Various means of communication facilities such as landline phones, fax services, and cyber services are available along the Bhagwanpur – Khairni road area. Besides this, people use mobile phones as well. Most households have electricity from the national grid line. However, some of the houses use solar energy, firewood, and bio-gas as per the energy need.

Drinking-Water and Sanitation

The people of Rohini Rural Municipality, Om Satiya Rural Municipality, and Dehdaha Municipality use various sources of drinking water. About 85% of the people have access to tap water while 15% of people use spring water and Tube-well water. All the households have access to permanent toilet facilities in all the settlements of RoW of the project area.



Existing Road Traffic Situation

Though traffic currently traversing this road is medium, it is likely to increase in the future. As per the Traffic survey conducted during field inventory; tractors and motorcycles traveling along the road is high. The average daily traffic in the area was found at 638 in August and the detail is provided in **Annex 8: Average Daily traffic in Bhagwanpur – Khairani road per count on August and November.**

During design verification again three days traffic count was done from November 11 to 13 at Dhakdahi (5+236) and Khairani (22+820), as normal traffic was not observed in the previous study due to lockdown (COVID-19 Pandemic). The average daily traffic in the area was found to be 3398 during November and is summarized in **Annex 8: Average Daily traffic in Bhagwanpur – Khairani road per count on August and November.**

3.10.9 Existing Practice of Solid Waste Management and Processing

Many local units in the Rupandehi district have a sustainable plan to manage garbage by themselves. They have initiated the theory of source segregation, collection, transportation, recycling, processing, and disposal. Lumbini Sanskritik Municipality which is near the proposed road alignment has started the Detail Project report for the landfill site on government land in ward 11. Also, Sainamaina Municipality has already prepared a Detailed Project Report (DPR) to construct a permanent landfill site. The average MSW generation was found to be 317 g/capita/day. Using these per capita waste generation rates and the population in 2011, the total MSW generation of the 58 municipalities was estimated at 1,435 tons/day and 524,000 tons/year. There is no proper practice of Solid Waste Management along the proposed road alignment. Generally, local people manage their waste by burning and deposited near to the road alignment.

3.10.10 Cultural (Physical and Social/ Religious/ Historical) Environment

The majority of the population in the areas belongs to Hindus and Buddhists. Bada Dashain, Tihar, Maghe Sankranti, Mahashivaratri, Buddha Jayanti, and Chaath are major festivals in the area. There is a religious Lumbini Maya Devi Temple in this district which is just 9 km from the proposed road alignment. It is granted World Heritage status by UNESCO in 1997. There are other temples like Satiya Devi Temple and Satiya Devi Mandir near Rohini Khola which is 2.5 km from the proposed road.

3.11 Review of Constitution, Plans/Policies, Acts, Guidelines/Standards, International Conventions and Treaties

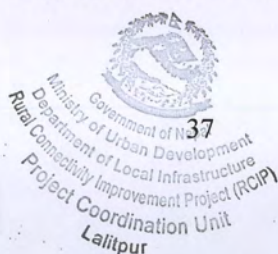
3.11.1 Constitution of Nepal

The constitution of Nepal has prioritized right regarding the environment: Article 30(1) of the constitution of Nepal, states: Right to clean environment “Every citizen shall have the right to live in a clean and healthy environment” and Article 30(2) states the victim shall have the right to obtain compensation, by law, for any injury caused from environmental pollution or degradation. Likewise, Article 30(3) states that the above rule should not be deemed to prevent the making of necessary legal provisions for a proper balance between the environment and development, in the development works of the nation. Article 51(g) states about the policies relating to the protection, promotion, and use of Natural resources and making environment-friendly and sustainable use of, Natural resources available, and adopting the concept of intergenerational equity. Likewise to conserve, promote and make sustainable use of forests, wildlife, birds, vegetation, and bio-diversity, by mitigating possible risks to the environment from industrial and physical development, while raising awareness of the general public about environmental cleanliness, to adopt appropriate measures to abolish or mitigate existing or possible adverse environmental impacts on the nature, environment or biological diversity and to pursue the principles of environmentally sustainable development such as the principles of polluter pays, of precaution in environmental protection and prior informed consent.

Article 25(2) **Right to Property;** states that the “state shall not, except in the public interest, acquire, requisition, or create any encumbrance on the property of any person” and Article 25(3) says “in the case when the land of a person is an acquisition by the state according to clause (2), the basis of compensation and the relevant procedure shall be as prescribed by Act.

Article 34 Right to labor; of the Constitution of Nepal proclaims that (1) Every labor shall have the right to practice appropriate labor. (2) Every labor shall have the right to appropriate remuneration, facilities, and contributory social security, and (3) Every labor shall have the right to form and join trade unions and to engage in collective bargaining, by law.

Article 35 Right relating to health; of the Constitution of Nepal proclaims that (1) Every citizen shall have the right to free basic health services from the State, and no one shall be deprived of emergency health services. (2) Every person shall have the right to get information about his or her medical treatment. (3) Every citizen shall have equal access to health services. (4) Every citizen shall have the right of access to clean drinking water and sanitation.



Article 51 (Cha List 2) **State Policies**; of the Constitution of Nepal proclaims “prioritizing under-developed regions while going for balanced, environment-friendly, qualitative and sustainable physical infrastructure development.

Article 51 (cha List 5) **State Policies**; of the Constitution of Nepal proclaims on “the state shall pursue a policy of making sustainable use of biodiversity through the conservation and management of forests, fauna, and flora, and by minimizing the negative impacts of industrialization and physical development by promoting public awareness on environmental cleanliness and protection.

3.11.2 Plans/ Policy

National Environmental Policy and Action Plan (NEPAP), 2050 BS

The Nepal Environmental Policy and Action Plan (NEPAP) were endorsed in 1993 to institutionalize environmental protection in the development processes. It addresses industrial and urban development, as well as infrastructure development. The action plan for infrastructure development in NEPAP recommended the development of EIA guidelines for the road sector, among others. Subsequent document NEPAP II has been prepared which includes recommendations for implementing environmental programs and action plans.

Environmental Assessment in the road Sector of Nepal; A policy document GESU/DoR, 2000 AD (2057 BS)

It proposes that development improves the way of life of affected people without damaging the natural surroundings. In case the damage is inevitable environmental assessment should find ways of reducing or compensating for such damage. It suggested five types of Environmental assessment activities i.e., Screening, IEE, Scoping, EIA, and monitoring.

The National Transport Policy, 2058

This policy states, among others, that the entire process of land acquisition and transferring of land ownership to the project shall be established before the commencement of road project implementation. Equally, a basis for livelihood shall be established for the fully displaced families by way of rehabilitation or by any means.

20-year Road Plan 2059/60- 2079/80 BS

Ministry of physical planning and works has introduced a 20-year road plan for the period of 2002-2022 to cover up to the 12th plan. The road density for the 10000 population and 100 square km are 6.68 and 10.4 respectively, which is comparatively lower than other countries in the South Asian region. A large number of road projects were underfunded; thus, this plan has made an urgent change of strategy to concentrate resources on a limited number of prioritized



road projects to ensure that the projects are completed within a reasonable period. The five objectives set for the plan are;

- To strengthen political and administrative linkages,
- To alleviate poverty,
- To develop and utilize social, economic, and cultural potentials,
- To minimize total transportation costs and
- To minimize adverse effects on the environment.

A total of 4040 km of roads is to be connecting all districts headquarters by roads, providing a link to district headquarters with an adjacent road network of the neighboring country; providing a reasonable level of services; adopting the philosophy of stage construction; adopting environmentally friendly green road approach; using local resources; minimizing traffic congestion and delays; and improving strategic networks.

DoR Bridge Policy and Strategy, 2061 BS (2005 AD)

The DoR Bridge Policy emphasizes on safety, reliability, and cost-effectiveness of the transport facilities. The policy has the strategies of strengthening the existing institutional capacity, establishing economic and financial norms, institutionalizing bridge maintenance and emergency works, incorporating environmental and social aspects in the management of bridges, establishing project management cycles, technical support, and standardizing bridge definitions with other organization.

Safeguard Policy Statement 2009 AD (2066 BS)

The Safeguard Policy Statement, 2009 has sought to (i) better articulate the safeguard policies to improve their clarity, coherence, and consistency; (ii) balance a front-loaded procedural approach with one also focused on results during implementation; (iii) adapt policy implementation to an evolving range of lending products and innovative financing modalities; (iv) work toward greater harmonization with safeguard practices across Multilateral Financial Institution (MFI) and tailor safeguard approaches to different clients with varying capacities; and (v) improve internal processes and resource allocation.

A safeguard policy statement (SPS) that describes common objectives of ADB’s safeguards, lays out policy principles and outlines the delivery process for ADB’s safeguard policy.

As per the ADB SPS, 2009 this road falls under category B and an IEE is required before the implementation of the project.



Nepal Biodiversity Strategy, 2071-2077 BS

The government of Nepal is committed to the conservation and sustainable utilization of biodiversity for the prosperity of its people and the nation. The National Biodiversity Strategy and Action Plan (NBSAP) designed for the period 2014-2020 is aimed to provide a strategic framework for the conservation of Nepal's biodiversity. The NBSAP envisions conserved biodiversity contributing to sound and resilient ecosystems and national prosperity. This has highlighted the major gap in existing policies, strategies, and legislation solutions for such gaps/problems.

Land Acquisition, Resettlement, and Rehabilitation Policy for Infrastructure Development Project, 2071 BS

This policy has provided clear guidelines to screen, assess, and plan land acquisition and resettlement aspects in development projects. The policy has the following major guiding principles:

- Involuntary resettlement should be avoided where feasible or minimized, exploring all available alternative project designs. Where it is not possible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources;
- Appropriate and adequate compensation for the loss of assets or income is a fundamental right of the affected person;
- Physically displaced people must be relocated with facilities such as schools, health posts, drinking water, security, etc.;
- Vulnerable groups such as Janajati/Adivasi, Dalits, landless, women, especially women-headed households, poverty groups, and senior citizens are entitled to special benefit and assistance packages in addition to compensation and resettlement;
- Affected persons should be assisted to restore at least their pre-project income and livelihood sources. The absence of legal title to land should not be a bar for compensation, resettlement, and rehabilitation assistance.

FIFTEENTH PLAN 2076/77-2080/81 APPROACH PAPER

The fifteen five-year plan (2076/77- 2080/81) has adopted a strategy of developing, constructing, and expanding road linkages to district headquarters and road links to northern and southern parts of the country. This plan has targeted achieving 10.5% economic development and road/transportation access within 30 min for 99% national population by 2100/01. This plan has further targeted for development of 2,000 km of fast track and 2,200

km of railway track. It has also prioritized linking major commercial centers, and in all these activities, adverse environmental impacts are avoided or minimized. The plan has recognized to convert the existing scattered settlements into well-managed settlements by providing infrastructures and services. The plan has adopted policies on the promotion of well-managed urbanization and the preservation of Cultural and Historical areas.

NATIONAL ENVIRONMENT POLICY, 2076

This Policy has objectives of mainstreaming environmental concerns in all aspects of development and ensuring environment conservation and sustainable management of natural resources. It calls, inter alia, for compliance with the environmental standards; implementation of environment-friendly technologies; control activities related to disposal and/or discharge of polluted water, sewage, and wastes into the river; internalization of environmental aspects in development projects; mitigating adverse impacts and augment beneficial impacts of development projects on the environment and society and commits to carry out environmental monitoring and auditing.

National Climate Change Policy, 2076

Climate Change is a serious problem emerging at the global level. The impacts of the development activities will be calculated and will be mitigated in each of the infrastructure projects. During the design of the project, the proposed activities will be as per the climate change managerial activities. The components are proposed to align as per the climate change consideration.

ADB Strategy 2030

ADB strategy 2030 sets the course for the Asian Development Bank (ADB) to respond effectively to the regions changing needs. Under Strategy 2030, ADB will sustain its efforts to eradicate extreme poverty and expand its vision to achieve a prosperous, inclusive, resilient, and sustainable Asia and the Pacific. ADB’s aspirations are aligned with major global commitments. ADB will play an important role in supporting the global agenda of infrastructure development as a source of global growth. Infrastructure will remain a key priority to promote social and economic development. ADB will promote quality infrastructure investments that are green, sustainable, resilient, and inclusive. At the same time, it will expand interventions in social sectors, such as education, health, and social protection. ADB will also seek to integrate its expertise across sectors and themes to address more complex development challenges.



3.11.3 Acts/Rule

Aquatic Animals Protection Act, 2017 B.S

The aquatic animal protection Act (AAPA) has taken care of aquatic creatures. In other words, it has provided legal protection to aquatic habitats. Section 3 renders punishable any party introducing any poisonous, noxious, or explosive materials into water resources, or destroying any dam, bridge, or water system with the intention of catching or killing aquatic beings. The act has been effective in protecting the biodiversity of aquatic ecosystems, as both noxious and explosive materials are increasingly found in use. Section 4 has empowered GoN to prohibit catching, killing, and harming certain kinds of aquatic animals through a notification in the Nepal Gazette.

Public Roads Act, 2031 (1974) & its amendments 2046 (1989)

The Public Road Act is the governing legislation for the construction and operation of roads in Nepal. The Act prohibits the construction of permanent structures (buildings) at a defined distance from the rural road, i.e., the road agency has the authority over everything within the right of way. The act makes provision for cases where road projects temporarily require land and/or other properties during construction, rehabilitation, and maintenance.

Land Acquisition Act, 2034 BS

The Land Acquisition Act, 2034 empowers the Government to acquire land for development purposes, by paying compensation to the landowner. The Land Acquisition Guidelines, 1989 have been issued to facilitate the acquisition process under the Act. The Act empowers the Government to acquire the necessary land and fixed property of any owner for development use and welfare, diplomatic mission, and international organizations after issuing public notice and completing required procedures. Under this Act, the Government can also acquire land for public and private corporations, organizations, and private firms for public use and welfare. The Government shall provide compensation to the concerned person and organization as decided by the Compensation Fixation Committee.

Soil and Watershed Conservation Act, 2039 B.S

Soil and Watershed Conservation Act was enacted with the sole objective of protecting the various watershed of the country. Among other section 10 of the Act has empowered the Watershed Conservation Officer to grant permission in the areas of construction dams, drainage, ditches and canals, felling of trees privately owned, excavating sand, boulders, and soil, discharge solid waste, and setting up of factories residential building within protected watersheds. Moreover, the Act has outlined the essential parameters for proper watershed management.



Water Resource Act, 2049 B.S

The water resources act of 1992 has also taken into consideration water pollution that may create by the hydropower projects. It prohibits the pollution of water resources. Article 19 (1) has mentioned that the government through a notification in Nepal Gazette shall prescribe a pollution tolerance limit for water resources. In continuation to this article 19 (2) has made it requires that any person is to abide by the rule and not pollute water resources there should not be a significant adverse impact upon the environment concerning soil erosion, flood, landslide, and other similar cases.

Vehicle and Transport Management Act, 2049 B.S

This act set standards for vehicle emission and mechanical conditions for vehicle registration by the transport management office (TMO) and the TMO can deny a permit based on environmental factors. Standard is set for petrol and diesel engine under the Nepal Vehicle mass emission standard 1999.

Road Board Act, 2058 B.S

The preamble describes the act as whereas, it is expedient to make necessary provisions on repair and maintenance of roads, minimizing the expenditure to be incurred in repairing and maintaining the roads and making transparent and effective the repairing and maintaining works of the roads. Clause 3 of the act describes the establishment of the board. Likewise, clause 4 describes the autonomy of the board and clause 5 describes the functions, duties, and powers of the board. Clause 6 of the act describes the toll collection by prior notifications.

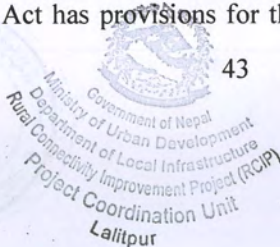
Child Labour (Prohibition and Regulation) Act, 2062 B.S

It is the main legal expedient to prohibit engaging children in factories, mines, or similar risky activities and to make necessary provisions with regard to their health, security, services, and facilities while engaging them in other activities.

Under Section 3 of the Act, the child who has not attained the age of 14 years is strictly prohibited to be engaged in work as a laborer. Similarly, under Section 4, the engagement of a child is working as a laborer against his/her will by way of persuasion, misrepresentation, or subjecting him/ her to any influence or fear or threat or coercion, or by any other means is prohibited. Under Section 6, in case any Enterprise has to engage a child in works, an approval has to be obtained from the concerned labor office or any authority or official prescribed by that office and from the father, mother, or guardian of the child.

Solid Waste Management Act, 2068 B.S

According to the act, the local agency will manage garbage under the public and private partnership concept. The Act has provisions for the segregation of garbage according to its



nature and for managing hazardous, industrial, medical, and domestic wastes accordingly. Provisions of complete responsibility to local bodies and strict punishment have also been proposed in the act for an effective monitoring system.

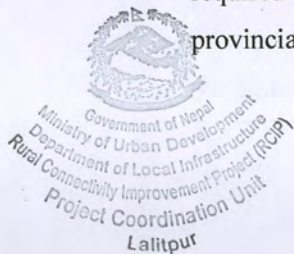
Solid waste management rules 2070 BS

Solid waste management rules 2070 BS have been issued by the government of Nepal by the power conferred by section 50 of the solid waste management Act 2068. Rule 3 of this Rule enforced the segregation and management of solid waste. Sub-rule 1 of this rule stipulates the segregation of solid waste at least organic and inorganic solid waste at its source under section 6 have to management and segregation of harmful and chemical waste separately. The responsibility of managing the chemical and harmful solid waste under sub rule1 shall be a concern generator. Rule 4 of this rule endorsed the discharge of the solid waste in a comfortable manner for transportation, processing, and final discharge by taking into account the possible adverse effect on the public health and the environment and the ways of reduction of such effects.

Local Government Operation Act, 2074 (2017)

The Local Government Operation Act, 2074 (2017) provides more autonomy local government to national and provincial governments and supports the local government. it also provides more autonomy to District Coordination Committees, Municipalities, and Rural Municipalities. The Act provides the functions, rights, and duties of the Ward Committee. The act requires the ward to help for protection of the environment through plantations over the bare land, cliff, and mountains. It has mentioned the functions, rights, and duties of RMs, Municipalities, and DCC. The RMs are required to protect the environment, nature, and natural resources. The act empowers RMs/MC/DCC to levy taxes on the utilization of natural resources. Natural resources include mineral resources and thus, RMs have absolute authority over the natural resources. Thus, this act empowers the local bodies for the conservation of soil, forest, and other natural resources, and implements environmental conservation activities.

Section 12 of the Act provides the functions, rights, and duties of the Ward Committee. Section 12(c.37) of the Act requires the ward to help with the protection and preservation of community forests, forest resources, and biodiversity. Section 11 has mentioned the functions, rights, and duties of rural municipalities and municipalities. The rural municipality and municipality are required to protect the environment, nature, and natural resources. Section 64 empowers provincial governments, rural municipalities, and municipalities' right to levy and collect taxes



on the utilization of natural resources. Section 64 lists the property of the rural municipality and municipality, which includes natural resources. Natural resources include mineral resources and thus, rural municipalities and municipalities have absolute authority over the natural resources.

International Trade Control Act for Endangered Wild Flora and Fauna 2074 BS (2017 AD)

This Act was formulated to conserve and regulate and monitor the International Trade of Threatened Fauna and Flora in order to implement the CITES, 1973. This Act has banned the trade and sample collection of rare and endangered species of flora and fauna. This act has also banned holding, keeping in possession, use, rearing, and control of such species. The main aim of this Act is the implementation of the objective set forward by the CITES, 1973.

Labour Act, 2074

The Labour Act mandates the employer to give priority to the Nepalese citizen while employing personnel and workers in the company. After a year of service, the company or employer has to employ the workers permanently with broadly defined positions, roles and responsibilities, and the pay scale. But employees under contract for a short duration of time will not be entitled to permanent employment. The employer could terminate the employee with prior approval of the Department of Labour and prior notice to the employee as defined by the law. The labor act prohibits the employment of a child or under-aged person. The employer could not force the workers to work for long hours other than defined by the law. The employer has the responsibility to ensure the healthy environmental conditions of the workplace as defined by the law.

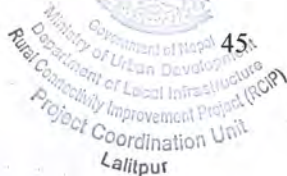
Labour Rule, 2075

Rule 7 is concern with occupational safety and health policy. Employers are required to maintain an occupational health and safety policy including provisions related to arrangements Employee's safety and security, Employee's health, probable accident in workplace, precautions to be taken while operating devices and machines in workplace and precautions to be taken while using chemical substances.

The Labor Rules has provided the detail safety measures to be followed by Employer.

Environment Protection Act, 2076

Environment Protection Act, 2076 To protect the fundamental rights of every citizen to live in a clean and healthy environment, to provide compensation to the sufferers for damage caused by environmental pollution or degradation; to maintain a proper balance between environment



and development; to minimize adverse environmental impacts on nature, environment, and biodiversity and to challenge climate change the federal parliament has made this Act to amend and integrate prevailing laws.

Forest Act, 2076 BS (2019 AD)

This act mainly focuses on the utilization of forest land area for the national prioritized project, national pride project, and the project approved by the Investment Board for Investment only if the project activities do not create adverse impacts on the environment after study of the Environmental Impact Assessment of the project [Schedule 12 (42)] 3 Local Government Operation Act 2074 B.S (2017 A.D)

•The Act facilitates (i) to manage the national forest in the form of Government Managed Forest, Forest Protection Zone, Community Forest, Partnership Forest, Lease-hold Forest & Religious Forest, and (ii) to contribute for national prosperity by conserving, promoting, and utilizing the wild life, environment, watersheds, and bio-diversity while promoting the private, public and urban forest.

•Chapter 12 of this act has provisions related to development projects. It states regarding the use of forest area that “Notwithstanding anything contained elsewhere in this Act, if there is no other alternative to the using of forest area for the operation of a national priority project, plan of which investment is approved by the Investment Board, a project of national pride and it appears from the environment examination referred to in the prevailing law that the operation of such plan does not result in significant adverse effects on the environment, the Government of Nepal may give approval, as prescribed, to use any part of the national forest to operate such plan.

• It also states that “If there is no other alternative to the using of forest area for the operation of any development project by the province or and it appears from the environment examination referred to in the prevailing law that the operation of such plan does not result in significant adverse effects on the environment, it may request the Government of Nepal for the acquisition of the land in such forest area for the operation of that project.

Land Use Act, 2076

As per the Land Use Act, 2076, land has been classified into 10 categories: agricultural; residential; commercial; industrial; mining and mineral; forest; river, stream, pond, and wetland; public use; cultural and archaeological; and others.

The provincial and local governments are also required to formulate their land-use laws based on the act. The federal government can review the land use plan every seven years, whereas



the provincial governments can do so every five years. The local governments can, however, review the land use plan as and when required. Such a review can be made based on changing patterns of demography, urbanization, specific needs for land use for economic and infrastructure development, and so on. The land-use plans should clearly show the location of industrial corridors, special economic zones, national projects, inter-provincial projects, heritage sites, religious and cultural sites, academic institutions, security areas, disaster-prone zones, biodiversity-protection zones, roads, health institutions, irrigation canals and other areas as designated by the government.

The act has also provided for fines for failing to use the land for the purposes it is meant for.

Environment Protection Rules (EPR) 2077 B.S. (2020 A.D.)

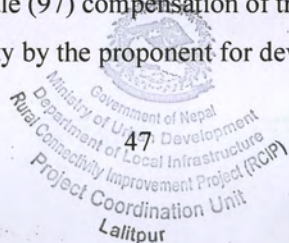
EPR 2077 BS (2020 AD) (Rule 1, 2 &3, and Rule 12) Obliges the proponent to inform the public about the contents of the proposal to ensure the participation of stakeholders. EPR 2020 requires revising IEEs reports for increasing capacity and scope of works, changes in design, rearrangement and relocations of structures, and revising for loss of forest land and numbers of trees to be felled including others.

The government made public the Environment Protection Rules (EPR) 2077 B.S. (2020 A.D.) on 15 June 2020. This EPR has also repealed EPR 2054 B.S. (1997 A.D.). The brief environmental study (BES) report is an addition to this EPR 2020. 33. Environmental Protection Rules (EPR), 2077 B.S. (2020 A.D.) defines the implementing rule and regulations of the IEE/EIA process, elaborating the provisions in the EPA, 2076 B.S. (2019 A.D.). 34. This EPR obliges the proponent to prepare ToR as per the format prescribed in Schedule 6, 7 & 8 for BES, IEE & EIA respectively. 35. The preparation, review, and approval of IEE and EIA Reports are dealt with in Rules 3 to 9 and 12 to 13. Schedules 1, 2 & 3 list down the projects of activities that require BES, IEE, and EIA, respectively, and the proponent will proceed to prepare BES, IEE, or EIA reports as mentioned in EPR.

As per EPR 2077, the proposed project requires an IEE because the schedule 2 (Pertaining to Rule 3) - (Clause gha-8) of EPR 2077 B.S. states that IEE is required for the projects that have more than 10 km length and connects to the National Highway and Feeder Road. This road connects the Siddharth Highway and East-West Highway.

Forest Rules (2079)

As per Forest Rules, 2079 rule (4), concerned authority can provide right of possession of National Forest Land and as per rule (97) compensation of tree cutting and land use should be provided for the people, community by the proponent for development project.



3.11.4 Manuals/Guidelines

Land Acquisition Guideline, 2046 B.S

Two sets of guidelines related to land acquisition are significant for Road Sector-Wide use. They are the Land Acquisition Guidelines, 1989, and guidelines pursuant to sections 16 and 17 of the Land Acquisition Act, 1977. These guidelines specify two categories of affected families, Project Affected Families (PAF) and Seriously Project Affected Family (SPAF). A PAF consists of the members of a household including elderly dependents and minor children (under 18 years) residing under one roof and operating as a single economic unit, who are adversely affected by the project. SPAF is defined as a family who loses over 25% of its total land holdings or whose land is reduced to an uneconomic holding (less than 5.0 katha) or who is being displaced.

Under these guidelines, the concerned officials, with the assistance of the project team, are to carry out assessments of project-affected families to identify their standard of living and types of assets. Valuation of land and asset lost were to be based on comparative market values of similar assets in the vicinity. The guidelines also included arrangements for the rehabilitation of project-affected families. For PAF's, the compensation package includes cash for assets acquired or damaged by the project and a rehabilitation grant to cover any suffering and hardship. For SPAF's, the compensation additionally includes employment for one family member and provision of skill training.

Environmental Management Guidelines, GESU/DoR, 2053 BS (1997 AD)

The Environmental Management Guideline consists of environmental mitigation measures to be incorporated into DoR projects, procedures for public participation, and socio-economic consideration. The Environmental Mitigation Measures are broken down into 12 categories or activities and a method for implementation is given for each mitigation measure. The 12 categories are i) Quarries, ii) Borrow Pits, iii) Spoil and Construction Waste Disposal, iv) Work Camp Location & Operation v) Labour Camp Location & Operation, vi) Earthworks/Slope Stabilization vii) Use of Bitumen viii) Stockpiling of Materials ix) Explosive, Combustible and Toxic Materials Management x) Setting Up and Operation of Stone Crushing Plants xi) Water Management and xii) Air & Noise Pollution. These environmental mitigation measures should be used in conjunction with good engineering design, construction, and operation practices. The guideline also suggests considering the various socio-economic issues like land acquisition and compensation, economic impacts, and cultural heritage. The various implementation strategies are also suggested in the guideline.

Environmental management guidelines for roads and bridges, DoR, 2056 BS

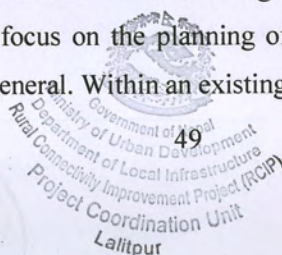
The Guideline consists of environmental mitigation measures to be incorporated into DoR Projects, the procedure for public participation, and socio-economic considerations. The environmental mitigation measures are broken down into twelve categories including (i) Quarries; (ii) borrow; (iii) Spoil and Construction Waste Disposal; (iv) Work Camp Location and Operation; (v) Labor Camp Location and Operation; (vi) Earthwork/Slope Stabilization; (vii) Use of Bitumen; (viii) Stockpiling of Materials; (ix) Explosive, Combustible and Toxic Materials Management; (x) Setting Up and Operation of Stone Crushing Plants; (xi) Water Management; (xii) Air & Noise Pollution. Implementation methods for undertaking mitigation measures for each of the activities are also given in the Guideline. The Guideline suggests methods for determining how and when the public should be included in the environmental analysis. The Guideline also advises on socio-economic impacts, and strategies for reducing or avoiding the potential negative impacts, and maximizing the beneficial impacts to residents. The Socio-economic impacts include important issues of land acquisition and compensation and other economic impacts related to markets for agriculture production, agriculture inputs, nutrition, extraction of natural resources beyond replenishment, migration, and influx of migrants, land speculation, illegal logging, and mining, etc. It also includes impacts on cultural heritage.

Environmental Assessment in Road Sector, 2057 BS

The purpose of the policy document is to ensure that development improves the way of life for the people affected, without damaging the national surroundings. Sometimes a degree of damage is inevitable. In such a case, an environmental assessment should find ways of reducing or compensating for damage. The policy document suggested five types of environmental assessment activities viz. Screening, Initial Environmental Examination, Scoping, Environmental Impact Assessment, and Monitoring.

Approach for the Development of Agricultural and Rural Roads 2062 BS and 2006 AD

Integrated Rural Accessibility Planning (IRAP) is a local-level planning tool with a participatory and bottom-up approach. It provides an objective basis for local development planning and facilitates need-based project identification and prioritization, and has wide applications in rural development planning. As an area-planning tool, IRAP can focus on identifying the real needs of the community, while it can also be applied in prioritizing individual projects on an economic basis. Starting from a broader perspective of area development planning it can focus on the planning of individual projects that improve the accessibility of the people in general. Within an existing local-level planning system IRAP can



be adapted to the country's situation by using it as a tool. In Nepal's context, IRAP fulfills the need for an objective tool in the existing local-level planning system, and therefore, these guidelines are proposed in a way of adapting IRAP to the country's context. After the political change of 1990, through the provision of the self-governing authorities at the district and village levels in the Constitution 1991, the decentralization process in the country made a big leap forward. The latest step in this sequence of decentralization is the enactment of the Local Self-Governance Act, 1999 (LSGA), which is currently under implementation. It is the local authorities, composed of 75 District Development Committees, 58 Municipalities, and 3,912 Village Development Committees in the country.

National Adaptation Program of Action, 2010 AD (2067 BS)

The Nepal NAP aims to help the country achieve the objectives of the NAP process that have been agreed upon under the UNFCCC. It has the aim to reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience and to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programs, and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate (UNFCCC, 2012, decision 5/CP.17, paragraph 1). This NAP has been formulated to help the country adapt to the effects of climate change over the short-term (until 2025), medium-term (until 2030), and long-term (until 2050); and will:

–This is to contribute to the socio-economic prosperity of the nation by building a climate-resilient society and reducing the risk of climate change impacts on people and ecosystems through the integration of adaptation across sectors and levels of government.

This is also the objective of building the adaptive capacity and resilience of key natural, social, and economic sectors vulnerable to and at risk of climate change, and service providers. Likewise Integrate climate change issues into policies, strategies, plans, and programs for all sectors and at local, provincial, and federal levels emphasizing Gender Equality, Social Inclusion, Livelihoods, and Governance (GESILG) concerns.

Environmental and Social Management Framework (ESMF), 2070 DoR (2013)

The Environmental and Social Management Framework (ESMF) is a guiding document to address the social and environmental issues in the subprojects. As the project involves mostly improvement and upgrading of the existing roads and construction of bridges the expected adverse impacts are generally considered to be minimal both on environmental and social fronts. For environmental impacts, the project will consider Impact Corridor. This will be different in different site conditions as determined by case basis. The key users of this

Government of Nepal
Ministry of Urban Development
Department of Local Infrastructure
Rural Connectivity Improvement Project (RCIP)
Project Coordination Unit
Lalitpur



framework will constitute a wide range of officials and staff involved in policy-making, planning, implementation, and monitoring of social and environmental mitigation measures in the road subprojects and bridges.

Occupational Safety and Health Guidelines, DOLIDAR, 2017 AD (2074 BS)

This guideline complies with the Constitution of Nepal 2072, Labour Law 2048 (1992)1, and the Occupational Safety and Health Policy of Nepal.

The purpose of the Guideline is to provide all projects under the DoLIDAR with basic principles for working safely on construction sites and for ways for Contractors and managers to manage the safety and health on site. The handbook compliments the Constitution, Labour Law, and the National Occupational Safety and Health Policy of Nepal and hopes to give the ability to manage the safety and health requirements on site. Information in this Guideline deals with the hazards in situations, which potentially produce the highest level of risk, and offers appropriate safety measures to control hazards and minimize risk. Its main purpose is to help develop safe work practices and to meet the statutory and common contract requirements in undertaking construction works under DoLIDAR.

3.11.5 Standards

National Drinking Water Quality Standards (NDWQS) and Directives, 2005 AD (2062 BS)

NDWQS provides details of the water quality standards to be applied to all water supply schemes. These set out the water quality parameters, to which the water suppliers should adhere. The directives also ensure that the water sampling, testing, and analysis procedures used to certify that the drinking water supplied or to be supplied conforms to the NDWQS and also sets the monitoring and surveillance procedures to certify that the quality of supplied water conforms to the standards.

Nepal Bridge Standard 2067 BS

The Department of Roads (DoR) has formulated these standards with a view to establishing a common procedure for the design and construction of road bridges in Nepal.

National Standards on Noise Level, 2069 B.S

The threshold limit of noise for Leq in decibel as prescribed by The National Standard for Noise, 2069 B.S. has for different sectors day and night are as follows;

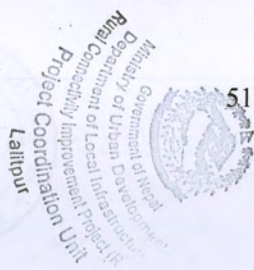


TABLE 16: THRESHOLD LIMIT OF NOISE IN DIFFERENT SECTORS

Sectors	Threshold limit of Noise Leq (dB)	
	Day	Night
Industry	75	70
Business	65	55
Rural residential area	45	40
Urban residential area	55	50
Mixed residential area	63	55
Peaceful area	50	40

(Source: MoPE, 2017)

TABLE 17: MAXIMUM THRESHOLD LIMIT OF NOISE FOR SEVERAL TYPES OF MACHINERY

SN.	Instrument	Maximum threshold limit (dB)
1	Water pump	65
2	Diesel generator	90
3	Loudspeaker, other entertainment instrument	70

(Source: MoPE, 2017)

National Ambient Air Quality Standard, 2069 (2012)

National Ambient Air Quality Standard is established for various parameters such as TSP, PM10, Sulfur Dioxide, Nitrogen Dioxide, Carbon Monoxide, Lead, Benzene, PM2.5, and Ozone. The standard states that the maximum concentration stated for an averaging time of 24 hours for TSP, PM10, Sulfur Dioxide, Nitrogen Dioxide, and PM 2.5 and the maximum concentration stated for averaging time of 8 hours for Carbon Monoxide and Ozone should be under the standard limit for at least 95% duration for one fiscal year and should not exceed maximum concentration for 18 days in 365 days. No, any parameters shall exceed its maximum concentration limit for two consecutive days within one year. The national ambient air quality standard is stated below.



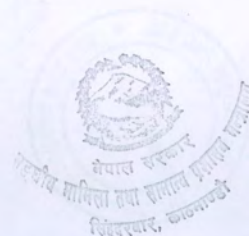
TABLE 18: NATIONAL AMBIENT AIR QUALITY STANDARD, 2017

Parameters	Averaging Time	Concentration Max ($\mu\text{g}/\text{m}^3$)	Test Methods
TSP	24 hours	230	High Volume Sampling and Gravimetric Analysis
PM10	24 hours	120	High Volume Sampling and Gravimetric Analysis, TOEM, Beta Attenuation
Sulfur Dioxide	Annual	50	Ultraviolet Fluorescence, West and Gaeke Method
	24 hours	70	Same as annual
Nitrogen Dioxide	Annual	40	Chemiluminescence
	24 hours	80	Same as annual
Carbon Monoxide	8 hours	10,000	Non-Dispersive Infra-Red Spectrophotometer (NDIR)
Lead	Annual	0.5	High Volume Sampling, followed by atomic absorption spectrometry
Benzene	Annual	5	Gas Chromatographic Technique
PM2.5	24 hours	40	PM2.5 sampling gravimetric analysis
Ozone	8 hours	157	UV spectrophotometer

(Source: Ambient air quality monitoring program, 2017)

Nepal Vehicular Mass Emission Standards, 2069 B.S, and Nepal Vehicle Mass Emission Standard, 2069 (2012)

National Vehicular Mass Emission Standard 2069 has been enforced to enhance environmental cleanliness at the sites important from the cultural, religious, and touristic perspectives and to offer people an environment where they can inhale fresh air. This standard entailed the types of documents related to positive ignition engines, type approval, and conformity assessment requirements of imported petrol and diesel-driven vehicles. The standards are designed on the adoption of the EURO III norm. A four-wheeler vehicular means equivalents to EURO 3 will only be operated as per standard. Thus, this standard allows the movement of environment-



friendly zero-emission vehicles complying with the EURO III standard and restricts the earlier Euro I vehicles.

The government has brought into effect the Nepal Vehicle Pollution standard 2069. A four-wheeler vehicular means equivalent to the Euro 3 will only be operated as per the standard. The standard has been enforced to enhance environmental cleanliness at the sites important from the cultural, religious, and touristic perspectives, and to offer people an environment where they can inhale fresh air. The Vehicles Fueled with Diesel (Compression ignition engines) standard is given below.

TABLE 19: EMISSION STANDARD FOR HEAVY-DUTY VEHICLES AND VEHICLES WITH GROSS VEHICLE WEIGHT (GVW) OF MORE THAN 3.5 TONS

Pollutants	Type Approval	Conformity of Production
CO (grams per Kilo-watt hour)	4.5	4.9
HC (grams per Kilo-watt hour)	1.10	1.23
NOx (grams per Kilo-watt hour)	8.0	9.0
PM (grams per Kilo-watt hour) for engines with power less than 85 KW	0.61	0.68
PM (grams per Kilo-watt hour) for engines with a power of more than 85 KW	0.36	0.40

National Standard for Sound Quality, 2069 BS (2012 AD)

National Standard for Sound Quality is established as per Rule 15 of Environmental Protection Rules, 2054. The maximum limit of sound for the city and residential area is 55 decibels for daytime and 50 decibels for night hours. Whereas for the industrial area, the maximum limit of sound is 75 decibels for daytime and 70 decibels for night hours.

Nepal Road Standards, 2070 BS

With the objectives of achieving consistency in road design and construction, NRS was first introduced by DOR in B.S. 2027 (1970 AD) and was revised in B.S 2045 (1988 AD). Minor revisions were made in B.S 2051 (1994 AD) and in 1997 AD to incorporate certain changes, which were relevant at the time of revisions. But those revisions were treated separately, not as an official version of the NRS-2027. Nepal Road Standards -2027(Second Revision 2070), short called NRS-2070, shall apply to all Strategic Roads constructed within Nepal.



Nepal Rural Road standards, 2071 BS

This standard sets the classification and geometric design standards for the Local Road Network to be followed by all those involved in the development of the network, including Users, User Committees, DDCs, IDOs, DoLI, and its development partners.

3.11.6 International Conventions and Treaties

Nepal is a signatory to many international conventions, which deal with the protection of the environment. Some of them related to the proposed project are:

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), (1973 amended 1979)

CITES is an international agreement between governments. It aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. It was entered into force in Nepal on 16/9/1975. Various plants and animal species that need various levels of international attention and protection are listed in CITES Appendix 1.

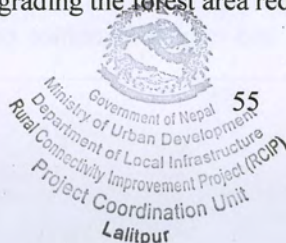
Convention on Biological Diversity, 1992

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

Under Article 14 of the convention, each contracting party should introduce appropriate procedures requiring an environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity to avoid or minimize such effects and, where appropriate, allow for public participation in such procedures.

United Nations Framework Convention on Climate Change (UNFCCC), 1992

This convention was signed to stabilize the greenhouse gas (GHG) in the atmosphere. UNFCCC was first initiated in 1992 and was officially enforced on March 14, 1994. In Nepal, it was enacted on 31st July 1994, and several activities on research and awareness-raising programs were conducted to popularize this convention. To accelerate the implementation of UNFCCC, Kyoto Protocol was brought forth and signed by the participating Nations. Nepal has the responsibility to abide by the rules & regulations of the Convention. Although Road development is not generating GHG, project implementation in Nepal requires clearance of forest areas. Clearing/ degrading the forest area reduces the carbon sequestration Capability of the forest.



4. IMPACTS OF THE IMPLEMENTATION OF THE PROPOSAL

The identification, evaluation, and prediction of impacts have been made by giving due consideration to the developmental activity taking place examined in terms of their current situation and likely impact during a constructional, operational stage and of the project. The potential adverse and beneficial impacts are presented for both phase construction and operation of the project in the following sub-sections.

The potential impact has been predicted in terms of their nature (Direct and Indirect) magnitude of significance (low, moderate, and high), extent (site-specific, local and regional), and duration (short-term, medium-term, and long-term) as well as their reversibility. The summary matrixes for the anticipated impacts are presented in **Table 22: Impact Evaluation Criteria**.

4.1 Beneficial Impacts

4.1.1 Construction Phase

The construction works will provide different opportunities to the local people ranging from labouring to skilled work. The beneficial impacts of the project during the construction stage are summarized below:

- **Employment Opportunity**

The first and foremost benefit that local people may expect from the construction works is employment. The construction works offer a wide range of works for unskilled and skilled laborers. The workforce needed for the upgrading of this road is estimated as 208,080 person-days of unskilled manpower and 59,500 person-days of skilled manpower. Local people would generate substantial incomes from this work. The amount of money that is injected into the economy in the form of wage earnings will directly enhance the initiation of various ancillary economic activities and enterprise development. The impact is thus direct, of high significance, and local but short-term in nature. If the earned wage income is saved and utilized for microenterprises, benefits can be for a long-term duration.

- **Enterprises Development and Business Promotion**

Different types of commercial activities will come into operation to meet the demand of labor groups, construction crews, and project teams. In general, the enterprises will include food and tea shops, groceries, lodges, and restaurants for serving large numbers of people. The demand for local products such as fruits, vegetables, etc. will rise during the construction period which may increase local production and marketing. This will contribute to the local economy and may help reduce poverty. Such benefits may

contribute to enterprise development which often continues to entrench beyond the construction period. This impact will be direct, medium in magnitude, local and long-term in nature, and significant impact.

- **Rent from Land**

During the construction period, there is a need to use private land temporarily to set up a campsite, stockpile the construction materials, etc. Thus, the local people whose land has been used for such purposes will be provided with the rent of his/her land. This will ultimately enhance his/her income and serve positively to upgrade the economic status of his family. The impact will be direct, medium in magnitude, local in extent, and short-term in duration.

- **Skills Enhancement**

The policy of the labor-intensive approach is to employ local specifically poor (unskilled) labor force, to the extent possible, for works that can be carried out manually. This strategy not only provides employment opportunities for the local poor but also supports the transfer of skills and technical knowledge while working in construction work such as masonry, gabion works, and roadside plantation. This impact will be direct, medium in magnitude, local, and long-term in duration.

- **Employment to the women and disadvantaged group**

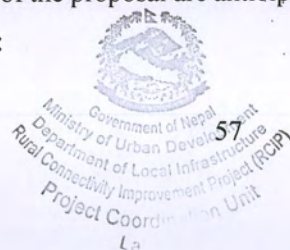
Priority will be given to women and disadvantaged people with low income per year especially Chamar, Dhobi, Harijan, and Kuwar for both skilled and unskilled work. This will increase the employment of these people and contribute to enhancing their quality of life. The impact will be direct, medium in magnitude, local in extent, and short-term in duration.

- **Training and skills provided during the project implementation**

Due consideration of the Community Participation Plan for this project; This project is planning to enhance the skills of the local people through the various training programs. The detail has been explained in the CPP but the local peoples will get training for the enterprise development, employment development, environmental protection, and skill enhancement training. This training will enhance the knowledge and capacity of the local people.

4.1.2 Operation and Maintenance Phase

Several beneficial impacts of the proposal are anticipated during the operational stage, some of which are indicated below:



- **Better Access**

The people in the project area and their adjoining areas will benefit from the improved access and reduced travel costs. Thus, the easy access to transportation, and other socioeconomic development activities including health, education, communication, market, etc. will be increased. The operation of the road will also contribute to the increase in quality services like quick access, free from road blockage and difficulties, reduction in transportation cost and time, year-round access, and reduction in dust and drainage management. This will have an indirect, of high significance, local and long-term impact on the proposed project.

4.2 Adverse Impacts

4.2.1 Physical Environment

4.2.1.1 Pre-Construction Phase

- **Permission from concerned authorities for quarry, crusher plant operation, stockpiling**

The alignment of Bhagwanpur-Dhakdhai-Khaireni Road passes through the Plane, agricultural and built-up area. The study for the availability of construction materials (boulders, cobble, gravel, and sand) is not available along the road corridor. Construction material has to be brought from elsewhere sources such as Ghodahakhola 2.17 Km west from Project end point Khaireni, Tinaukhola 11.25 km west from Dhakdhai and Bhumahi, Daunne 7.25 km east from the end point. The proponent/Contractor will take permission from Rohini Rural Municipality, Om Satiya Rural Municipality, and Devdaha Municipality for the quarrying of materials. For the establishment of the crusher plant, stock piling and camp setup contractor will do an agreement with the concerned owners before the implementation of the work.

- **Relocation of the community infrastructure**

The existing public utilities and services located within the formation width will be affected by the proposed road upgrading. These will require removal/relocation, extension, reinstatement, demolition, and construction depending upon their function and necessities.

24 Electric poles, 57 Hume pipe culverts, 26 slab culverts, and 3 box culverts need to be relocated before the construction of the works **Annex 9: Details of existing utilities.**

The impact will be direct, medium magnitude, site-specific and short-term.

4.2.1.2 Construction Phase

- **Change in Land Use**

The proposed up-gradation of the road requires an additional 4.564 ha of land as per the field survey and is summarized in **Annex 10: Change in Land use** (*Source: Field Survey and CPP, 2077*)

- **Air, Noise, and Water Pollution**

During the implementation of the proposal, there are chances of dust and vehicular gas emissions due to the movement of a construction vehicle. This will be temporarily intense along with the construction sites. Nearby settlements and construction workers may be affected by dust. As most of the construction works will be carried out during the dry season, dust emission will be expected to be locally high. The dust sources are mainly earthworks, excavation, vehicle hauling, quarry, and burrow sites. Dust will also affect the roadside vegetation and crops. These including an increase in vehicular emissions may add ground for greenhouse gases and though in negligible amount, would add ground to the climate change issue.

At present, the project area does not experience noise pollution. However, during construction, the increased construction activities mainly the movement of heavy equipment and the operation of roads may cause noise nuisance to local nearby residents. There may be vibration effects along the road alignment.

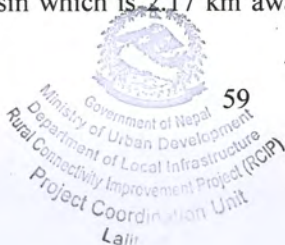
During the construction stage, the adjoining water bodies are at risk of being affected due to construction activities i.e., surface runoffs, pollution from vehicles (oil changes/spills, fuel leaks, etc.), and waste from the labor camps.

The pollution parameters value will be kept under NAAQS, NVMES, 2069 B.S. The noise and water dust from the uncovered haulage of construction materials will be kept under the national guidelines of noise and water.

The anticipated impacts on air, noise, and water bodies will be direct, of low significance, local, and short-term in nature.

- **Impact due to quarrying and burrow pits**

The construction of the proposed road works particularly embankment fill, sub-base, base, DBST, drainage, cross-drainage, and other structures will require the extraction of loose materials, stone, chipping, sand, and aggregates. The construction materials required for the proposed road can be extracted from the proposed site such as Ghodahakhola Basin which is 2.17 km away from Khaireni (end point), Tinaukhola



Basin 11.25 km away from Dhakdhai through Bhairahawa – Parasi Road towards Bhairahawa through MRM towards Butwal and Bhumahi Basin 7.35 km away from Khaireni (end point) through MRM towards Daunne. For this, the proponent/Contractor will take permission from the concerned Local Level for environmental clearance.

And also, the proponent/Contractor will take permission from Rohini Rural Municipality, Om Satiya Rural Municipality, and Devdaha Municipality for quarrying of materials from the bank of Khaireni Khola at chainage 16+550. Borrow pits and quarry sites are at Chainage 5+000, 7+500, and 11+100 and are just 2.5, and 3 km from the road.

Those places if not restored properly might lead to other environmental problems, such as river bank cutting leading to erosion of the agricultural area. The other potential adverse impacts of quarrying are accelerated erosion, disturbance in natural drainage patterns, water logging, and water pollution. The impact will be direct, medium in magnitude, local in extent, and short-term in duration.

- **Impact due to camp sites and stockpiling**

The stockpiling of materials will be undertaken at Chainage 3+700, 7+850, 12+850, and 18+650. The stock piled materials especially the sand from deposits can be easily blown by wind towards the settlement and agricultural land, harming human health and agricultural productivity. Fuels like bitumen, petrol, kerosene, etc will be in may cause an oil spill. The burrow pit formation may arise erosion or loss of top soil and transportation will cause pollution. Construction debris disposed of haphazardly is likely to promote erosion and soil instability, destruction of private property, crops, and irrigation systems, disruption of natural drainage systems, and surface water pollution. The labor camp sites will be at Chainage 3+700, 7+850, 12+850, and 18+650. The unmanaged labor camps often create sanitation problems. The impact will be direct, of low magnitude, site-specific, and short-term in nature.

- **Drainage and Water Management**

The water bodies within the project area are the Perennial River and most importantly surface water flows in the wet season that is managed for irrigation purposes. The road may obstruct the natural flow. With adequate cross-drainage structures, it is unlikely that there will be any residual adverse impacts on the environment. The impact will be direct, of low magnitude, site-specific, and short-term in nature.



- **Solid Waste Generation**

The construction crew involved in the project will produce the daily amount of solid waste mostly in the form of food, clothing, and other consumables (like cigarettes, tobacco, water bottles, chewing gums, alcohols, beverages, etc.) and also as kitchen by-product. The impacts are direct, medium significance, site-specific, and short-term with insignificant impact.

- **Flooding and water logging**

As the road alignment lies within flat topography, road construction may lead to further problem on flooding and water logging at chainage (16+550). The anticipated impacts will be direct, high significance, local and short-term in nature.

4.2.1.3 Operation and maintenance phase

- **Road Accidents**

Operation of the road also increases the chances of road accidents, particularly involving children. Inadequate provisions of road safety measures such as road safety signals, lack of enforcement of traffic rules, houses built adjoining roads within the RoW and newly developed schools adjacent to the road, etc. during the operation period may invite accidents. The anticipated impacts will be direct, high significance, local, and long-term in nature.

- **Pollution of water resources**

The practices connected with car/truck washing in streams including repair on the road have the potential to cause local water pollution and damage to the road surface by leakage/spills of fuel, lubricants, and hydrocarbons that may not only affect the aesthetic value of water bodies but also have detrimental effects on the health of people and animals (including aquatic) relying on these sources. The impacts associated with this will be low in magnitude, locally confined and long-term in nature.

4.2.2 Biological Environment

4.2.2.1 Pre-Construction Phase

- **Tree cutting issues**

The road alignment does not have any type of forest. But for the private trees and crops that will be damaged during the project interventions are required to get consent from the private owners. However, there are few protected species of trees so it is required to get the permission from concern authority. The private trees will be cut down with



consent from the private owners. The local government will coordinate these all-compensatory activities for the private crops and trees.

4.2.2.2 Construction Phase

- **Loss of trees and vegetation**

As this is an upgrading project, the road alignment does not pass through the forest area. However, during road up-gradation, 63 number of the trees along the road need to be cleared which might have sheltered birds, reptiles, or insects of various species (**Annex 11: Number of trees to be cleared from private land along the road alignment**). The impact will be direct, medium in magnitude, local in extent, and short-term in duration.

- **Impacts on aquatic habitats**

The nearby area has small streams and Khola like Khaireni Khola. Pollution during up-gradation of the roads the water will be polluted. *The impact will be direct, local, short-term in duration, and medium in significance.*

- **Fuel for heating Bitumen/Cooking Fuel (fire wood) for the construction crew**

The construction crew uses an Asphalt plant with an internal bitumen heating mechanism using fossil fuel. As an easy and cheap option laborers might collect firewood for their meal cooking, which has to meet their need as a supply source from the local forests-community, private and public. *The impact is indirect, low significance, local, and short-term in nature.*

4.2.3 Socio-Economic Environment

4.2.3.1 Pre-Construction Phase

Land and Property Acquisition

4.53 ha of private land will be acquired from 134 households (**Annex 5: Consent** papers from the land owners and house owners in the RoW) which are in RoW and 5 Residential structures (**Annex 9: Details of existing utilities** will partially get affected by these construction activities. Resettlement procedures - related to assets acquisition (private land and physical structure) need as a part of the proposed road upgrading and its implementation before undertaking its work, accordingly, compensation shall be made to local stakeholders for any assets acquisition, which includes compensation at the replacement cost of land together with the cost of crops including trees. For physical structure, compensation includes costs at the prevailing price, displacement, and rehabilitation costs as per the compensation fixation committee.

For the Electric poles resettlements; the contractors will coordinate with the NEA and will get permission for the shifting of the electric poles. The compensation mechanism will be done as per the prevailing rules and regulations of nations of any compensatory measures will require.

4.2.3.2 Construction Phase

- **Impact on Public Structure**

24 Electric poles, 57 Hume pipe culvert, 26 slab culverts, 3 box culverts, and 3 tube well needs to be translocated and reconstruct during the construction of the works.

The impact will be direct, medium magnitude, site-specific and short-term.

- **Occupational Health, Public Health, and safety**

During the construction phase, the workers will be exposed to various health risks and hazards while working without adequate safety measures and equipment. Typical health hazards will be encountered during handling of hazardous materials, machinery movement, bitumen works, etc. Other potential impacts on health are respiratory and eye diseases due to exposure to dust and emissions. Mostly, at this time of COVID-19 people may get exposed to this virus. The ponding and burrow pits may lead to the drowning of children. During the up-gradation phase, the streams and rivers where the most people are dependent on drinking water may face health problems. Most of the impacts related to this will be of indirect, low significance, site-specific, and short-term in nature with insignificant impact.

- **Obstruction to Social Services and Facilities**

Labor and work forces' essential services needs include water, firewood, health services, etc. The contractor shall require affecting this additional need as his responsibility. However, the impacts will be indirect, low in magnitude, local, and short-term in nature with insignificant impact.

- **The conflict between locals and outside workers**

During construction, there will be chances of conflict between local laborers and outside laborers, who will be hired for the project. Conflict also might arise while hiring external laborers. The impact will be indirect in nature, low in magnitude, local in extent, and short-term in duration.

- **Campsites Sanitation for labor**

Contagious diseases: diarrhoea, dysentery, cholera, typhoid, etc. are caused by unsafe water intake. Poor sanitation at the campsite is a prime reason cause the water is unsafe,



requiring awareness about the full sanitation within the campsites. The contractor shall require generating awareness of his labor including the repercussion of unsafe sex as his contract responsibility. Most of the impacts related to this will be of indirect, low significance, site-specific, and short-term in nature with insignificant impact.

- **Vehicle movement**

Air and noise pollution and movement of the heavily loaded vehicles can obstruct the traffic-heavy movement of the vehicles. The impact will be direct in nature, low in magnitude, local in extent, and short-term in nature with significant impact.

4.2.3.3 Operation and Maintenance Phase

- **Road Accidents**

The widening, improvement of the surface conditions and straight alignment of the road induce high vehicular speed. As a result, there will be a risk of an increase in road accidents. Inadequate provisions of road safety measures, lack of enforcement, and awareness of local people to traffic rules during operation period may invite accidents. Besides this, lack of regular maintenance could also make the road difficult and vehicles may get derailed from the road. The impact will be indirect in nature, low in magnitude, local in extent, and long-term in duration

- **Unplanned Infrastructure Development / Encroachment of RoW**

The existing trend is to settle along the roadside for the economic activities through the establishment of markets or enterprise development. This may trigger the practice of encroaching right of way (RoW). The encroachers might build permanent or temporary structures within the RoW causing damage to pavements, and side drains. The increasing trend of roadside settlement is likely to increase household waste as well as wastewater on the road. The impact will be indirect, medium in magnitude, site-specific in extent, and long-term in duration.

- **Population pressure and impact due to new settlement along the road alignment**

Typical to the ribbon development i.e., the establishment of settlements, shops, and food stalls along the roadside soon after the construction/upgrading of a road is a common feature. An increase in land value adjoining roads is an important driver for such undesired and uncontrolled development. The negative consequences of such activities are encroachment of the right of way, road blockage, delays in private and public transport, increase in local accidents, reduction of the overall road capacity, etc. Such impacts are direct, of high significance, local, and long-term in nature.



4.2.4 Cultural (Physical and Social)/ Religious/ Historical

The alignment does not pass through the religious site; however, at chainage 3+585 Durga temple is within formation width and at chainage 16+840 just touches the wall of Shiva temple. *The impact will be direct, medium in magnitude, site-specific in extent, and long-term in duration.*

4.2.5 Chemical Issues

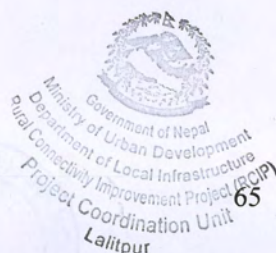
4.2.5.1 Construction Phase

- **Use of Bitumen: Safe Heating, Handling, and Distribution of boiled bitumen by the labor force**

The proposed project involves asphalt pavement which will require safe storage and use of bitumen. Bitumen is highly inflammatory and risky to its handlers, especially when the labor force carries it on for spreading over the overlaid road surface with base course materials and rolled according to pavement specifications. It may cause severe burns if the handler's skin gets in touch with it, and is also severely toxic to naked eyes. The anticipated impact will be direct, of low significance, local, and short-term in nature.

- **Safe storage and usage of fossil fuel, lubricants, paints, oils, acids, and other chemicals used in vehicles, crusher plants, equipment, etc.**

Putting mechanical workshop, gas station, etc. into operational at contractor's camp to ensure the upkeep of all vehicles, and operating machines including heavy ones deployed in proposed road upgrading requires the use of a substantial quantity of lubricants, vehicles refuelling, etc, to keeping it in functional upkeep works, refuelling, etc. also generates some wastes and spillage. Acids used in battery recharging, other chemicals, etc. used at workshops are another type of workshop waste. Fossil fuel is also required in operating crushing plants on road sites where an electric power supply is not available. Whilst its safe storage and usage are required and ensured, workshop waste is a potential source of environmental hazards unless it is handled correctly. The spillage of chemicals, fuels, and paints on the soil or water body can adversely affect the environment and ecosystem. This may result in degradation of fertility and may also cause a detrimental impact on aquatic life. *The impact is indirect, medium significance, local, and short-term in nature.*



5. ALTERNATIVES OF THE PROPOSAL

An alternative analysis is considered an integral part of an IEE study, which involves an examination of alternative ways of achieving the objectives of a proposed project. The alternative analysis for a road project constitutes the development of an alternative transportation network for the enhancement of safe and faster connectivity of the rural area to market centers and thereby improve the economic conditions of the people living in the zone of influence. The alternatives, in this regard, could be alternative road alignment and alternative design. The various possible alternatives are discussed in the following sub-sectors.

5.1 No Project Alternative

This alternative does not allow the implementation of the proposal. The black topped and earthen road currently exists. As the road condition deteriorates during the rainy season, the vehicular movement gets interrupted. So, it is essential to upgrade this road for better and year around transportation. The no-action option will conserve some of the environmental adverse impacts at the cost of low-level social and physical development and hardship for the people of the area.

In the absence of road improvement, the potential socio-economic development of the project area will be affected. The present road condition is bad. In addition, arrangements for better and safer travel of road users, which is grossly lacking in present condition, will be made. The environmental condition of the road may further deteriorate. The current poor condition of the road would be further worsened. Such a situation would also be detrimental to the concept of sustainable development. The “no action” alternative will reduce the efficiency of the vehicle with regards to trips that it is supposed to accomplish while there will be an increase in fuel consumption resulting in more gaseous pollution, and environmental degradation. Also, the traffic situation survey during August and November (**Annex 8: Average Daily traffic in Bhagwanpur – Khaireni road per count on August and November**), demands a better and wider road and there is no project alternative.

5.2 Alternative Alignment

Since the present proposal is for upgrading and widening the existing road, there is no possibility for alteration of the route..



5.3 Alternative Design and Construction Approach

The proposed road has been designed considering the combination of works possible through manual labor (earth excavation, bio-engineering, gabion structures), and machines/equipment for works that require mechanized applications (graveling).

5.4 Processes, time-schedule

During the rainy season, the construction work will be stopped. The construction work will be carried out during the remaining months. The construction period is more appropriate from October to June as the local people are generally free from farming activities.

5.5 Raw materials to be used

The physical resources consumed for the upgrading of the proposed road will mainly include soil, aggregates for road sub-surface, boulders for gabions, stone for dry masonry walls, and sand.



6. MEASURES TO ENHANCE / CONTROL THE IMPACT OF THE IMPLEMENTATION OF THE PROPOSAL ON THE ENVIRONMENT

The impact of the proposed road can be beneficial as well as adverse. An effective implementing measure will maximize the beneficial impacts and mitigates the adverse one. Based on the impact assessment, beneficial augmentation and adverse impact mitigation measures are presented in the table below.

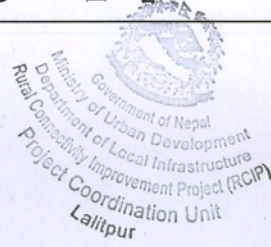
TABLE 20: BENEFICIAL IMPACTS AND PROPOSED ENHANCEMENT MEASURES

Activity	Effects	Related Beneficial Impacts	Impact Significance				Benefit Augmentation Measures	Responsibility for Augmentation Measures (Executing Agency)	Cost Remarks
			Nature	Magnitude	Extent	Duration			
Construction Stage									
Construction Work	Increase in employment	Increase in income of local people	D	H 60	Lo 20	ST 05	Involve local people to the extent possible during construction work	Contractor	No additional cost
Enterprise development/	Create Entrepreneurship	Increase in income of local people	D	M 20	Lo 20	LT 20	No. of enterprises like food and	Rural Municipality/Municipali	No additional cost



Activity	Effects	Related Beneficial Impacts	Impact Significance				Benefit Augmentation Measures	Responsibility for Augmentation Measures (Executing Agency)	Cost Remarks
			Nature	Magnitude	Extent	Duration			
Business promotion							tea shops, groceries, lodges, and restaurants will increase to serve	ty/ cottage and small industry office	
Enhancement of technical skills of local laborers	Increase in laborers' wage	Economical upliftment of local people	D	M 20	Lo 20	LT 20	Encourage local unskilled people to work with skilled ones	Contractor	No additional cost
Rent from Land	Lease of land/houses	Income generation to land/house owners	ID	M 10	Lo 20	ST 05	Leasing of fallow land for stockpiling of	Contractor	No additional cost

Activity	Effects	Related Beneficial Impacts	Impact Significance				Benefit Augmentation Measures	Responsibility for Augmentation Measures (Executing Agency)	Cost Remarks
			Nature	Magnitude	Extent	Duration			
Operation Stage									
Construction of Civil/Bioengineering Structures to manage existing environmental problems	Improvement of the existing environmental condition along the road alignment	Greenery Enhancement, slope protection	D	M 20	Lo 20	LT 20	Proper and timely maintenance of the road	DoLI/ MoFAGA	No additional cost
Upgrading of the road to blacktop standard	Rise of Land value	An increase in the land value of local people / will enhance	IN	M 20	Lo 20	LT 20	Proper and timely maintenance of the road	DoLI/ MoFAGA	No additional cost



Activity	Effects	Related Beneficial Impacts	Impact Significance				Benefit Augmentation Measures	Responsibility for Augmentation Measures (Executing Agency)	Cost Remarks
			Nature	Magnitude	Extent	Duration			
Better Access to Road	Market development	Increase in Production	IN	H 60	Lo 60	LT 20	Easy access to seeds and saplings of horticultural crops, farming tools, improved breed of animal species	Municipality/ Rural Municipality	No additional cost

Activity	Effects	Related Beneficial Impacts	Impact Significance				Benefit Augmentation Measures	Responsibility for Augmentation Measures (Executing Agency)	Cost Remarks
			Nature	Magnitude	Extent	Duration			
Increased vehicular movement /Reduced travel time	Easy access to essential commodities and services (Agricultural inputs, health services, etc)	Time saving/ Increase in productivity and sale of farm products, reduced travel cost, access to better health care services	D	H 60	R 60	LT 20	Proper and timely maintenance (Bio-engineering and civil engineering work)	DoLI/ MoFAGA	No additional cost



TABLE 21: ADVERSE IMPACTS AND PROPOSED MITIGATION MEASURES

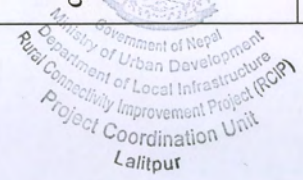
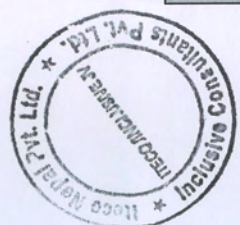
Activity/ Issues	Related adverse impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Physical Environment									
Pre- Construction Phase									
Permission from concerned authorities for Quarry, Crusher Plant operation, Stockpiling							The contractor will get Permission from concerned authorities for Quarry, Crusher Plant operation, and Stockpiling before the commencement of work	NA	Contractor
Loss of Private & Communal Property							Relocate the community infrastructures before the starting of construction work with the consultation respective authority community.	NA	DoLI/ MoFAGA
Construction Phase									

Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Construction of road	Change in land use	D	L 10	SS 10	LT 20	Insignificant 40	Applying specific additional protective measures to prevent further loss of land due to erosion and Stabilization of cut slopes with bio-engineering (turfing).	NA	Contractor / DoLI/ MoFAGA
Operation of machines and vehicles/ Bitumin Heating	Air/Noise pollution	D	M 20	Lo 20	ST 5	Insignificant 45	Use of face mask, goggles, gloves, and air plugs need to be provided as required. (Bitumin will be heated far from the settlement/ school and other sensors are lots of such areas along the road alignment.)	NRS. 80,000.00	Contractor



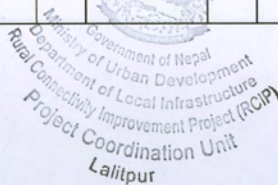
Activity/ Issues	Related adverse Impacts/Issues	Type of Impact				Mitigation Measures	Responsibility for Mitigation Measures		
		Nature	Magnitude	Extent	Duration		Rating	Mitigation Cost	Executing Agency
The stockpiling is constructed at Chainage 3+700, 7+850, 12+850, and 18+650.	Impact on land, ground, and surface water and air pollution	D	M 20	SS 10	ST 5	Insignificant 35	Located away from cultivable lands, settlements, drinking water intakes and public places, provide surrounding drain, cover material and seal the area,	Included in BoQ	Contractor
Vehicle movement/Sand blown by air from the sand deposit and sand blown by air near the settlement area	Air pollution/Noise pollution	IN	L 10	Lo 20	LT 20	Significant 50	Use of water sprinkle on a dusty road and along with the settlement/ school/ market etc. at least once a day	NRs. 1,50,000.00	Contractor

Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Earth excavation /Operation of quarry sites and borrow pits at Chainage 5+000, 7+500 and 11+100	Scouring of Agricultural land and erosion, Sedimentation of water bodies	D	M 20	Lo 20	ST 5	Insignificant 45	The sustainable rate and total amount of extraction from the sites should be assessed. Extraction spread over the longest length, Avoiding seasonal rivers, rehabilitation of those sites after the completion of works	As per BoQ	Borrow Pit Operator
Operation Phase									
Inadequate slope protection,	wash away of sediments (from shoulder) by rainwater leading to road damage/ instability)/	D	M 20	SS 10	LT 20	Significant 50	Regular maintenance of structures.	No cost	Contractor - DoLJ/Mo FAGA



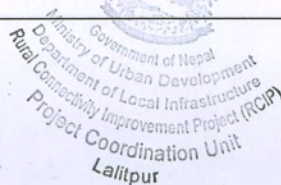
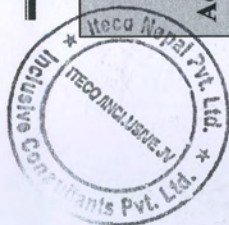
Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Movement of heavily loaded vehicles	damage on-road/ creation of potholes/ subsidence of road	D	M 20	SS 10	LT 20	Significant 50	Restriction on the movement of heavily loaded vehicles above the bearing capacity of the road, regular maintenance of blacktop.	No Cost.	DoLJ/Mo FAGA
Demolition of construction camps and other facilities made for road construction	Haphazard disposal of such waste	D	M 20	Lo 20	ST 5	Insignificant 45	Promptly cleaning construction waste as soon the construction work completes and restoring those land to its original condition.	Contractor's cost	Contractor
Vehicle movement	Air/Noise pollution	IN	L 10	Lo 20	LT 20	Significant 50	Sign boards for speed limit and noise control will be erected at appropriate places, affected households will be suggested to plant vegetative barriers.	Cost included in Traffic Safety Cost	DoLJ/Mo FAGA

Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Biological Impact									
Pre-Construction Phase									
Tree Cutting Issue							Permission from the concerned land owner.		Contractor/ Proponent
Construction Phase									
Clearance of Trees & Vegetation within formation width	Loss of 63 trees, loss of habitat of birds and small reptiles	D	L 10	Lo 20	ST 5	Insignificant 35	Plantation shall be done along the RoW. Even the tree cuts are not in the forest areas; it is for the greenery of the road. (Both the fodder trees and the shade trees will be planted along the RoW. Shade trees with spreading canopies will be planted immediately to the formation width of the road,	NRs. 5,25,000.00 (NRs.500/sapling + caring up to 5 years)	Municipality/ CDOs



Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Responsibility for Mitigation Measures		
		Nature	Magnitude	Extent	Duration	Rating	Mitigation Measures	Mitigation Cost	Executing Agency
							which will help to reduce the temperature of the road surface by blocking direct sunlight. This will help to lengthen the life of the blacktop. Next to the shade trees, fodder trees will be planted and their caring responsibility and using rights will be given to the local communities to the extent possible.)		

Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Construction activities/ Hunting behavior of Labours	Hunting & Poaching of Wildlife	D	L 10	Lo 20	ST 5	Insignificant 45	Unnecessary movement of construction crew inside the nearby forest will be prohibited. Before the start of work, they will be alerted. Orientation classes will be given to the construction crew about these activities and their consequences.	NRs. 70,000.00	Contractor/ Proponent/ Rural/ Municipality
Fuel for heating Bitumen/ Cooking fuel (firewood) for the construction crew	Illegal cutting of trees & collection of firewood from nearby forests	IN	L 10	Lo 20	ST 5	Insignificant 35	Collection of firewood from the forest will be strictly prohibited. The contractor will manage the required fuel for bitumen heating and cooking.	NA	Contractor



Activity/ Issues	Related adverse Impacts/Issues	Type of Impact				Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration		Rating	Mitigation Cost
Chemical Issues								
Construction Phase								
Use of Bitumen	Injury to the construction workers	D	L 10	Lo 20	ST 5	Insignificant 35	NRs. 1,50,000.00	Contractor
Socio-Economic Impact								
Pre-Construction Phase								
Land & Property Acquisition						Encourage community development program, Compensation will be provided to the affected household.	As per the Compensation Fixation Committee	DoLI/Mo FAGA
Construction Phase								

Government of Nepal
Ministry of Urban Development
Department of Local Infrastructure
Rural Connectivity Improvement Project (RCIP)
Project Coordination Unit
Lalitpur

नेपाल सरकार
सहृदयी शान्ति तथा विकास मन्त्रालय
सिन्धुखोला, काठमाडौं

NECO CONSULTANTS PVT. LTD.
REGD. OFFICE: NEPAL
CONSULTANTS

Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Loss of Agricultural land	Reduction in productive capacity Product, economic loss, and social disruption of affected families	D	L 10	Lo 20	LT 20	Significant 50	Encourage community development program, Compensation will be provided to the affected household.	As per the Compensation Fixation Committee	DoLI/Mo FAGA
Loss of public property	Disturbance in electric supply and Communication	D	L 10	Lo 20	LT 20	Significant 50	Re-installment of the public utilities viable to the local people.	As per the Compensation Fixation Committee	Contractor /Proponent



Activity/ Issues	Related adverse Impacts/Issues	Type of Impact				Mitigation Measures	Responsibility for Mitigation Measures		
		Nature	Magnitude	Extent	Duration		Rating	Mitigation Cost	Executing Agency
The influx of Outside Workers	Increased Usages of Public Utilities due to construction work Force	IN	L 10	Lo 20	ST 5	Insignificant 35	The contractor will be responsible for managing essential commodities for the construction force.	NA	Contractor
Occupational health and safety and sanitation	Accidental injury or death due to inadequate safety measures	IN	H 60	Lo 20	ST 5	Very significant 85	Proper safety kits/gears will be provided and will be made aware of possible impacts and safety measures. Construction workers will be ensured.	Included in BoQ	Contractor
Establishment of Camp Sites at 3+700, 7+850, 12+850, 18+650	Degradation of Campsite Sanitary environment	IN	M 20	Lo 20	ST 5	Insignificant 45	The contractor will ensure that camps are fully restored, including re-top soiling and tree planting if appropriate	NA	Contractor

Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Operation Phase									
Encroachment of RoW	Increase accidents, delays in traffic movement	IN	L 10	Lo 20	LT 20	Significant 50	Awareness, enforcement of law and order, planning of land development by Local Government	No Cost	DoLI/Mo FAGA/ Municipal ity
Increased vehicle operation	Increase chance of accidents: loss of life and property	IN	L 10	SS 10	LT 20	Insignificant 40	Arrangement of safety signs, road delineators, and provision of speed limit sign boards.	Included in BoQ	DoLI/Mo FAGA

Note:

Magnitude- L= Low; M= Medium; H= High; Extent- Lo= Local; R= Regional, Ss= Site Specific

Duration- LT= Long term; MT= Medium Term; ST= Short Term



The nature, magnitude, extent, duration, and rating of the adverse effects are direct, low, site-specific and local, and short-term and insignificant for the biological and chemical environment. However, for the Physical environment and socio-economic environment, the magnitude is low, site-specific, and local in extent insignificant for stockpiling, quarry sites, air/noise pollution, etc but the high magnitude, local, long-term, and significant in case of land use.

The criteria for Impact evaluation:

TABLE 22: IMPACT EVALUATION CRITERIA

Type	Criteria	Impact	Symbol	Rating
Magnitude	Hard to Mitigate or high positive effect	High	H	60
	Mitigate with some precaution or medium positive effect	Moderate	M	20
	Easily mitigate or low positive effect	Low	L	10
Extent	Within VDC/Municipality	Regional	R	60
	Within Project Ward	Local	Lo	20
	Within Project Site	Site Specific	SS	10
Duration	Below 5 years	Short Term	ST	05
	1 to 5 years	Medium Term	MT	10
	Above 5 years	Long Term	LT	20
Total score	Above 75	High Significance	VS	
	50-75	Medium Significance	MS	
	Below 50	Low Significance	LS	

(Source: National EIA Guidelines, 1993)



The criteria evaluated for impacts offer that the magnitude is moderate, local, and site-specific extent, short-term, and low and medium significance for most of the issues related to physical, socio-economic, biological, and chemical issues. But, the land-use change is high in magnitude, however, site-specific but long-term in duration and high significance.

Faint, illegible table content, likely a table of impact assessment criteria and findings.



7. MATTERS TO BE MONITORED WHILE IMPLEMENTING THE PROPOSAL

The main objective of environmental monitoring is to detect impact in the early phase of project activity to provide adequate corrective action before it is too late. Other objectives of monitoring are to provide feedback on the accuracy of impact prediction, and effectiveness of mitigation measures and guide readjustments during project implementation and operation. Environmental monitoring thus helps to ensure the effectiveness of environmental mitigation measures, compliance with environmental standards, and to facilitate changes required in subproject design and operation.

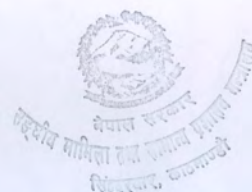
7.1 Institutions and their Roles

Responsibility for environmental management associated with the proposed road upgrading involves several road buildings parties, each with specific responsibilities for particular activities. The main parties responsible for the implementation of environmental safeguards measures before -, during - and following - proposed road upgrading is:

- Ministry of Federal Affairs and General Administration (MoFAGA)
- Department of Local Infrastructures (DoLI)
- Rural Connectivity Improvement Project (RCIP)
- Asian Development Bank
- Project Design and Supervision Consultant/ Individual Expert
- Contractor and Implementing Agency

The role of MOFAGA is to monitor the executing process and facilitate the DOLI with the resources. MOFAGA will be responsible for the technical, progress, environmental, and social aspects measures and their monitoring aspects. It is a concerning line ministry, an executive agency, and a concerned agency as per EPA/EPR. The Environment Management section is responsible to look into safeguard matters for the ministry. The role of MoFAGA is to review Tor for IEE and IEE reports and give approvals. It also coordinates with project safeguard issues and conducts environmental monitoring from the central level.

DOLI, the main proponent has the ultimate responsibility for the supervision of proposed road upgrading ensuring that environmental safeguard measures are fully respected. RCIP of DoLI undertakes responsibility for environmental assessment (study), provides advice related to environmental augmentation and mitigation, and undertakes to monitors the implementation of the project.



A design consultant will prepare final detailed designs of proposed road upgrading, conduct a necessary environmental study, and ensure EMP recommendations are incorporated in the design. Supervising consultants will oversee entire activities of proposed road upgrading including day-to-day supervision of construction undertaken by the contractor, making sure environmental safeguards are fully respected as a part of the construction. This will ensure full compliance of all aspects of work related to EMP specifications by the contractor, with reporting direct to DoLI (including RCIP as appropriate).

The construction contractor will be responsible for undertaking all road works assigned to him per the contract document, including specified conditions in EMP. The contractor will work closely with the supervising consultant to ensure that proposed road upgrading works are undertaken according to EMAP specified standards.

Specific responsibilities of DoLI, Design and Supervising Consultant (DoLI's representative), and Contactor are as outlined below:

DoLI

- Acquisition of all necessary private assets – land and physical structure – according to design/construction needs
- Prepare and submit environment assessment reports for approval to MoFAGA
- Review and approval of surveyed road alignment
- Update EMP
- Review and approval of the detailed design of proposed road upgrading
- Securing necessary permits from other line agencies of GoN including local institutions related to proposed road upgrading activities (District Administration Office, District Land Survey Office, District Land Revenue Office, District Coordination Committees)
- Review and approval of proposed ancillary activities (workforce camps, quarry, borrow pit, etc)
- Road maintenance, environmental monitoring, and management following road handed over by the contractor
- Assist in the relocation of services and infrastructure
- Prepare final design for proposed road upgrading, its required environmental studies, and SEMP design recommendations
- Survey and pegging of proposed road upgrading work according to design
- Supervise constructions undertaken by the contractor according to the contract document



- Inspect and report contractor's state of works related to contractor SEMP and sub-plans
- Audit contractor's works against the conditions set out in contractors' SEMP and sub-plans
- Issue corrective action against works requiring its corrections and verify if it has been respected
- Report all EMP non-conformances to RCIP / DoLI for action
- Certify road works if and when the contractor fully respected SEMP and approved EMP

Contractor

- Undertake constructions of road works according to the approved design, with full respect to SEMP specifications as well as to approved EMP
- Prepare SEMP and other sub-plans based on approved IEE and contract documents condition and submit it to CSC for revision and approval by RCIP-DOLI
- Keep all documents, approval, and permits should be kept intact
- Be available on-site as and when inspections of works undertaken by the contractor including its audits
- Respect supervising consultant's instruction for correction action affected against defective works

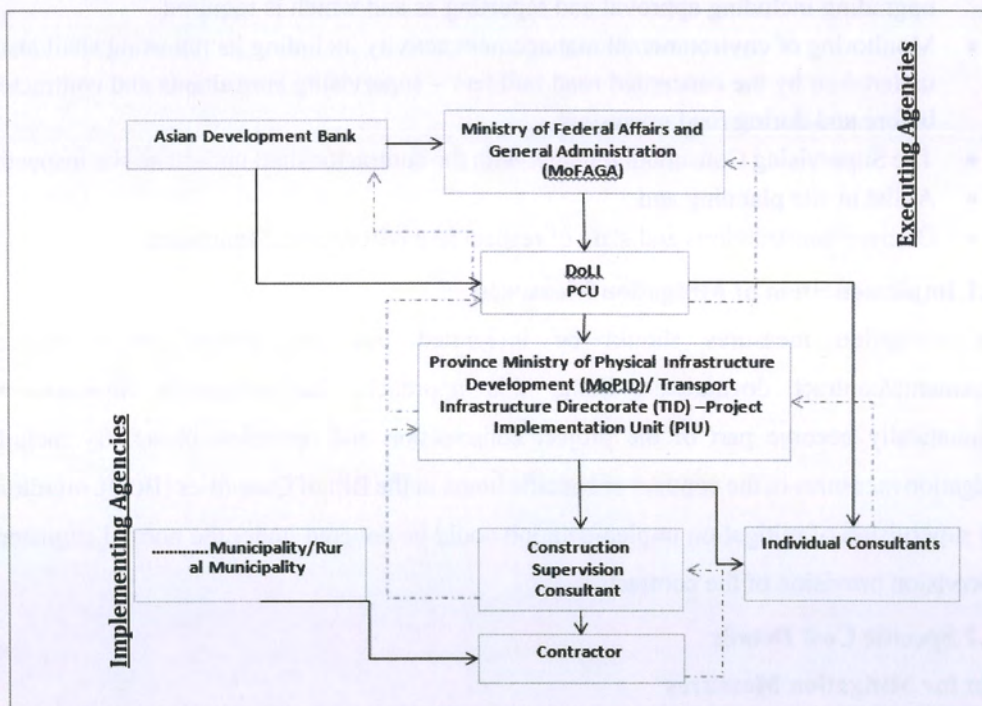
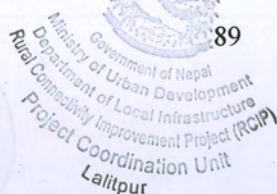


FIGURE 11: ENVIRONMENT MANAGEMENT, MONITORING AND REPORTING ORGANIZATIONAL STRUCTURE



Reporting and Documentation

As part of EMP, reports are needed to be produced at regular time intervals by the EMP compliance monitoring team. The agreement/contract document will categorically include the provision of environmental protection, health and safety, waste management, and other environmental mitigation measures identified during the IEE Study. It will spell out the measures that will be taken in the case of non-compliance. This will make them comply with the provisions. The supervision team of the proponent will regularly monitor the construction activities.

EMP also makes the provision of a set of monitoring activities that are designed to ensure the effectiveness of the proposed management. The monitoring activities will also help to improve/maintain an environmentally and socially sound and acceptable level once the project has been constructed and becomes fully operational.

The strict supervision of construction activities needs to be in place before and during proposed road upgrading to ensure that:

- Works are constructed per the approved designs and Environmental adverse impacts are fully safeguarded according to SEMP specifications
- A standard system of site inspection shall be undertaken throughout proposed road upgrading including approval and reporting as and which is required
- Monitoring of environmental management activity including its reporting shall also be undertaken by the concerned road builders – supervising consultants and contractors - before and during road upgrading.
- The Supervising Consultant together with the contractor shall undertake site inspections
- Assist in site planning and
- Oversee constructions and state of respect to environmental safeguards

7.1.1 Implementation of Mitigation Measures

The mitigation measures should be integrated into the project design and the agreements/contract documents. Using this approach, the mitigation measures will automatically become part of the project construction and operation phase. By including mitigation measures in the contract or specific items in the Bill of Quantities (BoQ), monitoring and supervision of mitigation implementation could be covered under the normal engineering supervision provision of the contract.

7.1.2 Specific Cost Details

Cost for Mitigation Measures

The cost includes the cost of borrow pit management, awareness, waste management, bioengineering measures, tree plantation, etc. under the mitigation measures of the project.

7.2 Matters to be Monitored while Implementing the Proposal

Environmental monitoring involves the systematic collection of data to determine the actual environmental effects of the project, compliance of the project with regulatory standards, and the degree of implementation and effectiveness of the environmental protection.

7.2.1 Baseline Monitoring

It is the survey that documents detailed information on the pre-project conditions of physical, biological, socio-economic, and cultural resources. Since the proposed sub-project implementation period is immediately after the approval of IEE, there will have no significant changes in the baseline condition. Hence the baseline monitoring will not be carried out; rather the information in the IEE report itself will be treated as baseline data for the project.

7.2.2 Compliance Monitoring

This monitoring is carried out to know the implementation status of environmental requirements as documented in the EA report.

7.2.3 Impact / Effect Monitoring

Contractor: The contractor shall present a monthly progress report (MPR) on Environment safeguard based on approved IEE, SEMP, and contract documents including condition and contract to CSC. Along with MPR, the contract shall also submit Environmental Monitoring checklist and OHS checklists including COVID-19 monitoring measures.

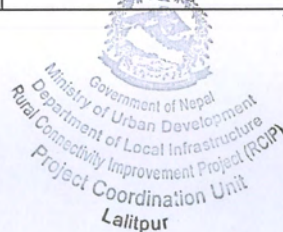
CSC: The CSC shall present MPR on environment safeguards to PCUs and PIUs. In addition to MPR, the CSC shall present quarterly monitoring Reports, Semi-Annual Environment Safeguards Monitoring Reports, reports related to grievances, and annual progress reports.

PCU-DOLI: PCU/DOLI shall submit the report to ADB on a quarterly, semi-annual report and annual report basis on monitoring and program on Environment safeguards.



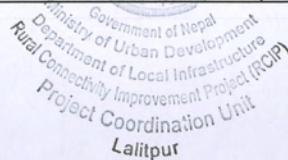
TABLE 23: IMPACT MONITORING

Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
				Socio-economic Environment		
Employment Opportunities and income generation	Contractor	Number of local laborers employed in the project	Inspection at a construction site, interaction with local people	IIZ area	Periodically during the construction phase	PIU/ SC/ MoFAGA
Worker's sanitation, Occupational health, and safety	Contractor	Incidence of communicable/non-communicable diseases in a labor camp, safety gear usage by labor, medical check-up camps, shelter, drinking water, and toilet facility	Site inspection, interaction with labor	DIZ area	Periodically during the construction phase	PIU/ SC/ MoFAGA
Social Conflict	Contractor	Several days were lost due to conflict etc.	Interview with the contractor, site consultant, locals	IIZ area	Periodically during the construction phase	PIU/ SC/ MoFAGA



Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
Employment in projects affected people	Contractor	Number of projects affected people employed	Interaction with project-affected people, recording	IIZ area	Periodically during construction phase	PIU/ SC/ MoFAGA
Restoration, and rehabilitation of infrastructures damaged by the subproject activities	Contractor	Continued services by the facilities and functional public life	Site observation; Public records; Public Consultation Meetings; Photos	Project Area	Once a month during construction phase	PIU/ SC/ MoFAGA
Physical and Cultural Environment						
Extraction of material from recommended quarry sites and borrowing pits	Contractor	No cases of material extraction were reported from unauthorized sites	Walk through survey, interact with local peoples	Quarry Sites and Burrow Pits area	During construction phase	PIU/SC/DoLI/RCIP
Control of dust pollution	Contractor/SC	Dust level at a construction site, water sprinkling practice observed	Use of sprinkler tank, interview local about the dust problem	Project Vicinity	During construction phase	PIU/SC/DoLI/RCIP
Erosion protection measures used in the material stockpiling area	Contractor/SC	Erosion protection measures used (Bio-engineering Works), bunds constructed,	Visit the material stockpiling area,	Stockpiling Area	During construction phase	PIU/ SC/ MoFAGA

Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
		adequate drainage provided	observation, and Photographs			
Road Safety	Contractor/SC	Use of sign boards (speed limit, men at work, danger, etc) during upgrading, safety passage provided to vehicles	Walkthrough survey observation, Photographs, interaction with locals	Within RoW	During construction phase	PIU/ SC/ MoFAGA
Measures to protect the environment from air & noise pollution	Contractor/SC	Dust level and noise level at work sites, major settlements, and sensitive spots like health centers and schools	Visual Observation of good upgrading practices and discussion with residents and workers	Project Vicinity Area	Once a month during construction	PIU/ SC/ MoFAGA
Biological Environment						
Compensatory plantation	Contractor/SC	Number of trees planted	Visit re-plantation area	Project Area	Before issuing of construction completion certificate	PIU/CSC/ MoFAGA
Final alignment selection as per IEE/ EMAP recommendation	Consultant	Incorporation of IEE/EMAP recommendations into the Site and alignment	Walkthrough survey along final road alignment,	Alignment	The initial stage of surveying	PIU/ CSC/RCIP



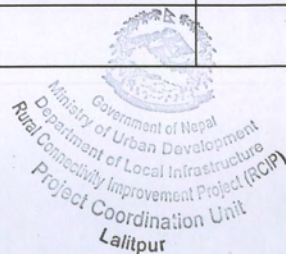
Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
		selection process and design document	verifying sensitive areas			
Chemical Environment						
Measure to protect water bodies from chemical	Contractor	Visual observation of open defecation and waste disposal around water sources near construction sites; Parameters like pH, hardness, DO, etc.	Site inspection, a test of site-selected samples of water at the laboratory	Nearby water Bodies	Once in six months during construction	PIU/ CSC/ MoFAGA

Note: CSC= Supervision Consultant

TABLE 24: COMPLIANCE MONITORING

SN	Parameters	Responsible Implementing agency	Verifiable Indicators	Verification Methods	Schedule	Responsible Monitoring Agency	Reporting Schedule	Reporting Authority
	Compliance with the benefit augmentation and impact mitigation measures	Local Level/ Contractor / Environmental Safeguard Unit	<ul style="list-style-type: none"> The number of local people engaged in construction activities. Use of occupation safety instruments. 	Visual observation, routine / regular supervision, record books, questionnaire survey from respective	During construction Phase	RCIP Environmental Safeguard Unit	Trimester	DoLJ/ MoFAGA

SN	Parameters	Responsible Implementing agency	Verifiable Indicators	Verification Methods	Schedule	Responsible Monitoring Agency	Reporting Schedule	Reporting Authority
			<ul style="list-style-type: none"> Compensatory plantation in the ratio of 1:10 for the trees to be removed. 	stakeholders, etc.				
	Compliance with the relevant legal	Local Contractor / Environmental Safeguard Unit	Project activities as per the prevailing legal requirements	Visual observation, routine regular supervision, record books, questionnaire survey from respective stakeholders, etc.	During construction Phase	RCIP, Environmental Safeguard Unit	Trimester	DoLI/ MoFAGA
	Compliance with directives from MoFAGA/ DoLI in matters concerned with the environmental safeguard	Local Contractor / Environmental Safeguard Unit	<ul style="list-style-type: none"> Activities conducted as per the mandate from DoLI/RCIP 	Visual observation, routine regular supervision, record books, questionnaire survey from respective stakeholders, etc.	During construction Phase	RCIP Environmental Safeguard Unit	Trimester	DoLI/ MoFAGA



7.3 Site Supervision, Monitoring, and Reporting

Site supervision, monitoring, and reporting are an integral part of the EMAP. All these activities should be stringently carried out to ensure the effective implementation of mitigation measures at the field level. It should be carried out before and during road upgrading to answer the following question.

- a. Is all work being done according to the approved design?
- b. Are all mitigation measures applied in the field?
- c. Are all environmental issues complied with by the contractor?
- d. Are all the implemented issues sufficient to address the environmental issues?

Site inspection and monitoring will be carried out transparently and credibly by using established indicators. Standard checklists and formats should be used by the monitoring staff both for site surveys and in the subsequent reports. Monitoring activity involves quantifying the observed impacts, verifying the nature and extent of impacts, taking photographs, parameter-tests, interacting with locals, and geo-referencing the observed site/area with GPS.

7.4 Environment Management Plan

The Environment Management Plan (EMP) is a management tool. The Environmental Management Plan has been formulated to guide the implementation of the environmental safeguard mechanism during the pre-construction, construction, and operation phase of the project. The plan will include the mechanism for the implementation of environmental mitigation measures, selection of monitoring parameters, monitoring schedule, indicators to ensure the best monitoring practices, and the responsibilities of stakeholders of various levels in ensuring the environmental and social safeguard during the implementation of the project. The cost estimate for the suggested mitigation measures such as filling of borrow pit, awareness, waste management, bioengineering measures, tree plantation, etc. shall be incorporated. Most of the mitigation measures suggested would be a part of road design and construction. Most of the proposed mitigation measures will be integrated into the project design so that these measures may automatically form part of the construction and operational phases of the project. The stakeholders involved in the environmental and social safeguard during the construction and operation of the proposed Bhagwanpur-Kahireni Road are presented in table 21 below.



TABLE 25: INSTITUTIONS AND THEIR ROLE IN EMP IMPLEMENTATION

Institution	Role	Responsibility in The Project
Ministry of Federal Affairs and General Administration (MoFAGA)	Concerned Ministry and the Executing Agency of the Project. It Provides backup support to Local Government and DoLI in Policy and Execution. It has an Environment and Disaster Management Section.	To review and approve ToR of IEE and IEE Report of Bhagwanpur-Dhakdhai-Khaireni road undertake environmental monitoring as the central agency
Department of Local Infrastructure Development (DoLI)	Department under MoFAGA. It has a section on environmental responsibility. Coordination with Province and Local Governments for executing infrastructure Development Works	Executing Agency of RCIP. Responsible to execute infrastructure projects under MoFAGA. Provides backup support to Local Government. Undertake Environment Assessment and submit to MoFAGA for Approval
RCIP-PCU	Project Coordination Unit (PCU)	Overall oversight, monitoring, and coordination of project safeguard aspects; Manage the interface between the ADB and the GoN; Support PIUs on policy development and harmonize guidelines and standards on environmental and social safeguards
Province Ministry of Physical Infrastructure Development (MoPID)	Concerned Ministry at Province Level	Coordination and Provides backup support to Local Government and TID
Transport Infrastructure Directorate (TID)	Technical wing of MoPID	Provide Technical Support for Project Implementation, Coordination, and Support to PIU
RCIP-PIUs	Project Implementation Unit (PIU) under TID-MoPID	Planning, prioritization, selection, design, procurement, and implementation of all safeguards-related works and reporting; Day-to-day quality control, and monitoring; to support in ensuring effective

Institution	Role	Responsibility in The Project
		coordination.
Local Government (Rohini Rural Municipality, Om Satiya Rural Municipality, and Devdaha Municipality)	Monitoring and evaluation during the construction stage	Monitoring and reporting the environmental safeguards
Construction Supervision Consultant (CSC)	Supervision of the construction works	Supervise contractor on the execution of safeguard works and report progress of the same to RCIP (PCU/PIUs)
Contractor	Project road construction	Responsible for overall activities related to the construction of roads, Implementation of EMP

7.5 Monitoring Cost

DoLI/RCIP is responsible for monitoring the impact of proposal implementation. DoLI/RCIP checks whether the monitoring activities are carried out as per the EMP and if the prescribed mitigation measures are being implemented. The monitoring cost of the project is as follows.

TABLE 26: ENVIRONMENT MONITORING COST

Manpower requirement	Duration (days)	Rate (NRs)	Amount (NRs)
Team Leader/Environmental Specialist	30	5,000	150,000
Engineer	25	5,000	125,000
Biodiversity Expert	25	5,000	125,000
Sociologist	25	5,000	125,000
Support staff	25	2,500	62,500
Transportation cost		LS	80,000
Report preparation		LS	25,000
Central level monitoring		LS	1,00,000
Instrumentation cost	One time		50,000
Total			8,42,500



7.6 Summary cost for EMP

The total cost of the environment management plan is summarized in the table below:

TABLE 27: SUMMARY OF COST FOR EMP

S. N.	Activities/Measure	Unit	Total Cost (NRs.)	Remarks
1	Road furniture and traffic safety		5,841,579.13	BOQ
2	Bio-Engineering works		2,344,399.20	BOQ
3	EMP and EmoP		25,25,000.00	LS
4	Environment Monitoring cost		8,42,500.00	
	Total		8,185,978.33	

TABLE 28: AIR, NOISE, AND WATER QUALITY MONITORING COST

S.N.	Particulars	Unit Rate	Amount (NRs)	Remarks
1.	Water Quality Monitoring	3 sites x 18 times x 6,000	324,000.00	Every month at 3 sites
2.	Noise Quality Monitoring	2 sites x 6 times x 15,500	186,000.00	Every 3 month at 2 sites
3.	Air Quality Monitoring	3 sites x 3 times x 60,000	540,000.00	Every 6 month at 3 sites
TOTAL (NRs)			1,050,000.00	



TABLE 29: ENVIRONMENT MANAGEMENT PLAN (EMP)

Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
Permission	Permission from concerned authorities for Quarry, Crusher Plant operation, Stockpiling	Along RoW		Pre-construction	RCIP	RCIP shall allocate separate fund for the plantation works	DOL/M ofFAGA/MoFE/PS SC
Land Property Acquisition	Loss of Private & Communal Property	ROW	Follow the CPP Procedures	Pre-Construction	RCIP/PSC	Included in PSC /CPP	DOL/M ofFAGA/MoFE
Construction Stage							
Pollution	Operation of machines and vehicles/ Bitumen Heating	ROW and near about side	Use of face mask, goggles, gloves, and air plugs need to be provided as required. (Bitumen will be heated far from the settlement/ school and other sensitive areas lots of such areas along the road alignment.)	Construction	Contractor /RCIP	NRs. 800,000.00	DOL/M ofFAGA/MoFE
Stockpiling of construction Materials	The stockpiling is constructed at Chainage 3+700, 7+850,	Stockpiling area	Locate away from cultivable lands, settlements, drinking water intakes and public places, provide surrounding drain, cover material and seal the area,	Construction	Contractor /RCIP	Included in BOQ	DOL/M ofFAGA/MoFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
	12+850 and 18+650						
Air Pollution/Noise Pollution/Water Pollution	Construction Activities and movement of vehicles	Construction area	Use of water sprinkle on a dusty road and along with the settlement/ school/ market etc. at least once a day	Construction	Contractor /RCIP	NRS. 10,50,000.00	DOL/M ofFAGA/ MoFE
Earth excavation /Operation of quarry sites and borrow pits at Chainage 5+000, 7+500 and 11+100	Scouring of Agricultural land and erosion, Sedimentation of water bodies	Construction area	The sustainable rate and total amount of extraction from the sites should be assessed. Extraction spread over the longest length, Avoiding seasonal rivers, rehabilitation of those sites after the completion of works	Construction	Contractor /RCIP	Included in BOQ	DOL/M ofFAGA/ MoFE
Operation Stage							
Inadequate slope protection,	wash away of sediments (from shoulder) by rainwater leading to	Project direct impact area	Regular maintenance of structures.	Operation	DOL/RCIP		DOL/M ofFAGA/ MoFE

Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
	road damage/instability)/						
Movement of heavily loaded vehicles	damage on-road/creation of potholes/subsidence of road	Project direct impact area	Restriction on the movement of heavily loaded vehicles above the bearing capacity of the road, regular maintenance of blacktop.	Operation	DOLI/RCIP		DOLI/MoFAGA/MoFE
Demolition of construction camps and other facilities made for road construction	Haphazard disposal of such waste	Project direct impact zone	Promptly cleaning construction waste as soon the construction work completes and restoring those land to its original condition.	Operation	DOLI/RCIP		DOLI/MoFAGA/MoFE
Vehicle movement	Air/Noise pollution	Project direct impact zone	Sign boards for speed and noise control will be erected at appropriate places, affected	Operation	DOLI/RCIP		DOLI/MoFAGA/MoFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
			households will be suggested to plant vegetative barriers.				
Biological Environment (Construction)							
Clearance of 63 numbers of trees from private land Trees & Vegetation within formation width	Compensatory plantation of lost trees at 1:10 for the loss of every single tree habitat of birds and small reptiles	Construction Stage	Plantation shall be done along the RoW (Both the fodder trees and the shade trees will be planted along the RoW. Shade trees with spreading canopies will be planted immediately to the formation width of the road, which will help to reduce the temperature of the road surface by blocking direct sunlight. This will help to lengthen the life of the blacktop. Next to the shade trees, fodder trees will be planted and their caring responsibility and using rights	Construction	RCIP/DO LI	NRS 5,25,000.00	MoFAG A/MoFE

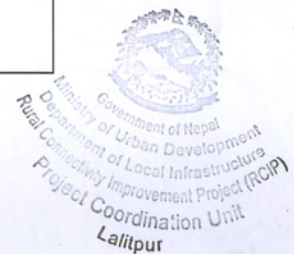
Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
			will be given to the local communities to the extent possible.)				
Construction activities/ Hunting behavior of Labours	Hunting & Poaching of Wildlife	Construction Stage	Unnecessary movement of construction crew inside the nearby forest will be prohibited. Before the start of work, they will be alerted. Orientation classes will be given to the construction crew about these activities and their consequences.	Construction Stage	RCIP/DO LI	NO Cost	MoFAG A/MoFE
Fuel for heating Bitumen/ Cooking fuel (firewood) for the construction crew	Illegal cutting of trees & collection of firewood	Construction Stage	Collection of firewood from the forest will be strictly prohibited. The contractor will manage the required fuel for bitumen heating and cooking.			No Cost	MoFAG A/MoFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
	from nearby forests						
Chemical environment construction stage							
Use of Bitumen	Injury to the construction workers	Construction stage	Construction workers will be provided safety gear such as helmets, boots, and goggles for their safety.	Construction stage	Contractor /RCIP	NRs. 1,50,000.00	DOLI/M OFAGA /MOFE
Socioeconomic Environment							
Land & Property Acquisition		Pre-construction stage	Encourage community development program, Compensation will be provided to the affected household.	Pre-construction Stage	RCIP	Included in the CPP	DOLI/M OFAGA /MOFE
Socioeconomic Environment (Construction Stage)							
Loss of Agricultural land	Reduction in productive capacity Product, economic loss, and	Construction stage	Encourage community development program, Compensation will be provided to the affected household.	construction Stage	RCIP	Included in CPP	DOLI/M OFAGA /MOFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
	social disruption of affected families						
Loss of public property	Disturbance in electric supply and Communication		Re-installment of the public utilities viable to the local people.	construction Stage	RCIP	Included in CPP	DOLI/M OFAGA /MOFE
The influx of Outside Workers	Increased Usages of Public Utilities due to construction work Force		The contractor will be responsible for managing essential commodities for the construction force.	construction Stage	RCIP	No cost	DOLI/M OFAGA /MOFE

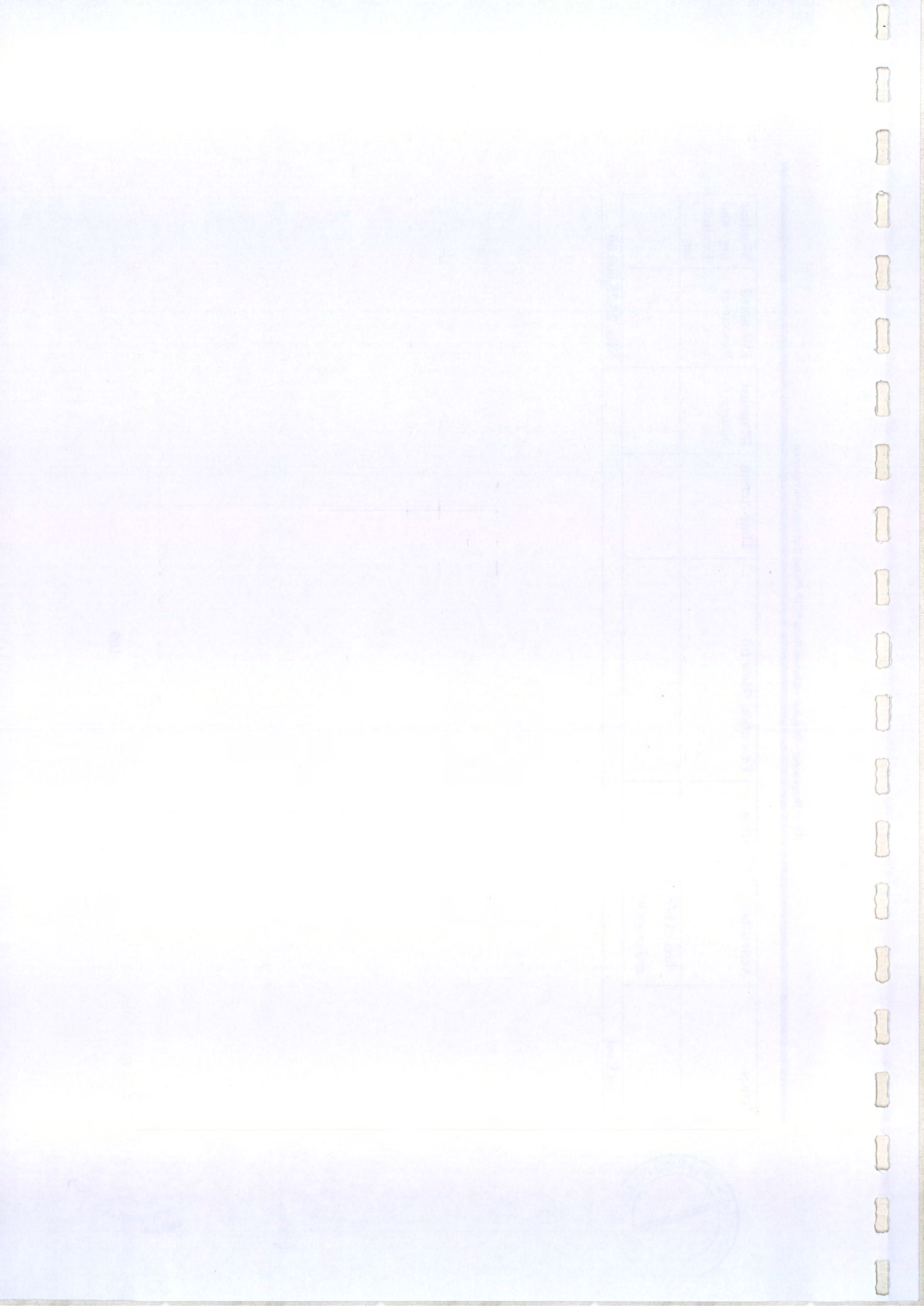


Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
Occupational health and safety and sanitation	Accidental injury or death due to inadequate safety measures		Proper safety kits/gears will be provided and will be made aware of possible impacts and safety measures. Construction workers will be ensured.	construction Stage	RCIP	BOQ	DOLI/M OFAGA /MOFE
Establishment of camp Sites at 2+910, 30+310	Degradation of Campsite Sanitary environment		The contractor will ensure that camps are fully restored, including re-top soiling and tree planting if appropriate	construction Stage	RCIP	BOQ	DOLI/M OFAGA /MOFE
Socioeconomic Stage Operation Stage							
Encroachment of RoW	Increase accidents, delays in traffic movement	Operation	Awareness, enforcement of law and order, planning of land development by Local Government	Operation Stage	RCIP/DO LI	No Cost	DOLI/M OFAGA /MOFE
Increased vehicle operation	Increase chance of accidents:	Operation Stage	Arrangement of safety signs, road delineators, and provision of limit sign boards.	Operation Stage		No Cost	DOLI/M OFAGA /MOFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
	loss of life and property						
Total Cost						NRs. 25,25,000.00	





8. CONCLUSION

The implementation of the proposed “*Bhaganpur-Dhakdhai-Khaireni*” road upgrading work is expected to result in a substantial beneficial impact on the economy and livelihood of local people. The upgraded road will provide better access to market and social services, and is expected to enhance productivity and improve the quality of life of the people. Local people will get direct employment opportunities as workers during construction works, which will contribute to improving their income. The beneficial impacts from the implementation of the proposed road are more significant and long-term in nature than the adverse impacts most of which could be avoided or minimized or compensated.

Environmental impacts of the proposed road project are likely to have some effects associated with the loss of roadside trees and agricultural land. Most of the adverse impacts identified and predicted are of moderate significance and short-term in nature. The implementation of enhancement and mitigations measures listed in EMP will help to enhance and reduce the negative impacts on physical, biological, socio-economic, and cultural aspects respectively. It is concluded that with the set of proposed mitigation measures, most of the impacts can be minimized. The IEE has shown that none of the anticipated environmental impacts of constructing the proposed road is significant enough to need a detailed follow-up EIA or special environmental study. Therefore, this IEE is sufficient for the approval of the sub-project.

The proponent RCIP is committed to implementing all the benefit augmentation measures and adverse impact mitigation measures prescribed in this report.



2. CONCLUSION

The first part of the report, the Introduction, sets the context of the project and outlines the objectives of the study. It also provides a brief overview of the methodology used in the study and the structure of the report.

The second part of the report, the Literature Review, discusses the current state of research on the topic of the study. It identifies the key issues and debates in the field and highlights the gaps in the existing literature that the study aims to address.

The third part of the report, the Methodology, describes the research design and the data collection and analysis methods used in the study. It provides a detailed account of the procedures followed and the rationale for the chosen methods.

The fourth part of the report, the Results, presents the findings of the study. It discusses the main results and their implications for the field of research. It also identifies the strengths and limitations of the study and suggests directions for future research.

The fifth part of the report, the Conclusion, summarizes the main findings of the study and provides a final assessment of the contribution of the study to the field of research. It also includes a list of references and an appendix.




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- Detail Engineering Design of Bhagwanpur-Dhakdahi-Khaireni Road



ANNEX

Annex 1: Approved ToR letter



नेपाल सरकार
संघीय मामिला तथा स्थानीय प्रशासन मन्त्रालय
(वातावरण तथा निपदानी व्यवस्थापन शाखा)
सिंहदरवार, काठमाडौं ।

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प.सं.: वा.त.वि.व्य.शा./०७७/०७८
च.नं.: १६८

मिति: २०७७/८/२९

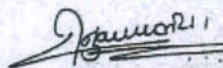
विषय : प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदनको कार्यसूची (TOR) स्वीकृती सम्बन्धमा ।

श्री स्थानीय पूर्वाधार विभाग,
ग्रामीण सडक सञ्जाल सुधार आयोजना,
आयोजना कार्यान्वयन इकाई,
श्रीमहल पुल्चोक, ललितपुर ।

प्रस्तुत विषयमा रुपन्देही जिल्लाको भगवानपुर (अमुबा) धकघई-खैरनी सडक स्तरोन्नतीको सम्बन्धमा तयार प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदनको कार्यसूची स्वीकृतार्थ तहाँ कार्यालयको च.नं. १७९ मिति २०७७/०८/०४ को पत्र प्राप्त भएकोमा वातावरणीय अध्ययन परिक्षण पुनरावलोकन समिति तथा स्थानीय पूर्वाधार विकास विभाग मार्फत प्राप्त सुझाव लगायत समावेश गर्दै तपशिल बमोजिम हुने गरी वातावरण संरक्षण यस मन्त्रालयको मिति २०७७/०८/२९ गतेको निर्णयानुसार स्वीकृत भएको व्यहोरा अनुरोध छ ।

तपशिल

- कार्यसूची उपर पुनरावलोकन समितिले दिएको राय टिप्पणी प्रारम्भिक वातावरणीय/सुझाव/(IEE) प्रतिवेदनको अंश हुने ।
- ऐन, नियम, कार्यविधि, निर्देशिका, मापदण्ड लगायतको पुनरावलोकन गर्दा विद्यमान प्रावधानहरूको पुनरावलोकन गर्नुपर्ने ।
- प्रारम्भिक वातावरणीय परीक्षण (IEE) प्रतिवेदन तयार गर्दा वातावरण संरक्षण नियमावली, २०७७ नियम ७ को उपनियम (७) बमोजिमको भाषामा, सोही नियमावलीको अनुसूची १३ बमोजिमको विज्ञ मार्फत २ अनुसूची ११ बमोजिमको ढाँचामा तयार गरी पेश गर्नुपर्ने ।
- अनुगमन समिति गठन गर्दा सम्बन्धित स्थानीय तहलाई समेत जिम्मेवार गराउने किसिमबाट प्रतिवेदन तयार गर्नु पर्ने ।


(रीनु थपलिया)
शाखा अधिकृत

d/c



Annex 2: Approved ToR



**Terms of Reference (ToR)
for
Preparation of Initial Environmental Examination (IEE) Report
of
Upgrading of Bhagawanpur- Dhakdhani-Khairani Road (22.75
km)
Rupandehi, Lumbini Province**

**Submitted to:
Government of Nepal
Ministry of Federal Affairs and General Administration
Singhadurbar, Kathmandu
Nepal**

**Proponent:
Department of Local Infrastructure (DoLI)
Rural Connectivity Improvement Project (RCIP)
Shreemahal, Pulchowk, Lalitpur**

**Prepared By
ITECO Nepal and Inclusive JV
Sitapaila, Kathmandu Nepal
Phone : 01-5261016
Email: iteco.inclusive@gmail.com**

November 2020



ToR for IEE of the Bhagwanpur- Dhakdhai-Khaireni Road on Preparation of the DPR of RCIP-Phase II of Province No 5

List of Abbreviations and Acronyms

ADB	Asian Development Bank
ADS	Agriculture Development Strategy
°C	Degree Celsius
CBS	Central Bureau of Statistics
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPP	Community Participation Plan
dbh	Diameter at Breast Height
DoLI	Department of Local Infrastructure
DPR	Detailed Project Report
EIA	Environment Impact Assessment
EPA	Environment Protection Act
EPR	Environment Protection Rules
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature
Km	Kilometer
m	Meter
RCIP	Rural Connectivity Improvement Project
RM	Rural Municipality
RoW	Right of Way
RRRSDP	Rural Reconstruction and Rehabilitation Sector Development Project
ToR	Terms of Reference
GoN	Government of Nepal
MoFAGA	Ministry of Federal Affairs and General Administration



ToR for IEE of the Bhagwanpur- Dhakhani-Khairani Road on Preparation of the DPR of RCIP-Phase II of Province No 5

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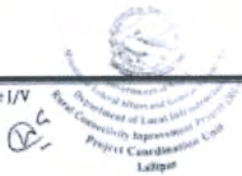
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ITECO-Inclusive J/V

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ToR for IEE of the Bhagwanpur- Dhakdhai-Khaireni Road on Preparation of the DPR of RCIP-Phase II of Province No 5

CHAPTER 1: NAME AND ADDRESS OF THE PROPONENT & ORGANIZATION RESPONSIBLE FOR CONDUCTING IEE

1.1 The Proponent

The proponent for conducting Initial Environmental Examination (IEE) of the Bhagwanpur-Dhakdhai-Khaireni Road Section, Rupandehi is Rural Connectivity Improvement Project, Department of Local Infrastructures, under the Ministry of Federal Affairs and General Administration.

The address of the proponent is:
Department of Local Infrastructures
Rural Connectivity Improvement Project (RCIP)
Shree Mahal, Pulchowk Lalitpur
Phone: 01-5260505
Email:rcippcu@gmail.com

1.2 The consultant

For and on behalf of the proponent the Consultant of RCIP, ITECO Nepal and Inclusive JV has prepared this TOR and is positioned to carry out IEE Study and as per the ToR laid out in the Contract between RCIP, PCU and ITECO Nepal and Inclusive JV on 15 January 2020.

The address of the consulting firm is:

ITECO Nepal and Inclusive JV Pvt. Ltd
Sitapaila , Kathmandu Nepal
Phone : 01-4034880
Email : iteco.inclusive@gmail.com, info@iteco.com.np , inclusive.consultants@gmail.com



ToR for IEE of the Bhagwanpur- Dhakhani-Khairani Road on Preparation of the DPR of RCIP-Phase II of Province No 5

CHAPTER 2: PROPOSAL

2.1 General Introduction

Development of a road sector has multi-fold benefits for the overall socio-economic upliftment of the country. It contributes to the development of productive and social sectors together, such as agriculture, industry, commerce, education and health sectors. Road network reduces the transportation cost in both rural and urban areas, provides goods and services and reduces development gap between the urban and rural areas improving rural livelihood and increasing cost effectiveness.

The Government of Nepal has received financial assistance from Asian Development Bank (ADB) for rehabilitation of rural and agricultural roads through implementation of Rural Connectivity Improvement Project (RCIP) for improving connectivity between rural communities, productive agricultural areas and socioeconomic centers in 16 districts namely Panchthar, Ilam, Jhapa, Morang, Sunsari, Dhankuta, Sindhui, Dolakha, Sindhupalchok, Kavreplanchok, Bhaktapur, Kathmandu, Chitwan, Parbat, Rolpa and Rukum of Nepal by improving rural roads and enhancing capacity of road implementation agency. RCIP focus on improving 380.686 km rural roads to all-weather standards, serving the agricultural sector and 7.5 million rural population in 16 districts located in five provinces ensuring roads are maintained in sustainable manner. RCIP is a follow on project of Rural Reconstruction and Rehabilitation Sector Development Project (RRRSDP) and is being implemented with the loan assistance of Asian Development Bank (ADB) and counterpart funding from Government of Nepal (GoN). The total project duration is 5 years (2018 to 2023) and it is divided into two parts: first two years as a upgrading works/construction phase and then one year of Defects Liability Period (DLP) and remaining two years of performance based maintenance period. Besides, upgrading to blacktop standard (Asphalt Concrete) and performance based maintenance of 380 km of rural roads (27 nos.) in 16 Districts, Social and Environmental safeguard, and Capacity Building of Federal, Provincial and Local Government, DPR preparation of 2000 km roads for next phase-Follow On project of RCIP (RCIP 2) is one of the project component of RCIP. Under this component, Feasibility study of selected roads of approximately 765 Km in Province No 1, 680 Km in Bagmati Province, 595 Km in Gandaki Province, 420 Km in Lumbini Province and 340 km in Karnali province and Preparation of Detail Project Report (DPR) of feasible road of 545 Km in Province No 1, 485 Km in Bagmati Province, 425 Km in Gandaki Province, 300 Km in Lumbini Province and 245 km in Karnali province to be carried out.

Five domestic Consulting Firms are selected for Feasibility Study and DPR preparation in five provinces. ITECO Nepal Pvt. Ltd - Inclusive Consultants Pvt. Ltd is responsible to carry out 420 Km of Feasibility Study and 300 Km of DPR preparation of selected roads in Lumbini Province.

Similar to first phase, Rural Connectivity Improvement Project (RCIP) phase 2 focuses on improving rural roads to all-weather standards and ensuring that the roads are maintained using Performance Based Maintenance contracts thus serving the agriculture sector and access to services for rural population. Hence, the proposed project will play a catalytic role for the sustainable development of rural areas.



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2.2 Relevancy of the proposals

The road requires an upgrade due to the high volume of traffic and dense population around the roadside. Likewise, the condition of the road also seems to be poor. As the objective of the Rural Connectivity Improvement Project (RCIP) is to upgrade local roads, which connect the local markets to the main highways, this road is an important road to connect the local market to the main highway. Upgrading of Bhagwanpur Dhakdhai Khaireni Road of Rupandehi district will significantly enhance the accessibility to affecting wards of Rohini RM ward no. 2,3 likewise Omsatiya RM ward no. 5,6 and Devdaha municipality ward no. 1,2,3,4,5,7,8,11,12.

The present condition of the road is such that the majority of the road is earthen/graveled and the remaining parts are blacktopped but are in poor condition. So, in view to facilitate the transportation of the people of the affected area it has been proposed for the construction to be of "ultimate" blacktop standard. The upgraded road to bituminous standard will also increase design speed, save travel time, reduce travel cost and protect local communities from dust. The road will ultimately help to improve social and economic status of the people living along the road corridor. Hence, upgrading of this road will be an instrument to accelerate economic condition of the area.

2.3 Objectives of Proposal

The objective of this project proposal is to upgrade 22.75 Km existing road from earthen/graveled to all weather blacktopped road having carriageway width of 5.5 m and formation width of 8.5 m. Upgrading of this road will enhance trade activities between the areas linked to the road. Implementation of this proposal will enhance the level of access to services to the local people.

2.4 Rationality of conducting an IEE

As per the section 3 of Environment Protection Act, 2076 BS (EPA, 2019) and Rule 7 (2) and (3) of Environment Protection Rules 2077, an environmental study report must be prepared to implement any proposal. As the length of proposed road is 22.75 Km, pertaining to Schedule 2 (Gha) Road Sector (8) of EPR, 2077 an IEE study report shall be carried out prior to upgrading of this road.

Asian Development Bank has provided financial assistance for the preparation of DPR of this proposal. It is also expected that ADB will finance for the implementation of this proposal. Hence, as per the ADB's Safeguard Policy Statement (SPS) -2009, this proposal falls on category B; an initial environmental examination is required to implement the project through ADB's funding.

Any environmentally sensitive or protected area does not lie within this road alignment. An IEE study report must be prepared before upgrading the road and it will be approved from MoFAGA.

2.5 Objectives of ToR

The main objectives of ToR, is to provide guidelines for the preparation of an IEE Report as per EPA 2019, EPR 2020 and ADB's Safeguard Policy Statement 2009. The Specific Objectives of the ToR are:



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- Delineation of scope of works for IEE study, the potential environmental issues that need further evaluation in terms of impact significance, mitigation actions, monitoring plan and overall environmental management during project development and operation;
- Identify data requirement and describe the methodology to collect data;
- Delineate the specific activities to be implemented;
- Clarify the responsibilities of different institutions involved in the project cycle;
- Systematizing the IEE working procedures in compliance with the EPA,2076 and EPR,77 as amended and other sectoral policies and legislations; and
- Accomplishing the IEE study in the stipulated timeframe with professional skill.

2.6 Objectives of IEE

Objective of IEE is to describe the environmental condition of a project, including potential impact, formulation of mitigation measures, and preparation of institutional requirement and environmental monitoring. Other specific objectives are-

- To identify and prepare baseline condition of existing physical, biological, socio-economic and cultural environmental of the project area.
- To identify, predict and evaluate the impacts of the project on physical, biological, socio-economic, cultural aspects of the environment for different project alternatives and select the best.
- To recommend appropriate and practical mitigation measures for significant adverse impacts and measures for augmentation of beneficial impacts for the selected alternatives.
- Recommend whether the IEE is sufficient for the proposed project or whether EIA will be required as the result of environmental issues that may arise due to the project implementation.
- To inform decision makers on the outcome of implementation of the proposal.

2.6 Project description

The proposed road alignment lies in Rupandehi district in Province no. 5. The alignment of this road traversed altogether 13 wards of two rural municipalities and one Municipality i.e. Rohini and Omsatiya Rural Municipality and Devdaha municipality (Rohini RM ward no. 2,3 Omsatiya RM ward no. 5,6 and Devdaha municipality ward no. 1,2,3,4,5,7,8,11,12). The total length of the road alignment is 23.09 Km and the whole alignment lies in Terai region of Nepal. It is located between latitude 27° 28'24.3" N 83° 31' 2.75"E and longitude 27° 38'36.59"N 83° 35'39.27"E, and the elevation varies from 111 m to 144 m from the sea level. The district has three climatic zone; lower tropical (89.33%), upper tropical (10.5%), and subtropical (0.2%) thus, the proposed project lies in lower tropical zone. The highest temperature reaches up to 43.40 °C in summer and minimum mean temperature is 6 °C in winter. The average annual rainfall recorded is 1174 mm, of which 80% precipitation occurred during monsoon season.

Location map of the proposed road alignment has been provided in Annex 3 and Google map has been provided in Annex 4. This district lies in three climatic zone; lower tropical (89.33%), upper tropical (10.5%), and subtropical (0.2%). Thus, the proposed project lies in lower tropical zone. The maximum temperature reaches up to 43.40 °C in summer and minimum mean temperature is



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6 °C in winter. The average annual rainfall recorded is 1174 mm, of which 80% precipitation occurred during monsoon season.

Geology of the Project area: The Project area is in gangetic plain area or Terai area. This area is dominated by the rich, fertile and ancient soil. The soil represents Holocene/Recent sedimentation belt where fluvial sedimentation is still in progress. As the elevation of the area is within 200 m above sea level, project area has thick alluvial deposit. The alluvial deposit mainly consists of gravel, sand, silt and clay and sometimes boulders. Such deposit is foreland basin, which consists of the sediments brought down from the northern part. The project area also consists of fluvial deposits including dark-gray mudstone, medium to coarse-grained sandstone, pebbly sandstone and conglomerate.

Flora and Fauna in the project area: The project area includes the Terai plains. Tropical climate enjoys with the tropical vegetation and associated faunas. The dominant plant/tree species of this region are Sal (*Shorea Robusta*), Asna (*Terminalia Termentosa*) and Semal (*Bombax Malabricum*). High elephant grass covers most of the forest and valleys. The project area was covered by the forest, which was destroyed for settlement purpose. This tropical zone is consists several wildlife like Gaur(*Bos gaurus*), which specially lives in Chure area; however can move down to the project area; deer(*Cervidae*), leopard(*Panthera pardus*), tiger(*Panthera tigris*), Hog Deer(*Axis porcinus*), Barking Deer(*Muntiacus*), and, Jungle Cat (*Felis chaus*), Leopard Cat(*Prionailurus bengalensis*), etc are found in this region.

However, the project area does not lie in the forest area. The area is full of settlements.

2.6.1 Salient Features

The salient feature of the proposed project is discussed below:

Table 2.1: Salient Feature of the Project

1	Name of the Project	Preparation of Detail Project Report of Rural Connectivity Improvement Project (RCIP)-Phase 2 (Package No.-DoLI/RCIP/DPR-04/2019, Province No.5)	
	Name of the sub project	Upgradation of Bhagwanpur Dhakhai Khaiteini Road This road alignment passes through Rohini RM ward no. 2,3 Omsatiya RM ward no. 5,6 and Devdaha Municipality 1,2,3,4,5,7,8,11,12(Earthen/Gravelled/Black Topped Road).	
2	Geographical Location		
	2.1	Province	Lumbini Province
	2.2	District	Rupandehi District
	2.3	Affected RM	Rohini RM ward no. 2,3 Omsatiya RM ward no. 5,6 and Devdaha municipality 1,2,3,4,5,7,8,11,12
2.4	Location	Starting Point: 27° 28'24.3" N 83° 31' 2.75"E, 111 m	
		End Point :27° 38'36.59"N 83° 35' 39.27"E, 144 m	
3	Geographical Features		



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3	Geography	Plain
3.2	Terrain	Plain
3.3	Climate	Tropical
3.4	Geology	Loose soil
4	Detail of Road	
4.1	Route	Starts from Bhagwanpur Bazar, Pokhari Bhindi, Baikunthapur, Swaminagar, Narayanpur, Majhauri, Devdaha , Narainapur, Birta Bazar, Davdaha-2, Suryapura Chowk, Khairani Bazar Road.
4.2	Forest	No
4.3	Length of Road	22.75 Km
4.4	Starting Point	Bhagawanpur Bazar, Rohini RM ward no. 2
4.5	Ending Point	Khairani Bazar Devdaha Municipality ward no. 5
4.6	Classification	
	i. Administrative Classification	District Road as per DTMP of Rupandehi District. It functions as a provincial Road of Province no 5.
	ii. Technical Classification	Class IV
4.6	Pavement	Surface Dressing/ Asphalt Concrete(the exact type of bituminous pavement will be finalized after completion of pavement design)
Design Standards		
5	Design Speed	60 km/hr
6	Cross Section of Road	
6.1	Right Of Way (Proposed)	20 m (10 m either side from the center of road as per NRS 2070, the corridor of construction will be 10 m, 5 m either side from the center of the road)
6.2	Formation Width	8.5 m
6.3	Carriageway width	5.5 m (Intermediate Lane)
6.4	Shoulder	2*1.5 (On Either side)
6.5	Width of side Drain, type	1 m Top Width Trapezoidal
7	Carriageway Camber	2.5% (Bituminous)
8	Minimum Radius of Horizontal Curve	15 m
9	Maximum gradient	5%



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10	Average gradient	3%	
11	Minimum Gradient	0.5%	
12	Design traffic	20 years	
13	Length of slab culvert	As per requirement up to 8 m	
14	Minimum Diameter of pipe culvert	600 mm	
15	Pavement Details (Road Note 31)		
	15.1	Sub Base	Tentative 200 mm (exact thickness will be finalized after design completion)
	15.2	Base	Tentative 200 mm (exact thickness will be finalized after design completion)
	15.3	Wearing Course	Surface Dressing/ Asphalt Concrete(the exact type of bituminous pavement will be finalized after completion of pavement design)
16	Others		
	Land Requirement for the formation width	Will be finalized after preparation of Community Participation Plan (CPP) and finding of CPP will be incorporated in IEE report.	
	Population served	Total population of the Palika's (Rohini RM, Omsatiya RM and Devdaha Municipality) served by the road is 1,24,899 and total population of the wad within Palika's (Rohini RM ward no. 2,3 Omsatiya RM ward no. 5,6 and Devdaha municipality 1,2,3,4,5,7,8,11,12.) served by the road is 65,253.	
	Construction Period	2 years	

(Source: Draft Feasibility Report of Rupandehi District prepared by the Consultant)

2.7 Existing Environment Condition

Geology of the Project area: The Project area is in gangetic plain area or Terai area. This area is dominated by the rich, fertile and ancient soil. The soil represents Holocene/Recent sedimentation belt where fluvial sedimentation is still in progress. As the elevation of the area is within 200 m above sea level, project area has thick alluvial deposit. The alluvial deposit mainly consists of gravel, sand, silt and clay and some boulders. Such deposit is foreland basin, which consists of the sediments brought down from the northern part. The project area also consists of fluvial deposits including dark-gray mudstone, medium to coarse-grained sandstone, pebbly sandstone and conglomerate.

Flora and Fauna in the project area: The project area includes the Terai plains. Tropical climate enjoys with the tropical vegetation and associated faunas. The dominant plant/tree species of this region are Sal (*Shorea Robusta*), Asna (*Terminalia Termentosa*) and Semal (*Bombax Malabricum*). High elephant grass covers most of the forest and valleys. The project area is the area of forest cover, which was destroyed for settlement purpose before several years.



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This tropical zone consists several wildlife like Gaur(*Bos gaurus*), which specially lives in Chure area; however can move up to the project area; deer(*Cervidae*), leopard(*Panthera pardus*), tiger(*Panthera tigris*), Hog Deer(*Axis porcinus*), Barking Deer(*Muntiacus*), and, Jungle Cat (*Felis chaus*), Leopard Cat(*Prionailurus bengalensis*), etc are found in this region. However, the project area does not lie in the forest area.

2.8 Source of Construction materials and Quarry Site

Construction materials (boulders, cobble, gravel and sand) are not available along the road corridor of road alignment. Construction material has to be brought from elsewhere sources such as Saljhandi and Banganga river. Riverbed material will be used for subbase, base and surface and other structures. Other suitable quarry site will be finalized during DPR preparation. Bitumen is easily available in the market i.e. in Bhairahawa and Butwal. Steel, Cements and admixtures are easily available in the market i.e. in Bhairahawa and Butwal. Water for Construction works could be potable and available from the ground water source along road alignment.

2.9 Campsite and Stockpiling

Both skilled and non-skilled manpower will be needed for the construction of the project. Required manpower as per DPR will be managed during construction. Their proper accommodation will be managed in appropriate campsite. The campsite and stockpiling yards will be established taking consideration with minimum environmental impact.

2.10 Project Area Delineation

Direct Impact Zone

According to Nepal Road Standard 2070, the Right of Way (RoW) for such road is 20 m (10 m on either side of the road from center). However, for the purpose of the construction, activities and other ancillary activities like construction yard, stockpiling, borrow pit area and in the settlement areas will be a total of 250 m on each side, which has been considered as the Direct Impact Zone. Major settlement along the road alignment are Bhagawnpur Bazar, Pokhari Bhandi, Baikunthapur, Swaminagar, Narayanpur, Majhauli, Devdaha, Narainapur, Birta Bazar, Davdaha-2, Suryapura chok, Khairani Bazar

Indirect Impact Zone:

Indirect Impact Zone will be the surrounding environment next to Direct Impact Zone (DIZ) of the road alignment and ancillary activities like borrow pit, construction yard and stockpiling and will be affected indirectly by project activities. These areas consist of 250 m after the DIA i.e. adjoining wards of Rohini RM ward no. 2,3 Omsatiya RM ward no. 5,6 and Devdaha municipality 1,2,3,4,5,7,8,11,12

Zone of Influence: Zone of influence covers Rohini RM, Omsatiya RM and Devdaha Municipality of Rupandehi district situated along the road alignment.

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CHAPTER 3: PROCEDURE TO BE ADOPTED WHILE PREPARING THE REPORT

The ToR has been prepared as per the provisions as rule 7 (2) and (3) of EPR,2077. During the IEE study, public hearing will be conducted as per the provision of Section 3 (5) of Environment Protection Act, 2076 and Rule 6 of Environment Protection Rules,2077. The IEE report will be prepared as per the provision of Rule 7 and schedule 9, 11 and 13 of Environment Protection Rules,2077.

The basic methodology as per provisions of EPR, 2077 and EIA guidelines 1993 includes review of literature and field based study and consultation as well. It must be followed by a 7-days public notification and collection of suggestions from the project baseline information related to physical, biological socio-economic and cultural environment (Rule 5 of EPR, 2077). This will be conducted using various applicable survey tools.

3.1 Desk Study/Literature Review

Available secondary data and literatures from different sources in the form of reports like detail engineering design of proposed road, geological report of proposed road, similar road project report, affected rural municipality profile, CBS data and maps like; topographic maps, land use maps, land capability maps, land system maps, aerial photographs, cadastral survey maps etc. will be collected and reviewed. Similarly, published and unpublished reports pertaining to environmental standards, Acts, Regulations etc. will also be collected and reviewed. However, the focus of the literature review will concentrate on proposal's specific issues and related baseline environments.

3.2 Field Study and Site Inspection

Field studies will be conducted in project areas in an extensive manner. Investigations will be targeted to fill in the data gaps identified during the literature review as per the requirement of assessment study. Following methodological approaches will be applied for the generation of database on the physical, biological, socio-economic and cultural environments.

Preparation of Community Participation Plan (CPP)

As lump sum contract between RCIP PCU and the consultant signed on 15 January 2020 for the preparation of Detail Project Report (DPR) for RCIP-2, RFP No.: DoLI/RCIP/DPR-04/2019 (Approximate length of feasibility study of roads is 420 Km and DPR preparation of 300 Km including 10 bridges in five districts of province no.5. The Consultant will prepare the Community Participation Plan (CPP) for this proposed road. CPP will be prepared based upon the transect walk survey and meaningful consultation with the concerned stakeholders. Voluntary land donation will be the method if small strip of private land is required for upgrading of this road. Voluntary donation of land involves the contribution by individuals of land for a project that has community benefits. The CPP will details the mitigation measures and responsibility of for loss of land, loss of structures, loss of livelihood, loss of assets such as trees and ponds, loss of community assets, increased road safety risks other impacts. The relevant information from CPP will be described in the IEE report.



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Table 3.2 Methodological Approach for Field Study and Site Inspection

S N	Component	Information	Methodology
1	Physical Environment	<ul style="list-style-type: none"> • Topography • Climate and temperature data • Land use data and its utilization • Geological data of the project area • Solid Waste Management Technique • Waste water generation • Air and Water quality • Noise level 	<ul style="list-style-type: none"> • Secondary data and literature in the form of reports and maps will be collected and reviewed. • Field survey will be carried out for vulnerability assessment and to find the status of topography, geomorphology, geology, soil, land stability, drainage characteristics, rainfall, meteorology etc. • Direct observations and consultations will be conducted with the local communities for the identification of physically critical areas particularly flood prone areas/ landslide/erosion prone areas etc. • Air, Water Quality and noise level be collected from secondary data.
2	Biological Environment	<ul style="list-style-type: none"> • Vegetation type in the project area and particularly along the project site, • occurrence of threatened to fauna • Occurrence of aquatic species 	<ul style="list-style-type: none"> • The vegetation and wildlife survey will be carried out by walkover survey throughout the road alignment. • Secondary data and literature about IUCN Red Book, CITES Appendices, and GoN list species in the form of reports will be collected and reviewed. • Diameter at breast height (dbh) of the trees will be measured and total number of trees need to be enumerated will be included.



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3	Socio-economic and Cultural Environment	<ul style="list-style-type: none"> Information on social and economic features of the project area including population, ethnicity, health and sanitation Information on occupation and livelihood of project affected area Report of nearby settlement (School, residential buildings, business complex) and health service facilities Description of cultural and religious sites and issues Existing community infrastructure and development activities in the project area Occupational health and safety measures Occupation and Livelihood 	<ul style="list-style-type: none"> Secondary data and literature related to population status in the form of reports will be collected and reviewed. Household questionnaire will be conducted for socio-economic conditions. Information on social infrastructures such as schools, health posts, drinking water etc. will be collected from the Municipalities/Rural Municipalities and/or concerned Ward offices. All sites of religious, cultural and historical importance on the directly project affected area will be visited and observed in the area. Initial interaction and consultation with the local communities and people of surrounding area of the project area will be done.
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3.3 Public Notice and Public Hearing

According to the Rule 6 of EPR, 2077 a public hearing regarding to the project development and operation will be accomplished in more than one place if necessary in project affected area after approved of ToR. The date, time and place about public hearing in project area will be announced by advertising on radio, local newspaper. The notice will be pasted in public places, Municipalities, RM. Group of local people, CFUGs. Representative of local stakeholder will be gathered to inform about project activities. The issues and suggestions received during public hearing will be documented, analyzed and included in the IEE study.

As per the Schedule 9 of EPR, 2077, a 7 days Public Notice will be published in a National Daily Newspaper after approval of ToR. The copies of public notice will be pasted in the project area and public places such as schools, health post and Municipality/Rural Municipality offices and their ward offices and deed of enquiry will be accomplished of the notification in the project affected Municipality/RM. After completion of affixing the public notice, Muchulkas will be prepared. The suggestions and feedbacks of stakeholders will be collected, recorded, analyzed and will be included in IEE report. Feedbacks and comments from Municipality, Rural Municipality and other institutions will be collected through letters and will be included in the IEE report.



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3.4 Analysis of data

The data/information collected from the fieldwork will be analyzed and interpreted to establish the relations between the environmental impacts and their mitigation measures. The analysis will be quantifiably described as far as possible. The collected physical environment data will be analyzed using topographical map, land use map land capability maps, land system maps and cadastral survey maps. Socio-economic data collected from project will be analyzed using SPSS and Excel. Based on data analysis, conclusions will be drawn on the resolution of environmental issues and enhancement of the environment of the project area. Field data will be compiled and crosschecked for errors and discrepancies, if any. All the data will be compiled into a computerized database system.

3.5 Impact Assessment

The baseline environmental data and information collected and collated will be examined in the context of the proposed project activities to identify, and predict the project environmental impacts. The impact prediction will also rely on the past project experience of similar nature and expert judgment as required. Apart from this, statistical tools and models as applicable for the prediction of impacts will be used.

Evaluation of Impacts

The impacts are broadly categorized in two categories identified impacts and predicted impacts. In general, direct impacts are identified and indirect impacts are predicted. These identified and predicted impacts will be evaluated to know their environmental significance, taking into consideration of **Magnitude, Extent and Duration**.

The environmental impacts are ranked **High, Medium or Low Magnitude** based on judgmental evaluation of the impact in comparison with the nature and size of the project. Similarly, the impacts is categorized into **Long-term, Medium-term and Short-term** according to the impact's likely lasting duration due to the operation of the project.

Magnitude of Impact

The magnitude of impact will be determined based on each potential impact's severity. It will also indicate whether the impact is reversible. If the impacts are reversible, it indicates the potential rate of recovery.

Table 3.2 Magnitude of Impact

High/Major Magnitude	If the adverse impacts cannot be mitigated then the magnitude of impact is considered as high.
Medium Magnitude	If the impacts make the resources still usable but at some inconvenient to the public then magnitude of impact would be considered as medium
Low Magnitude	If the impacts are reversible, it indicates the potential rate of recovery. Then the magnitude of impact would be considered as low

(Source: National EIA Guideline 1993)

Extent of Impact:

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The spatial extent or the zone of influence of the impact should always be determined. The extent of an impact may be confined to the project site or area.

Table 3.3 Extent of Impact

National	If the resources are affected at national scale, it is known as a national impact.
Regional	An impact area considered to be of regional level, if it extends beyond the direct impact area to a larger region.
Local	If the impact of the proposed project is limited to the Direct Impact Area alone, it is called a local impact.
Site Specific	If the impact is confined to the Project site alone, it is a Site-Specific impact.

(Source: National EIA Guideline 1993)

Duration of Impact:

As environmental impacts have a temporal dimension, they should be discovered through an IEE. The impacts arising at different phases of the project cycle need to be appropriately considered. The types of impact produced during different phases of construction of a project are generally of temporary nature.

Table 3.4 Duration of Impact

Long-Term	An impact that lasts beyond 20 years is considered to be long term
Medium-Term	An impact that continues for more than 3 years but less than 20 years may be considered as medium term
Short-Term	An impact that lasts for only 3 years after project initiation may be classified as short term

(Source: National EIA Guideline 1993)

The allocation of scores for the Magnitude (High, Medium & Low), Extent (Regional, Local & Site-specific) and Duration (Long-term, Medium-term & Short-term) for each impact will be done as per the National EIA Guidelines, 1993.

Table 3.5 Categorization of Impacts and Scores

Impacts	Category	Scores
Magnitude	High (H)	60
	Medium (M)	20
	Low (L)	10
Extent	Regional	60
	Local	20
	Site Specific	10
Duration	Long Term (LT)	20
	Mid Term (MT)	10
	Short Term (ST)	05

(Source: National EIA Guideline 1993)



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Based on expert judgment, following score methods will be used for the identification and prediction of impacts.

Table 3.6 Score of the Impacts

Impacts	Category	Scores
Significant	Significant (S)	Greater than 75
	Moderately Significant	50-75
Insignificant	Insignificant	Less than 50

(Source: Modified from National EIA Guidelines, 1993)

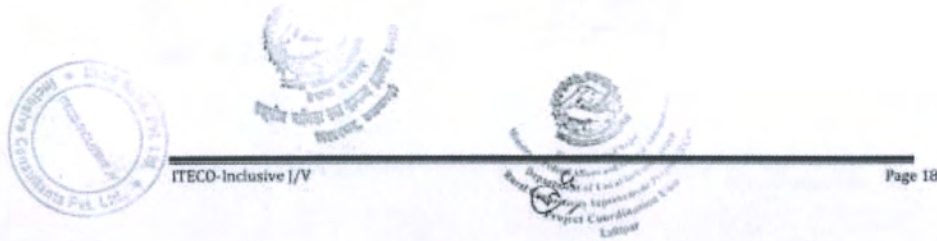
The total scores of impacts of over 75 is considered Very Significant; impacts having 50 to 75 are considered Significant; and impacts having total scores of less than 50 are considered Insignificant for this Project. However, some of the impacts whose total score exceeds 50 may not be significant in view of the nature of the predicted impacts. Some impacts having less than 50 score could also be considered significant. For example, impacts likely to occur outside the project's core area and of indirect nature may not be significant although the total score exceeds 50.

3.6 Report Preparation

The required IEE report will be prepared as per the format and content outlined in Annex 11 of the EPR, 2077 and the approved ToR. Brief report of IEE and Executive Summary of the IEE Report will be also prepared in the Nepali language for the use of local stakeholders, DCCs/ Municipalities and GoN agencies.

In the IEE report, wherever applicable, maps, photographs, tables and matrices will be used. The references cited will be listed separately. Relevant applicable documents and studies prepared by the consultant will also be attached as appendixes, if required. The content of report will be as per the table of contents given at the end of this ToR. The final IEE report will be prepared by incorporating comments and suggestions on the draft IEE report from the concerned authorities.

The format of the report is attached in the Annex 1.



CHAPTER 4: RELEVANT PLANS/ POLICIES, ACTS/ RULES, GUIDELINES/STANDARDS AND CONVENTIONS TO BE TAKEN INTO ACCOUNT WHILE PREPARING THE REPORT

Government of Nepal has adopted various policies, acts, regulations and guidelines to ensure the integration of development with the environmental conservation. The IEE study will be guided by the requirements and provisions of the following acts, rules and guidelines as applicable

4.1 Constitution

- Constitution of Nepal

4.2 Plans and Policies

- Fifteenth Five Year Plan, (FY 2076/77-2080/81, 2019-2020 to 2023-2014 AD)
- National Forest policy, 2075 BS(2019 AD)
- National Environmental Policy and Action Plan (NEPAP), 2050 BS (1993 AD)
- 20 Year Road Plan, 2059/60- 2079/80 BS(2002-2022 AD)
- National Transport Policy, 2058 BS(2001 AD)
- Nepal Biodiversity Strategy, 2071-2077 BS(2014-2020 AD)
- Nepal Environment Policy, 2076 BS (2019 AD)
- Nepal Climate Change Policy, 2076 BS (2019 AD)
- Safeguard Policy Statement, ADB 2009
- Social Security Plan, 2075 BS
- Land Use Policy, 2075 BS

4.3 Acts

- Environment Protection Act,2076 (2019 AD)
- Public Road Act,2031 (1974 AD)
- Forest Act, 2076 (2019 AD)
- Local Government Operation Act, 2074 (2017 AD)
- Soil and Water Conservation Act, 2039 (1982 AD)
- Plant Protection Act, 2029 (1972 AD)
- Aquatic Life Protection Act,2017 (1960 AD)
- Land Acquisition Act, 2034 (1977 AD)
- Labour Act, 2074 BS(2017 AD)
- Child related Act, 2056 BS(1992 AD) and Child Labor (Abolition and Regulation) Act, 2062 BS(2006 AD)
- International Trade Control Act for Endangered Wild Flora and Fauna 2074 BS (2017 AD)
- Solid Waste Management Act, 2068 BS (2011 AD)
- Motor Vehicles and Transport Management Act, 2049 BS (1993 AD)
- Town Development Act, 2045 BS
- Ancient Monument Preservation Act, 2013 BS
- Land Reform Act, 2025 BS



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4.4 Rules and Regulations

- Environment Protection Rules, 2077 BS(2020 AD)
- Forest Regulation 2051 BS, (1995 AD)
- Labour Rule 2050 BS(1993 AD)
- Solid Waste Management Rule, 2070 BS

4.5 Manuals/Guidelines

- Environmental management guidelines for roads and bridges, DoR, 2056 BS (1999 AD)
- National EIA guidelines, 1993 AD
- Environmental and Social Management Framework, ESMF 2069 BS (2008 AD) (with addendum 2013)
- Environmental Assessment in Road Sector, 2057 BS,(2000 AD).
- Forest Products Collection and Sales Distribution Guidelines, 2057 BS (2000 AD)
- Guideline on working Procedure for National Forest Areas for National Priority Project, 2076
- Community Forest Inventory Guidelines
- Occupational Safety and Health Guidelines, 2074 BS

4.6 Standards

- National Ambient Air Quality Standards, 2003 AD
- Nepal Vehicle Mass Emission Standards, 2069 BS,(2012 AD)
- National Standard for Sound Quality, 2069 BS (2012 AD)
- Nepal Rural Road standard, 2055 BS (1999 AD)
- Nepal Road Standard, 2070 BS
- Stone, Aggregates and Sand Quarrying, Sale and Management Standards, 2077 B.S
- Nepal Noise Standard, 2069B.S

4.7 International Conventions and Treaties

- Biodiversity Convention, 1992 AD
- Convention (No.169) Concerning Indigenous and Tribal Peoples in Independent Countries, 1991 AD
- World Heritage Convention, 1975 AD.
- Convention on the Rights of the Child, 1989 AD.
- Plant Protection Convention, 1952 AD (Second Amendment 1997).
- United Nations Framework Convention on Climate Change (UNFCCC), 1992 AD.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), (1973 amended 1979 AD)



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CHAPTER 5: REPORT PREPARATION BUDGET, TIME AND TEAM COMPOSITION

5.1 Time Schedule

The study will be conducted following the time schedule as given below:

Table 5.1 Proposed work schedule for conducting IEE study

S.N.	Activities	Time(in Weeks)												
		1	2	3	4	5	6	7	8	9	10	11	12	
1.	Desk Study: Mobilization of Study Team, Literature Review	█												
2.	Preparation and Approval of TOR		█	█	█									
3.	Publication of Public notice				█	█								
4.	Field Study and Investigation				█	█	█							
4.1	Interaction with Stakeholders and Collection of Suggestions and Comments				█	█	█							
4.2	Baseline Survey				█	█	█							
5.	Analysis and Prediction of Impacts						█	█	█					
6.	Development of Mitigation and Enhancement Measures and Preparation of Monitoring plan and EMP							█	█	█				
7.	Draft Report Preparation, Public hearing and incorporation of comments from stakeholders										█			
8.	Submission of Draft Report and presentation											█		
9.	Preparation of Final Report incorporating the comments and suggestions												█	
10.	Submission of Final IEE Report, and Approval of the IEE Report													█



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5.2 Team Composition/Estimated Budget

The following experts will be mobilized to complete the IEE study.

Table 5.2: IEE team members

S.N	Name	Expertise
1.	Mr.Navaraj Pokharel	Environmental Expert (Team leader), M.Sc. Environmental Science, 15 Years of Experience
2.	Mr. Sagun Maharjan	Environmentalist (M.Sc. Environmental Science), 6 years of Experience
3	Mrs. Aasha Suwal	Biodiversity Expert (Expert for Natural Resource Management/Forestry/Zoology/Botany) (M.Sc. Biodiversity), 6 years of Experience
3.	Mr. Chintamani Sharma	Sociologist, MA Sociology, 15 years of Experience
4.	Mr.Yagya Bahadur Malla	Masters in Highway Engineering , 20 Years of Experience
5	Mr. Manil Neupane	Geologist, M.Sc. Geology, 5 years Experience
4	Mr. Ganesh Neupane	Field Enumerator (Bachelor in Humanities)

Besides these experts, Key and Non Key experts as mentioned in the contract/ adequate number of field assistants will be mobilized to collect field level data, verify secondary information and process the data information to include in the final report.

5.3 Estimated Budget

A lump sum contract between RCIP PCU and the consultant has been signed on 15 January 2020 for the preparation of Detail Project Report (DPR) for RCIP-2, RFP No.: DoL/RCIP/DPR-04/2019 (Approximate length of feasibility study of roads is 420 Km and DPR preparation of 300 Km including 10 bridges in five districts of province no . 5. The Consultant will manage all the cost related to the IEE report preparation for this proposal as per the provision this contract.

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CHAPTER 6: SPECIFIC IMPACTS OF THE IMPLEMENTATION OF PROJECT ON THE ENVIRONMENT

IEE Report will not be limited to the issues or impacts mentioned in the ToR. The issues, which are not included in the ToR, if raised during IEE Study, will be included in the final IEE Report.

Based on the review of the project proposal document and the secondary information of the project area following environmental impacts/issues have been identified for consideration for IEE Study.

6.1 Beneficial Impacts

- Generation of Employment
- Opportunities of new income generating activities
- Increase in land values
- Enhancement in technical skills
- Improved access to services and decrease in transportation cost and time
- Gender specific benefits
- Exploitation of untapped potentials
- Poverty alleviation

6.2 Adverse Impacts

6.2.1 Socio-Economic Environment

Pre-construction phase

- Loss of production (standing crops and private trees)
- Land and property acquisition (private)

Construction Phase

- Loss of agricultural land/production and productivity
- Land acquisition issues
- Loss of property/assets
- Health, sanitation and safety of workers
- Pressure on social services (drinking water, health, school, bank, electricity etc.)
- Issues on infrastructures such as irrigation channel, transmission lines, telephone lines etc.
- Conflict on or with nearby host community
- Availability of local construction workers, employment opportunities and mobilization of local people for road construction
- Possible township/ ribbon development along the road
- Issues on occupational health and safety including COVID-19
- Issues with social cohesion (Networking and Community linkage) and social change (social inclusion)
- Issues on Infrastructures
- Issues on Community Resources



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Operation and maintenance Phase

- New settlement along the project alignment
- Encroachment of RoW
- Change in social behavior
- Road safety measures

6.2.2 Cultural (Physical and Social/Religious/Historical) Environment

Construction Phase

- Impact on Temple, Bihar, Mosque, Graveyard, Church or other religious spot
- Impact on religious, cultural, and historical assets
- Pond, well with religious value
- Archeological site
- Landscape aesthetics

Operation and maintenance Phase

- Impacts on traditional norms and values

6.2.3 Physical environment

Preconstruction Phase

- Issues of Permission for concern authorities/parties/persons for quarry and borrow pit crosser plant operation, labor camps, stock piling spoil disposal site and use of water source.
- Issues of Relocation of community utilities, service and facilities.

Construction Phase

- Impact/Issues due to quarry/borrow site operation
- Change in Land use pattern
- Loss of productive soil
- Impact/Issues due to construction camps
- Transportation of construction materials(Stock Piling and muck/ spoil / waste Disposal)
- Issues of Quarry Site
- Drainage, soil erosion and Sedimentation problem in the river
- Impact/Issues due to solid waste generation
- Impact/Issues on air quality, water quality and noise level
- Site Specific and road Issues/Impacts
- Vibration due to heavy equipment
- Issues of road Construction Schedule
- Pollution of water sources
- Issues on ground-water contamination



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- Potential impacts caused by Bitumen
- Water flow disruption
- Occupational safety and health gadgets
- Contamination of soil
- Carbon emission
- Climate risk
- Vehicle stoppage during construction
- Ground water pollution and quality
- Dust issues
- Transport Management During construction

Operation and maintenance Phase

- Slope stability and management
- Impact/Issues due to air, noise and water pollution
- Carbon emission
- Obstruction on drainage
- Climate risk
- Issues of water logging
- Cleaning of work camp, labor camp, stockpiling yard, crusher plant, hot mix plant

6.2.4 Chemical Environment

Construction Phase

- Impacts/Issues of Construction Materials (Bitumen, Paints, Oil, Grease and Fuel), Use of Bitumen and their storage, heating and spreading.
- Impacts/Issues of Construction Wastes (Chemically Hazardous Liquid Wastes and Solid Wastes, Sanitary Wastes, and other Organic and Inorganic Wastes etc.) on the Receiving water bodies and land units.

6.2.5 Biological Environment

Pre-construction Phase

- Issues of Permission for clearance of forest area/tree (with DFO, user committee, private standing trees and forest)

Construction Phase

- Possible impact on flora and fauna (biodiversity)
- Issues on aquatic ecosystem

Operation and maintenance Phase

- Disturbance to wildlife and birds due to vehicular movement.

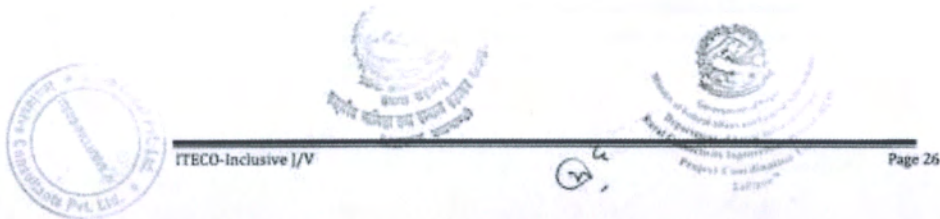


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6.3 Enhancement Issues

Any enhancement issues raised/found during the study will be included in the final IEE study. In addition, the report will also include other enhancement issues that may be found during the study.

- Increase in land values
- Enhancement in technical skills
- Improved access to services and decrease in transportation cost and time
- Gender specific benefits
- Community Support Programme



CHAPTER 7: ALTERNATIVES OF THE PROPOSALS

Alternative analysis is considered as an integral part of an IEE study, which involves an examination of alternative ways of achieving the objectives of a proposed project. The alternative analysis for a road project constitutes the development of an alternative transportation network for the enhancement of safe and faster connectivity of the rural area to market centers and there by improve the economic conditions of the people living in the zone of influence. The alternatives, in this regard, could be alternative road alignment and alternative design. The study team will conduct alternative analysis considering the following issues keeping these as an option:

- **Alternative design and construction approach:**
Several technical processes like design, design parameter and construction approach will be analysed during the IEE study period. The best design technique and design parameters will be proposed with full care of environmental and social consideration.
- **Alternative alignment:**
This is an upgrading of existing road selected by MoFAGA therefore, alignment has been already fixed. So, the option of alternative alignment will not be considered in this study.
- **Alternative schedule and process**
During the IEE study period, the alternative time schedule of construction, design and all the activities will be analysed. The best alternative of the construction schedule will be proposed in IEE.
- **Alternative resources**
The construction materials, human resources and other resources will also be analysed to find the best suitable resources during the IEE study period.
- **No action option:**
The No-project alternative prevents the implementation of the project. If the project is not implemented in, the proposed area will be analysed during the IEE study.

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CHAPTER 8: MATTERS CONCERNING THE PREVENTION OF THE IMPACTS OF THE IMPLEMENTATION OF THE PROPOSAL ON THE ENVIRONMENT

The team will recommend specific, pragmatic, feasible and cost effective mitigation measures to address the potential adverse impact of the road construction works to acceptable levels. The mitigation measures and recommendations will be prepared with the in-depth discussion with the local stakeholders and based on the expert judgment, will be presented as an Environment Management Plan.

The adverse impacts mitigation measures will be categorized as Avoidance, Reduction and Compensation measures. The EMPs will be included for both construction and operational stages. The cost of mitigation measures, organizational requirement and human resources will be finalized following discussion with responsible agencies and local stakeholders to implement the mitigation measures.

Table 8.1: Beneficial Impact, augmentation and enhancement measures

Activities/ Issue	Impact	Augmentation, and enhancement measures	Cost	Responsible agency
Construction Phase				
Operation and maintenance Phase				

Table 8.2: Adverse Impact and mitigation measures

Activities/ Issue	Location	Impact	Mitigation measures	Cost	Responsible agency
Pre-construction Phase (all domain)					
Construction Phase (all domains)					
Operation and maintenance Phase (all domains)					



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Table 8.1: Summary of Enhancement and Mitigation Measures Cost

S. N.	Description	Cost	



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CHAPTER 9: MATTERS TO BE MONITORED WHILE IMPLEMENTING THE PROPOSAL

An environmental monitoring plan will be developed for the baseline, compliance and impact monitoring of the project during construction and operation periods. Baseline, compliance and impact monitoring plan will include monitoring parameters/indicators, monitoring location, frequency, monitoring method and monitoring schedule along with the estimated item wise budget required for the monitoring.

Table 9.1: Monitoring Format

Parameter / Impact	Verifiable Indicators	Verification method	Implementing agency	Monitoring agency	cost
Baseline/pre-construction phase (all domain)					
Compliance/construction phase (all domain)					
Impact/Operation and maintenance phase (all domain)					

Other Necessary Matters

The other necessary matters to be included in the IEE report shall be the relevant information, reference list, annexes, maps, photographs, tables and charts, and questionnaires to be mentioned at the time of carrying out baseline survey. The details of public hearing, audio video record of public consultation and minuting, public notice, public deed (Machuka) of pasting public notice, and recommendation letters from concerned municipality will also be include in the report. In addition, the inputs and suggestions received from the consultation with locals, concerned Rural Municipalities and Municipalities will be integrated in the final report.

The report format for IEE Study shall follow Schedule 11 of EPR, 2077. As a minimum, all requirements indicated in Schedule 11 of the EPR, 2077 will be included and addressed in the IEE report. The conclusions and the recommendations of the Study shall be drawn and presented at the end of the report.





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References

- DoR, 2003, Reference Manual for Environmental and Social Aspects of Integrated Road Development
- DoR, GESU, 1996, "EIA Guidelines for the Road Sectors".
- DoR, GESU, 1999, "Environmental Management Guidelines for the Road Sectors"
- GoN, EPA/EPR, 2019/2020, Ministry of Law and Justice, GoN, Kathmandu
- Khadka, R.B., et al. 2000, EIA of Road Maintenance and Improvement Project, Western Nepal. World Bank/DoR/CEMAT.



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ANNEXES 1: Format of the IEE report:

Abbreviation and Acronyms

Executive Summary (Nepali)

Executive Summary (English)

Table of contents

1. Name and address of Individuals or Institution preparing the report
2. Summary of the Report
 - a) Objectives of the proposal
 - b) Impact on Land Use
 - c) Adverse Impact on the environment, human life and population
 - d) Damage to be suffered by local goods or objects
 - e) Other necessary matters
3. The following matters must be explicitly mentioned in the respect to the proposal
 - a) Type of Proposal
 - b) If related to delivery, the nature and type of goods to be delivered
 - c) Materials to be Used (Quantity and year to be mentioned).
 - d) Emission resulting from the implementation of the proposal (the time of operation and the consequence volume of emission to be specified)
 - d) Energy to be used
 - e) Human resources requirement
 - f) Resources required for the implementation of the proposal
 - g) Total Gross Capital
 - h) Detailed particulars of the area where the project is to be implemented
 - i) Manufacturing Process
 - j) Details of the Technology
 - k) Other necessary matters
- 4) Impact of the implementation of the proposal on the environment
 - a) Impact on the social, economic and cultural spheres
 - b) Biological Impact
 - c) Physical Impacts
- 5) Alternatives for the Implementation of the Proposal
 - a) Design
 - b) Project Site
 - c) Process, time-schedule
 - d) Raw materials to be used
 - e) Others
- 6) Alternative to Reduce or Controls the Impacts of the Implementation of the proposal on the environment.



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7) Matters to be monitored while implementing the Proposal.

8) Other necessary matters.

Note: Data, maps, Photographs, Tables, Charts, etc shall be enclosed as required, while preparing the report.

References

Appendices



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ANNEX 2: Formats, Checklist and Questionnaire

2.1 FORMAT FOR TRANSECT WALK & CONSULTATIONS WITH THE AFFECTED PERSONS

- 1) Name of Road:
- 2) District:
- 3) Village:
- 4) Date; Time:
- 5) Total Number of Participants in the Transect walk:
- 6) Numbers of Participants falling in the following categories:
 - (a) Indigenous People:
 - (b) Disabled;
 - (c) Households losing structure:
 - (d) Women:
- 7) Name & Designation of the Key Participants:
From DOLI/RCIP PIU/Province/Municipality:

From Rural Municipality/Municipality:
- 8) Issues and suggestions raised by the Participants
 - (a) Road alignment and design in general:
 - (b) Road width and land availability:
 - (c) Land owned/used by vulnerable groups of people:
 - (d) Sensitive locations (forests, cultural properties etc.):
 - (e) Water-related issues (drainage lines, rivers and water crossings, irrigation watercourses, other water bodies, etc.):
- 9) Suggestion on location of contractor's camp:
- 10) Suggestion on alternate routes during construction:
- 11) Road safety-related issues (major junctions, curves, bends, schools, hospitals etc.):
- 12) Other suggestions (such as borrow pits, etc.):
- 13) Major Outcomes of the Transect Walk (Summary):
 - a) Changes/inputs to be incorporated in the design (alignment, road safety, drains, cross drains, irrigation water crossing etc.:
 - b) Extent of land take and willingness/unwillingness of land owner/users for donation:
 - c) Environmental issues to be resolved (ponds, water logging etc.):



ToR for the IEE Report

d) Other issues:

- Brief Summary of consultation held during transect walk:
- Major Issues discussed during the Consultation:
- Recommendations of the Social Safeguard Specialist:

The road alignment will be finalized with the best efforts to address the above issues.

Countersigned:

.....
.....
(Signature & name)

From Rural Municipality/Municipality

.....
.....
(Signature & name)

PIU Engineer/IDO Engineer



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2.3 FORMAT OF CENSUS SURVEY QUESTIONNAIRE

1. Project Road:
 2. Household Identification Number:
 3. Plot No.:
 4. Name of the Head of the Household:
 5. **Vulnerability** : Tick here if belong to any of the following:
 - Indigenous People:
 - Dalit
 - Households Below Poverty Line
 - Female headed household
 - Households losing structure
 - Disabled person
 6. Household Size :
 7. No. of Adult earning members :
 8. No. of Dependents :
 9. Annual Income in NPR (prior to donation)-
 10. Nature of Impact:
 - Loss of Agriculture land:
 - Loss of Residence:
 - Loss of Commercial Structure:
 - Any Other (Specify):
 11. Type of land:
 - a. Irrigated b. Un-irrigated c. Barren d. Govt land
 12. Type of structure:
 - a. Kutchha b. Semi Pucca c. Pucca
 13. Category of AP:
 - a. Titleholder b. Squatter c. Eneeroacher d. Tenant e. Others (specify)
 14. Agriculture:
 - 14.1 Size of Total Land holding (in acres/sq.m):
 - 14.2 Marginal farmerl :
 - a) Yes b) No
- 14.3 Extent of impact (% of total land holding including any other land parcels owned elsewhere by the APs). Specify extent of Loss in the following:
- ¹ Marginal Farmer is defined as any landowner whose landholding size is less than the district average land holding size.



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Less than 5%	More than 5% - less than 10%	More than 10% - less than 15%	More than 15% less than 20%	More than 20% less than 25%	More than 25%.....

14.4 Size of the residual holding (in acres/sq m) :

15 Residences:

15.1 Plot size (in sqm) :

15.2 Extent of impact (Full/partial) :

15.3 Impacted Area (in sq. m) :

15.4 Residual Plot viable :

a) Yes b) No

15.5 If No, Alternate house site (if relocation required):

Yes	No	If yes, specify

16. Commercial establishment:

16.1 Plot size (in sqm) :

16.2 Extent of impact (Full/partial) :

16.3 Impacted Area (in sq. m.) :

16.4 Commercial Plot viable :

a) Yes b) No

16.5 If No, Alternate commercial site (if relocation required):

Yes	No	If yes, specify

17. Asset Loss:

17.1 Inventory assets lost (Trees, Wells, hand pump, common property resources [CPRs], etc):

18. Livelihood Loss due to donation of asset (NPRs / year) -----

18.1 Alternate livelihood sources, other than mentioned above:

Yes	No	If yes, specify

18.2 If yes, annual income from alternate source? -----

18.3 Annual Income (in NPRs) after donation of asset? -----



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2.4 Physical and Chemical Environment

2.4.1 Checklist for Physical and Chemical Environment

A. Topography

1. Study of Topographic maps/ other available maps and identify the ground topographic characteristics of land covered by the proposed road project
2. Verify the topographic characteristics of the land in the field
3. Soil Type
4. Geological Map/Google map

B. Climate and Hydro-Meteorology

1. Study of published data of regarding temperature, rainfall, humidity, wind speed and direction, solar radiation
2. If possible classify the climatic zone and its verification
3. Visit the meteorological office of the district and get latest information
4. Water resources/ water resource zone: Information about the water resource of the affected area and its watershed zone will be studied
5. Drainage pattern

C. Air Quality

1. Collect any data on air quality of the area from previous literature
2. Investigate on the air polluting activities of the area (traffic, biomass burning, industries, other anthropogenic activities)

D. Erosion and land Stability

1. Identification of erosion prone area along the road alignment
2. Investigate the erosion features and potentials of the local streams and gullies
3. Landslide: Features (Physical and cultural) along the road alignment with chainage , locality (name of place , ward of local level) sides, distance from the center line, existing status, details impacts from the project, tentative mitigation requirements
Religious structures
Services, utilities, facilities
Structures
Crossing; rivers/streams, foot trails, irrigations etc.
Maps, photographs, freehand drawings etc. needs to be added to make it more sites specific

E. Land Use

1. Investigate on the land use of the Project Blocks from the topo-maps, and other available land use maps
2. Investigate the land use affected by the project structures and subsidiary facilities



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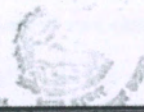


3. Investigate on the land use potentials of the proposed project area

F: List of the Required Structure

2.4.2 Formats for Physical and Chemical Environment

2.4.2.1 Format for Land Slide Investigation Survey Sheet

Chainage (From - To)	Particular	Field Data
	Sheet No.	
	Location	
	Dimension (LXBXH)	
	Aspect	
	Rock and Soil Type	
	Weathering Condition	
	Geo-morphological Characteristic	
	Scarp	
	Tension Crack/Side Crack	
	Gully Condition	
	Toe Condition	
	Hydrology	
	Vegetation and Land Use	
	History	
	Potential Impact	
	Remarks	





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4.2.2 Format for Land Use

Left		Land Use Type(Khet, Bari, Kharbari/Abandoned Land,	Ownership	Remarks	Right		Land Use Type(Khet, Bari, Kharbari/Abandoned	Ownership	Remarks
From	To				From	To			

2.4.2.3 Format for List of Required Additional Structure along the road Alignment

Chainage		Water or other disturbing Source	Required Structure (Culverts, Side Drain Cross Drain, animal tracks, foot trails etc.)	Location	Remarks
From	To				

2.5 Biological Environment

2.5.1 Check List for Biological Environment

A. Forest and Vegetation

1. Forest Classification by types (by association, Format- A1)
2. **Forest Area** (By Management Categorisation as per Forest Act and Forest regulation): The areas shall be delineated according to following classification
 - a. Details of Forest by Management
 - i. Community Forest (Format –A2)
 - ii. Religious Forest (Format – A3)
 - b. Private Forest (Format – A4)

(Management status and forest management groups (if any) and importance of these forests shall be discussed. In case of community forest Estimation of the boundary of the community forest area from the field survey and available records, constituted member, purpose of usage of community forest on application etc Activity area, Item of forest products, Frequency of gathering forest products will also be discussed. The opinion of the key stakeholders of forest management will be gathered and presented.)



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3. **Wild Forest Vegetation Biodiversity observed:** List of tree, shrub, herb, pteridophytes, bryophytes, lichens and fungi found within the influence area of the project will be prepared. (Format – A5)
4. **Agro-vegetation Diversity Observed** (Format A6)
5. **Ethnobotanical Use:** The above vegetation species will also be tabulated according to local ethno-botanical uses (such as timber, fodder, NTFP, ornamental, medicinal, food value etc.). (Forma A7)
6. **Conservation significance:** The species found shall also be categorised according IUCN/ CITES APPENDIX, and Government of Nepal Protection category, as rare, endangered, endemic, vulnerable, etc. (Format– A5 and A6)
7. **Biomass and wood Stock:** The vegetation lying within the directly affected area (areas required for construction and placement of spoils or other infrastructure facilities), particularly tree species shall be inventoried for trees above 10 cm DBH for biomass and wood stock as per Forest Regulation norms or any other international norms (Format– A8, A9 and A10)
8. **Status of vegetation:** In the affected areas, frequency of occurrence, importance value index, and density per ha shall be calculated. Besides vertical stratification of forest i.e. upper story, middle story, lower story along with status of trees, pole, saplings, seedlings, shrubs, herbs, pteridophytes, bryophytes, lichens and fungi shall be described. (Format II – A11, A12, A13)
9. **Water resources/ water resource zone:** Information about the water resource of the affected area and its watershed zone will be studied including the aquatic biota of the area.

2.5.2 Formats for Biological Environment

2.5.2.1 Formats for Tree and Pole Count within Road width and ROW for Wood Volume Estimation

Location: Municipality / Rural Municipality..... Ward No.....
 Chainage: From.....To.....Km Site Name:
 Altitude:Masl Aspect:



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Within the road width

S. No.	Side of the Road (L/R)	Local Name	Scientific Name	Ownership	Measurement (CBH*height)	Remarks (Road/RoW)	Distance from Centerline

Tree and Pole Count within Road width and ROW for Wood Volume Estimation

Location: Municipality/ Rural Municipality..... Ward No.....

Chainage: From.....To.....Km Site Name:

Altitude:Masl Aspect:

Within the RoW

S. No.	Side of the Road (L/R)	Local Name	Scientific Name	Ownership	Measurement (CBH*height)	Remarks (Road/RoW)	Distance from Centerline

2.5.2.2 Format for Forest Classification by Forest Act –Affected by the Project

Chainage	Name of Forest	Dominant tree species	Associate tree species	Associated shrub/herbs	Ecological Status	National Forest (by management types)				
						G	C	L	R	P
From	To					F	F	F	F	F



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Note: G = Government, CF = Community Forest, LF = Leasehold Forest, R = Religious Forest PF = Private forest (Document only those registered under Government)

2.5.2.3 Format for Community Forest

Chainage		Forest Name	Palika (Local Level)	Ward No	Area (ha)	Total involved HH	Total Beneficiary Nos	Year established	Jan Jati HH	Main Forest products used
From	To									

2.5.2.4 Format II –A3, Religious Forest

Chainage		Forest Name	Palika (Local Level)	Ward No	Area (ha)	Total involved HH for protection	Religious purpose	Year established	Main Forest products used
From	To								

2.5.2.5 Format for Private Forest

Chainage		Forest Name	Palika (Local Level)	Ward No	Area (ha)	Year established	Name of Owner	Main Forest products used
From	To							

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2.5.2.6 Format for Wild Vegetation Observed – Tree, Shrubs, Herbs, Pteridophytes, Bryophytes, Lichens and Fungi- Project Area

SN	Botanical Name	Local Name	Observed site	Végétation Type (T, S, H, P, B, F etc.)	Occurrence Status			Conservation Status		
					C	S	R	GON	IUCN	CITES

Note: Vegetation Type, T= Tree, S= Shrub, H=Herb, P=Petridophyte, B =Brayophyte, F = Fungi

2.5.2.7 Format for Agro -vegetation Diversity Observed – Fodder, Fruits, cereals, legumes, vegetable and ornamental - Project Area

SN	Botanical Name	Local Name	Observed Site	Végétation Type (F, FR, C, L, V, O	Occurrence Status			Conservation Status		
					C	S	R	GON	IUCN	CITES

Note: F = Fodder, FR = Fruit, C = Cereal, L = Legume, V = Vegetable, O = Ornamental

2.5.2.8 Format for: Ethno-botanical Uses of the Vegetation – Project Affected Area

S.N	Scientific Name	Local name	Use Type	Used Parts	Mode of Use	Use value

Note : Use abbreviation for use Types: E – edible, M- medicine, F – fodder, FW – Firewood, T – Timber, I – implement, Fi – fiber, Fe – fence, P – poison, W – wine making etc.

2.5.2.9 Format for: Tree Sps./diversity & Wood Volume Estimation (Sampling Plots) Sample Plot 25m/25m - Project Area

Plot No:

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Location (Chainage):											
Date:											
Local Name	Botanical Name	No of trees (25x25 m ² plot)	CBH (cm)	Height m	DBH (cm)	Basal Area (m ²)	Volume m ³	Total tree volume m ³	Pole size trees	Total sapling	Total seedling

Note : Volume only for CBH 10cm and above, Others enumerate name and number under sapling and seedlings

2.5.2.10 Format for: Shrub diversity (Sampling Plots) Sample Plot 5m/5m - Project Area

Plot No:

Location (Chainage):			
Date:			
Local Name	Botanical Name	No of trees (5x5 m ² plot)	Remarks

2.5.2.11 Format for: Herb diversity (Sampling Plots) Sample Plot 1m/1m - Project Area

Plot No:

Location (Chainage):			
Date:			
Local Name	Botanical Name	No of trees (1x1 m ² plot)	Remarks



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2.5.2.12 Format for: Status of Tree Vegetation in the Project Affected Areas

S. N.	Local Name	Scientific Name	Density/ha	Frequency %	Abundance	Relative Density	Relative Frequency	Relative Dominance	Importance Value Index

2.5.2.13 Format for Status of Shrub Vegetation in the Project Affected Areas

S.N.	Local Name	Scientific Name	Density/ha	Frequency %	Abundance	Relative Density	Relative Frequency	Relative Dominance	Importance Value Index

2.5.2.14 Format for: Status of Herb Vegetation in the Project Affected Areas

S.N.	Local Name	Scientific Name	Density/ha	Frequency %	Abundance	Relative Density	Relative Frequency	Relative Dominance	Importance Value Index

2.6 Wildlife

2.6.1 Format for: Mammals of the Project Area

S N	Common Names	Scientific Names	Status of occurrence	Habitat	Migratory Status/season	Observed Location	Reported location



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	Comm on	Spar se	Rar e	F	B	O	A	M/R/V	S	n	n

Note: Habitats = F- forest, B – Bush, O- Open grass land, A – Agricultural land; Migratory status and season = M – Migratory, R = Resident, V = Visitor occasionally, S – migration season; Provide small write up of the key species of the area in the report separately. Also, present the conservation status of species as per GON, IUCN, CITES

2.6.2 Format for: Herpatofauna of the Project Area

S N	Comm on Names	Scienti fic Names	Status of occurrence			Habitat				Migrator y Status/ season	Observ ed Locatio n	Report ed locatio n
			Comm on	Spar se	Rar e	F	B	O	A			

Note: Habitats = F- forest, B – Bush, O- Open grass land, A – Agricultural land; Migratory status and season = M – Migratory, R = Resident, V = Visitor occasionally, S – migration season; small write up of the key species of the area in the report will be provided separately; also will be presented the conservation status of species as per GON, IUCN, CITES.

2.6.3. Formats for: Birds of the Project Area

S N	Comm on Names	Scienti fic Names	Status of occurrence			Habitat				Migrator y Status/ season	Observ ed Locatio n	Report ed locatio n
			Comm on	Spar se	Rar e	F	B	O	A			

Note: Habitats = F- forest, B – Bush, O- Open grass land, A – Agricultural land; Migratory status and season = M – Migratory, R = Resident, V = Visitor occasionally, S – migration



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season; small write up of the key species of the area in the report will be provided separately; also will be presented the conservation status of species as per GON, IUCN, CITES.

2.6.4. Formats for: Butterflies of the Project Area

S N	Comm on Names	Scienti fic Names	Status of occurrence			Habitat				Migrator y Status/ season		Observ ed Locatio n	Report ed locatio n
			Comm on	Spar se	Rar e	F	B	O	A	M/R/ V	S		

Note: Habitats = F- forest, B - Bush, O- Open grass land, A - Agricultural land; Migratory status and season = M - Migratory, R = Resident, V = Visitor occasionally, S - migration season; small write up of the key species of the area in the report will be provided separately; also will be presented the conservation status of species as per GON, IUCN, CITES.

2.6.5 Formats for: Aquatic and Amphibian Fauna of the Project Area

S N	Comm on Names	Scienti fic Names	Status of occurrence			Migratory Status/ season		Observ ed Locatio n	Report ed locatio n	Conservat ion status
			Comm on	Spar se	Rar e	M/R/ V	S			

Note: Migratory status and season = M - Migratory, R = Resident, V = Visitor occasionally, S - migration season;



ToR for IEE of the Bhagawanpur-Dhakhai-Khairani Road on Preparation of the DPR of RCIP-Phase II of Province No 5

2.6.6 Attendance sheet for the Wildlife Focus Group Discussions

Name of Municipality/Rural Municipality:

Location:

Date:

SN	Name	Male/Female	Age	Signature

2.7 Format for: Information on Quarry Sites near the Road Alignment

Location/ Chain age	Distance from the Road	Side of the Road (Left/ Right.)	Type of material available in the quarry (Sand/Gr avel/Stone s)	Status of the access road	Approximate quantity of material available	Tentative Rehabilitation/ Reclamation measures

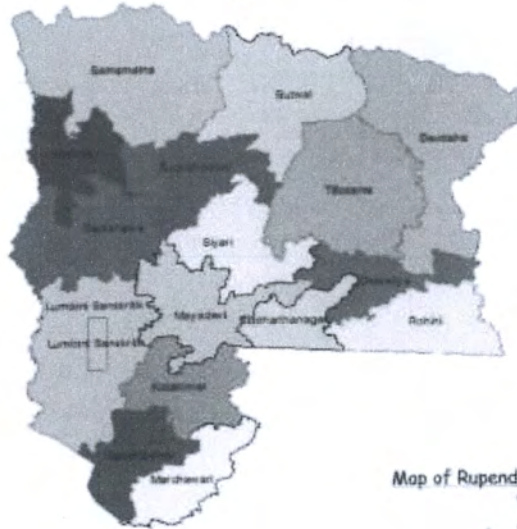


ToR for IEE of the Bhagwanpur-Dhakhai-Khairni Road on Preparation of the DPR of RCIP-Phase II of Province No 5

ANNEX-3: Location Map of project Area
3.1: Location Map of Project District



Map of Nepal



Map of Rupendehi

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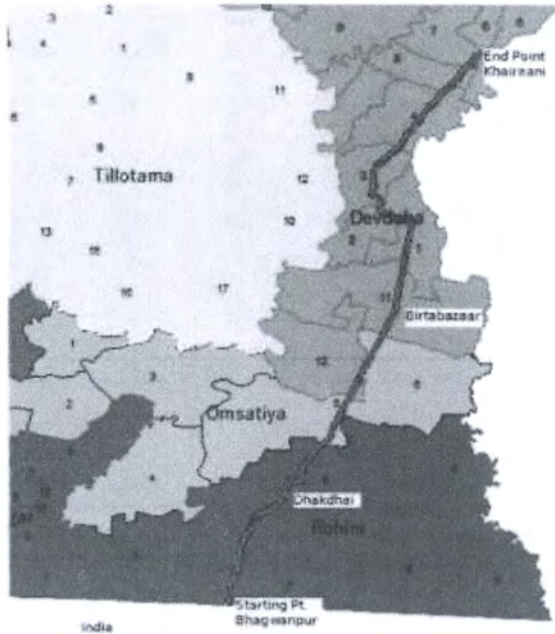


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3.3: Project Road, Local Level and main settlements along the alignment



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Annex-4: Google-Map of Project Area




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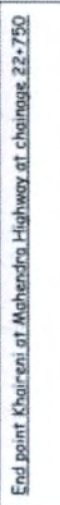
Annex 5 Photographs

	
<p>Starting point, Bhagwanpur (Nepal - India Border) at chainage 0+000</p>	<p>Baha Ward No. 2 office on the road side at chainage 1+930</p>
	
<p>Dhakdhai Bazaar at chainage 5+240</p>	<p>Road Surface, delineator posts, slab culvert at chainage 3+400</p>

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 Ministry of Local Infrastructure Development
 Project Coordination Unit
 Lalitpur



ToR for IEE of the Bhagwanpur-Dhakhai-Khairni Road on Preparation of the DPR of RCIP-Phase II of Province No 5

	<p>Road Alignment at chainage 13+090</p>
	<p>Slab Culvert and parapet walls at chainage 3+400</p>
	<p>End point Khairni at Mahendra Highway at chainage 22+750</p>
	<p>Shankarpur Chowk at chainage 11+890</p>

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No 5

Annex 6: Public Notice and Muchulka

१. सार्वजनिक सूचनाको ढाँचा

नेपाल सरकार

संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय
स्थानीय पूर्वाधार विभाग

ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ
श्रीमहल पुल्चोक, ललितपुर

भगवानपुर – धकधई - खैरेनी सडक आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयारी सम्बन्धि सार्वजनिक सूचना

(प्रकाशित मिति - २०७७।)

लुम्बिनी प्रदेश, रुपन्देही जिल्ला, रोहिणी गा.पा., ओमसतिया गा.पा. र देबदह गा.पा. हरूमा ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ द्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ।

प्रस्तावक को नाम/ ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ ठेगाना: श्रीमहल, पुल्चोक, ललितपुर फोन: ०१-५५३८३०६ ईमेल: rcippcu@gmail.com वेबसाइट: http://www.doli.gov.np/rcip/
प्रस्तावको व्यहोरा	भगवानपुर – धकधई - खैरेनी सडक निर्माण तथा स्तरोन्नती बाट २२.७५ कि.मि. सडक कालोपत्रे स्तरमा स्तरोन्नतीभई स्थानीय स्तरमा सहज यातायातको सुबिधा उपलब्ध हुनेछ।
प्रभाव पर्न सक्ने जिल्ला / न.पा./ गा. पा	रुपन्देही जिल्ला, रोहिणी गा.पा. वार्ड नं. २, ३ ओमसतिया गा.पा. वार्ड नं. ५ र ६, देबदह न.पा. वार्ड नं. १, २, ३, ४, ५, ७, ८, ११ र १२

माथि उल्लेखित प्रस्तावित आयोजनाको वातावरणीय अध्ययन प्रतिवेदन तयारी गर्ने क्रममा त्यस क्षेत्रको प्राकृतिक भौतिक प्रणाली, जैविक प्रणाली, सामाजिक प्रणाली, सांस्कृतिक प्रणाली र आर्थिक प्रणाली विच के कस्तो प्रभाव पर्दछ भनी पत्किन गर्न सो स्थानको नपा.गापा तथा त्यस क्षेत्रका विद्यालय, अस्पताल स्वास्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यो सार्वजनिक सूचना प्रकाशन भएको मितिले सात दिन भित्र आइपुग्ने गरी लिखित राय सुझाव उपलब्ध गराई दिनुहुन अनुरोध गरिन्छ। राय सुझाव का लागि निम्न ठेगानामा प्रवचन गर्न वा ईमेल पठाउन सकिने छ।

प्रस्तावक को नाम/ ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ ठेगाना: श्रीमहल पुल्चोक, ललितपुर फोन: ०१-५५३८३०६ ईमेल: rcippcu@gmail.com
परामर्शदाता को नाम / ठेगाना	कार्यालयको नाम: ITECO-Inclusive J/V ठेगाना: सितापाइला, काठमाडौं. फोन: ०१४८३४८८० ईमेल: iteco.inclusive@gmail.com



ToR for IEE of the Bhagawanpur-Dhakdhai-Khaireni Road on Preparation of the DPR of RCIP-Phase II of Province
No 5

२. सार्वजनिक स्थलमा सूचना टाँसेको मुचुल्काको ढाँचा

आज मिति गतेका दिन ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ
आयोजना प्रस्तावक रहेको भगवानपुर – धकधई - खैरेनी सडक खण्ड निर्माण आयोजना को प्रारम्भिक वातावरणीय
परीक्षण प्रतिवेदन तयार गर्ने सम्बन्धि सार्वजनिक सूचना परामर्शदाताका प्रतिनिधिले (कार्यालयको नाम) यम
सूचना पाटिमा टाँसेको व्यहोरा प्रमाणित गरिन्छ।

सार्वजनिक स्थलमा सूचना टाँसेको प्रमाणित
गर्ने कार्यालयको द्वाप सहित



सूचना टाँसेको प्रमाणित गर्ने पदाधिकारीको नाम -

पद -

दस्तखत -



ToR for IEE of the Bhagwanpur-Dhakhai-Khairani Road on Preparation of the DPR of RCIP-Phase II of Province No 5

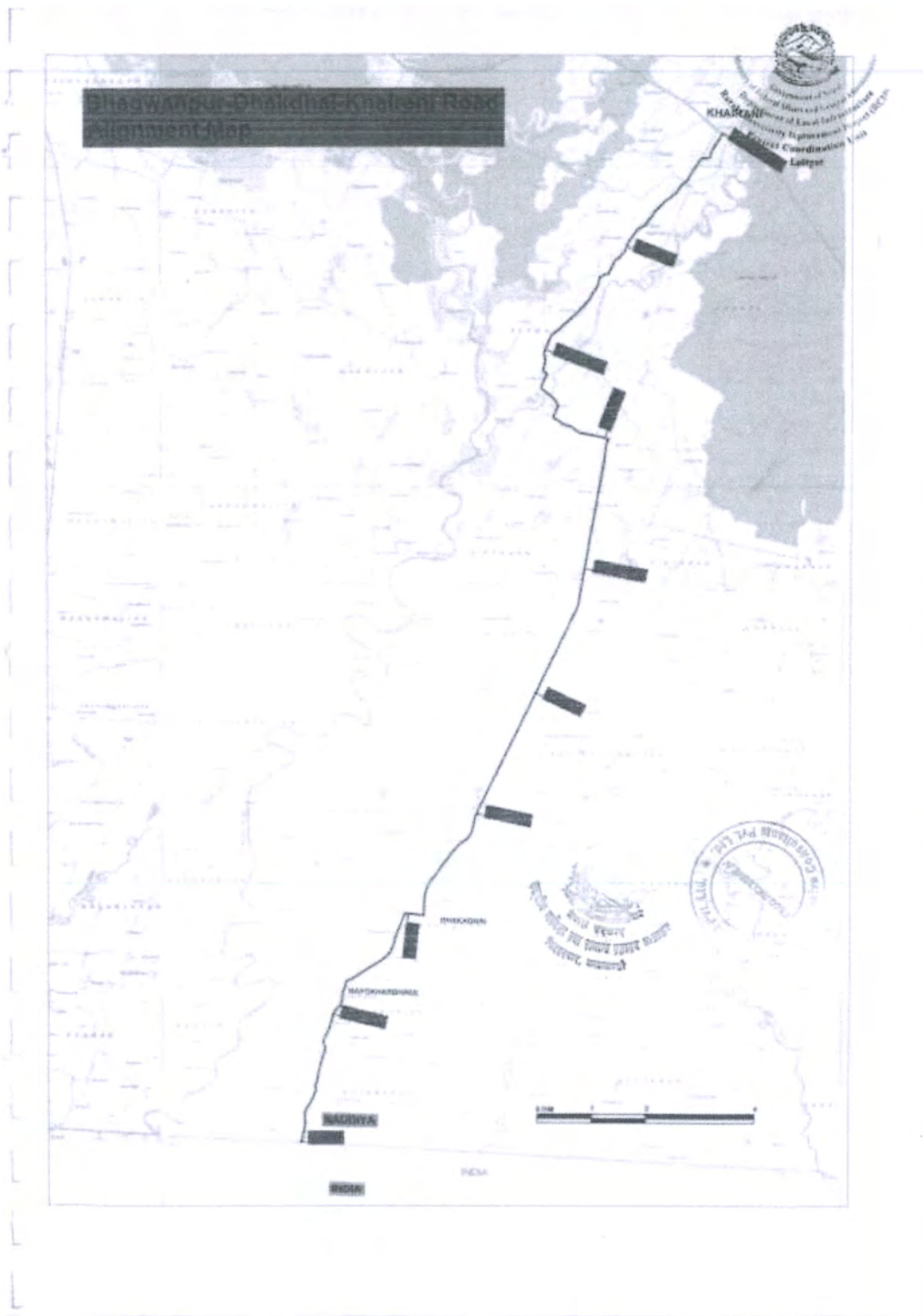


Annex 7: Topographic Map along Road Alignment



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Ministry of Local Development
Rural Development
Infrastructure Development
Project (RCIP)
Coordinating Unit

Department of Rural Infrastructure
Development
Government of Nepal

Hoca Nepal Pvt. Ltd. * १९७५
* INECO CONSULTANTS *
Inclusive Consultants



Comments Address for the ToR

SN	Comments	Incorporation	Where
1	Please Rewrite the Specific Sentence	The specific data has been mentioned in the Introduction chapter	Introduction chapter
2	Identify the forest area and omit the issues of Forest if not	The forest related issues have been removed	Chapter 6 2.5
3	Either the design is completed or not, please write the design data	Design is under progress and all the data are based on the Draft Design Report.	Table 2.1
4	Mention the data as per the road standard	All the data are as per NRS 2070, Class IV Road	Table 2.1
5	Clarify the drain site area	The drain site area has mentioned in Salient Feature Table	Table 2.1
6	Same team member could complete the assignment in time?	This is as per the project provisions	
7	Mention the issue of Quarry site and catchment population	Incorporated in report	Chapter 6 2.3
8	Make complete Formatting	Formatted	Whole report
9	Correct the source of Salient Features in table	Corrected	Table 2.1
10	Make the link up with Social economy and impacts	Corrected	Whole report



Annex 3: Public Hearing

a. Notice



भगवानपुर-धकधई-खैरनीसडक खण्ड(२२.८२ कि.मि.) स्तरोन्नतिको
प्रारम्भिक बातावरणीय परिक्षण सार्वजनिक सुनुवाई सम्बन्धि सार्वजनिक सुचना
प्रकाशित मिति: २०७८/०९/१४

नेपाल सरकार, सङ्घीय मामिला तथा सामान्य प्रशासन मन्त्रालय, ग्रामिण सडक संजाल सुधार आयोजना
श्रीमहल, मलितपुरद्वारा लुम्बिनी प्रदेश, रुपन्देही जिल्लाको रोह्रिणी गाउँपालिका, ओमसतिया गाउँपालिका र
देवदह नगरपालिकामा निम्न बमोजिम प्रस्ताव कार्यान्वयन गर्न लागिएको छ।

प्रस्तावको नाम र हेगाना	ग्रामिण सडक संजाल सुधार आयोजना आयोजनासम्बन्ध ईकाइ श्रीमहल, पुल्चोक, मलितपुर फोन: ०१-५२६०५०५
प्रस्तावकोव्यहारा	भगवानपुर-धकधई-खैरनीसडक खण्ड (२२.८२ कि.मि.) को स्तरोन्नति
प्रभाव पर्ने सक्ने जिल्ला (गा.पा / न.पा)	लुम्बिनी प्रदेश, रुपन्देही जिल्ला रोह्रिणीगाउँपालिका वार्ड न. २,३, ओमसतियागाउँपालिका वार्ड न. ५, ६, र देवदह नगरपालिका वार्ड न. १, २, ४, ५, ७, ८, ११, १२

प्रस्तावित प्रस्ताव को प्रारम्भिक बातावरणीय परिक्षण तयारि को सिलसिलामा निम्न स्थान मा सार्वजनिक
सुनुवाई कार्यक्रम हुने भएको हुनाले उपस्थिति को लागि अनुरोध गरिन्छ।
स्थान: धकधई- रायमाझी भवन वडा नं २ र देवदह वडा नं २ कार्यालय
समय: ११.०० बजे रायमाझी भवन र २ बजे देवदह वडा नं २ कार्यालय



b. Public Hearing Minutes

आज मिति २०७८/०९/२९ गतेमा विन आयोग सदस्य संख्यान सुधार आयोग (R.C.P) कार्यालय काठमाडौं पिप्लामा रोडको गा.पा, डीम टोला गा.पा र विवह न.पा को अखण्डर सडक रेल्वे (२०.६६) डि.मि.को प्रारम्भिक वातावरणीय परीक्षण गरी सम्पन्नता लागि रोडको गा.पा वडा नं. ३, धकडैगा रोडको गा.पा वडा नं. ३ का वडा अध्यक्ष श्री विर बहादुर क्षेत्री को अध्यक्षतामा तथा रोडको गा.पा अध्यक्ष सतोज कुमार यादव र डीम टोला गा.पा अध्यक्ष विन केवट को प्रमुख आतिथ्यमा ६ प्रमुख प्रशासकीय अधिकृत डीम बाबु न्यौपाने, विभिन्न उपस्थितिमा तपस्वी वसोपिमा उपस्थितिमा अखण्डर सडक रेल्वे सडकको प्रारम्भिक वातावरणीय परीक्षणको कार्यमा सहभागिता गर्नुभयो ।

उपस्थित

- १) ~~विन~~ विर बहादुर क्षेत्री वडा अध्यक्ष रोडको ३
- २) सतोज कुमार यादव (गा.पा अध्यक्ष रोडको)
- ३) ~~विन~~ विन केवट राहुन (गा.पा अध्यक्ष डीम टोला)
- ४) ~~डीम~~ डीम बाबु न्यौपाने (प्रमुख प्रशासकीय (अ) रोडको)
- ५) ~~सतोज~~ सतोज कुमार पाठे
- ६) ~~सतोज~~ सतिय चन्द्र शिवा (विवह टोलागरीवत)
- ७) चन्द्र कुमार सिंह
- ८) ~~डीम~~ डीम बाबु न्यौपाने
- ९) ~~विन~~ विन केवट
- १०) ~~सतोज~~ सतोज कुमार यादव
- ११) ~~डीम~~ डीम बाबु न्यौपाने
- १२) ~~विन~~ विन केवट
- १३) ~~सतोज~~ सतोज कुमार यादव
- १४) ~~डीम~~ डीम बाबु न्यौपाने
- १५) ~~विन~~ विन केवट
- १६) ~~सतोज~~ सतोज कुमार यादव
- १७) सुरेश सुरेश कोहाल



9	जसगर जली	जसगर जली तेली
10	गणेश	निसार मोहम्मद खान
11	बिजो	बृजेश घोषि
12	समान	अनाप अहमद पठाण
13	अ	कुसेन मोहम्मद पठाण
14	अ	महेन्द्र जोडा
15	अ	कमलजो माफू
16	अ	शमशेर
17	अ	जैसूरि
18	अ	प्रमोदकुमार खिन्ना
19	अ	मन्नाद प्रसाद कार्दार
20	अ	पञ्चकाली कोठार
21	अ	सातो वरद
22	अ	कुधा देवान
23	अ	सहित प्रिया
24	अ	मधु कोठार
25	अ	मन्नाद कोठार
26	अ	रवि विश्वकर्मा
27	अ	इन्द्र कुमार
28	अ	उमरा घोषि
29	अ	जंगर नाथ देवान
30	अ	मुक्ता शंकर देवान
31	अ	सुधाना देवान
32	अ	पञ्चर प्रसाद कोठार
33	अ	शेषन तेली
34	अ	बिजोनाथ बस्निया
35	अ	निशामत जली
36	अ	श्यामल देवान
37	अ	सुखेरा रमन खिन्ना
38	अ	अनाप कुमार खिन्ना
39	अ	सुखेरा
40	अ	श्यामल देवान
41	अ	मधुसूदन देवान
42	अ	



23		शिवन चन्द प्रिय - पुनः पुनः भगवपुर
24		पुनः पुनः सिंह म.पु. सि. भ. लवण
25		राजु सिंह म.पु. सि. भ. लवण
26		आनन्द कुमार पाण्डे कोटिनी २ वर सवस्थ
27		M/D सावका प्रसाद यादव - युनिको रोसा ईको-युवा

28	प्रमिला	प्रमिला जलवाल
29	अमता	अमता कोटार
30	अमित पाल	अमित पाल
31	दलजी १/१५	दल
32	राजकुमार	राजकुमार कुशिर
33	शम्भुनाथ	अदिर कुशी
34		लवण रोसा
35	दिप-१	दिपेन्द्र लवणको
36	दिपेन्द्र कुमार कोटार	दिपेन्द्र
37	प्रमोद कोटार	प्रमोद प्रसाद कोटार
38	दुर्बिणय सिंह	दुर्बिणय सिंह
39	अमिताभ गजल	द्वि पापुन गजल
40	सुरेश	सुरेश क थ वल

निर्णय

- १ सडक स्तर उन्नत गरी हिमपाईप, कलमत, र खलनी सर्वा सर्वा स्तर उन्नत गरी पढे
- २ घर संरचना र सडक जसोको वताउन पढे गरना सबै जतालाई समाप्त तुम्होको प्रतीको मुल्याङ्कन गरी स्तरोपरी दिनु पढे ।
- ३ कतको पढे जसो अठ, अतपर र सार्वजनिक संस्था स्तरो स्तर निर्माण गरी दिनु पढे ।
- ४ सडक स्तर उन्नत गरी खोलेपानीमा पाईप, इन्टार, टिउकेल आदि पढेमा ल्याको व्यवस्थापन गरी दिनु पढे



- ५ सडक निर्माण गर्दा सडक लागीलाई विकास लाग्न सुझाइनु पर्ने ।
- ६ आगोलिन सडकको पश्चिम तर्फ पत्तु विकासको लागि कम्पन्नीको व्यवस्था गर्न गरीबि पत्र पत्रले गर्दा सडकको कारण काँडे कम्पनी पुग्दा नहोस ।
- ७ पुग्दा पत्र व्यवहारित स्थान कम्पनी विनपाईपडक गरवी विकासको व्यवस्थापन सडकको डिपि कार्ड गर्नु पर्ने ।

डा. दिनेश माझी

दिनेश कुमल

दिनेश



आज मिति २०६८/०९/२९ गतेमा विन ग्राफीक सडक रोजगार
 ब्यवहार आयोजना (RCIP) अन्तर्गत रूपरेखी बिल्खाको
 वैशेषी गा पा, श्रीमतीसिता गा पा र देवदे न. पा. गा पा
 पते भगवातर, चन्द्रधर, रंजनी सडक २२.६२ मि जि
 को प्रारम्भिक वातावरणीय परीक्षणको सम्पन्नको लागि
 देवदे न पा वडा नु २ मा यस वडाका वडा अध्यक्ष
 श्री धर्मराज पाठे ७ यु नो अध्यक्षतामा र यस न. पा
 का वडा अध्यक्ष ७ यु नोको विशेष उपनिवेतीमा तथा
 तपोलीस वनोपनिवेती उपनिवेतीमा प्रारम्भिक वातावरणीय
 परीक्षणको सर्वेक्षणको सुनुवाई कार्यक्रम सम्पन्न गरियो-

उपनिवेती

१. ~~...~~ श्री धर्मराज पाठे (वडा अध्यक्ष देवदे न पा २)
२. ~~...~~ श्री रंजनीसिता गुप्ता (वडा अध्यक्ष देवदे १)
३. ~~...~~ श्री रंजनीसिता गुप्ता (वडा अध्यक्ष वडा न ३)
४. ~~...~~ श्री विष्णु पाठे (वडा अध्यक्ष वडा न ३)
५. ~~...~~ श्री अनिल पाठे (वडा अध्यक्ष वडा न २)
६. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
७. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
८. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
९. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१०. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
११. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१२. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१३. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१४. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१५. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१६. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१७. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१८. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
१९. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
२०. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
२१. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)
२२. ~~...~~ श्री दीपक शर्मा (वडा अध्यक्ष)



23	शुभ्र	प्रकाश कृष्ण	वाडो-२ देवदह
24	शुभ्र	राम बहादुर पण्डित	देवदह - १
25	शुभ्र	विम बहादुर कृष्ण	देवदह - १
26	शुभ्र	हाकेल उ. सापका	देवदह - १
27	शुभ्र	प्रम नारायण कुवर	देवदह - १
28	शुभ्र	दशरथ पण्डित	देवदह २
29	शुभ्र	कदमी मिश्र	देवदह २
30	शुभ्र	कल्पना साधु	देवदह २
31	शुभ्र	रिमा साधु	देवदह १
32	शुभ्र	अशोक शर्मा	देवदह २
33	शुभ्र	राम नं. देव	देवदह (जगतपुर) २
34	शुभ्र	राम बहादुर शर्मा	देवदह - ३
35	शुभ्र	मान साधु	देवदह - १
36	शुभ्र	सुन्दर शर्मा	देवदह - १
37	शुभ्र	विम नं. देव	देवदह २
38	शुभ्र	जोष्याज जोष्याज	देवदह - १
39	शुभ्र	मान साधु	देवदह - १
40	शुभ्र	मान साधु	देवदह - १
41	शुभ्र	मान साधु	देवदह - १
42	शुभ्र	मान साधु	देवदह - १
43	शुभ्र	मान साधु	देवदह - १
44	शुभ्र	मान साधु	देवदह - १
45	शुभ्र	मान साधु	देवदह - १
46	शुभ्र	मान साधु	देवदह - १
47	शुभ्र	मान साधु	देवदह - १
48	शुभ्र	मान साधु	देवदह - १
49	शुभ्र	मान साधु	देवदह - १
50	शुभ्र	मान साधु	देवदह - १

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Annex 4: Public Notice and Recommendation Letter

a. Public Notice

सार्वजनिक स्थलमा सूचना टाँसको मुचुल्का

श्री ग्रामीण सडक सञ्जाल सुधार आयोजना समन्वय इकाई-श्रीमहल पुलचोक, ललितपुर को मिति २०७९/०१/०६
सूचना अनुसार कार्यान्वयन हुने लुम्बिनी प्रदेश, रुपन्देही जिल्ला, रोहिणी गा.पा., ओमसतिया गा.पा. र देवदह गा.पा. हरूमा
कार्यान्वयन हुने "भगवानपुर – धकधई - खैरनी सडक निर्माण तथा स्तरोन्नती" आयोजनाको प्रारम्भिक वातावरणीय परीक्षणको गर्ने कार्यको
प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयार गर्ने सिलसिलामा निम्न बमोजिमको प्रमाणित सार्वजनिक सूचना थान एक (१) रुपन्देही जिल्ला
देवदह न पा १ मिति २०७९/०१/०९ गतेका दिन तपसिलका हामीहरूको रोहवरमा टाँस गरी यो मुचुल्कामा सहिछाप गरिदियो ।

भगवानपुर – धकधई - खैरनी सडक आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयारी सम्बन्धि सार्वजनिक सूचना
(प्रकाशित मिति - २०७९ /०१/०६)

लुम्बिनी प्रदेश, रुपन्देही जिल्ला, रोहिणी गा.पा., ओमसतिया गा.पा. र देवदह गा.पा. हरूमा ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना
समन्वय इकाई द्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ ।

प्रस्तावक को नाम/ ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई ठेगाना: श्रीमहल पुलचोक, ललितपुर फोन : ०१-५५३८३०६ इमेल: rcippcu@gmail.com वेबसाइट: http://www.doli.gov.np/rcip/
प्रस्तावको ब्यहोरा	भगवानपुर – धकधई - खैरनी सडक निर्माण तथा स्तरोन्नती बाट २२.८२ कि.मि. सडक कालोपत्रे स्तरमा स्तरोन्नतीभई स्थानीय स्तरमा सहज यातायातको सुविधा उपलब्ध हुनेछ ।
प्रभाव पर्ने सबै जिल्ला / गा. पा. र वडाहरू	रुपन्देही जिल्ला, रोहिणी गा.पा. वार्ड नं. २ र ३ ओमसतिया गा.पा. वार्ड नं. ५, ६, देवदह न.पा., वार्ड नं. १, २, ३, ४, ५, ७, ८, ११ र १२


माथि उल्लेखित प्रस्तावित आयोजनाको वातावरणीय अध्ययन प्रतिवेदन तयारी गर्ने क्रममा त्यस क्षेत्रको प्राकृतिक भौतिक प्रणाली, जैविक प्रणाली,
सामाजिक प्रणाली, साम्कृतिक प्रणाली र आर्थिक प्रणाली विच के कस्तो प्रभाव पर्नेछ भनी यकिन गर्न सो स्थानको स्थानिय तह र वडाहरू तथा त्यस
क्षेत्रका विद्यालय, अस्पताल स्वास्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यो सार्वजनिक
सूचना प्रकाशन भएको मितिले सात दिन (७) भित्र आइपुग्ने गरी लिखित राय सुझाव उपलब्ध गराई दिनुहुन अनुरोध गरिन्छ । राय सुझावका लागि
निम्न ठेगानामा प्रवचार गर्न वा ईमेल पठाउन सकिने छ ।

प्रस्तावक को नाम/ ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई ठेगाना: श्रीमहल पुलचोक, ललितपुर फोन : ०१-५५३८३०६ इमेल: rcippcu@gmail.com
परामर्शदाता को नाम / ठेगाना	कार्यालयको नाम: ITECO-Inclusive J/V ठेगाना: सितापाइला, काठमाडौं. फोन: ०१४८३४८८० इमेल: iteco.inclusive@gmail.com

ITECO-Inclusive J/V Page 3



b. Letter of Notice Pasting

**ओमसतिया गाउँपालिका**
Omsatiya Rural Municipality
गाउँ कार्यपालिकाको कार्यालय
Office of the Rural Municipal Executive
हाटी, सपन्देही, रुपन्देही
Hati, Sapanadehi, Rupandehi

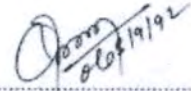
पत्र संख्या :-/Ref. No. ०६८१०७९
चलानी नं. :-/Dispatch No.: ९९८६

५ नम्बर प्रदेश, नेपाल
5 No. Province, Nepal
मिति : २०७९/०९/१२

श्री ग्रामीण सडक सञ्जाल सुधार आयोजना,
आयोजना समन्वय इकाइ
श्रीमहल पुल्चोक, सलितपुर

विषय : जानकारी सम्बन्धमा ।

प्रस्तुत विषयमा तहाँ कार्यालय बाट मिति २०७९/०९/०६ मा प्रकाशित सूचना अनुसार लुम्बिनी प्रदेश, रुपन्देही जिल्ला, रोहिणी गा.पा., ओमसतिया गा.पा. र देवदह त.पा. हरुसामा कार्यान्वयन हुने "भगवानपुर- धकधई- खैरनी" सडक निर्माण तथा स्तरोन्नती आयोजनाको प्रारम्भिक वातावरणीय परिधाय प्रतिवेदन तयारी सम्बन्धि सूचना यस कार्यालयको सूचना पाटीमा टाँस गरिएको व्यहोरा अनुरोध छ ।


सागर गौतम
प्रमुख प्रशासकीय अधिकृत
सागर गौतम
प्रमुख प्रशासकीय अधिकृत





रोहिणी गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय

धकघई, रुपन्देही
सुदूरपश्चिम प्रदेश, नेपाल
२०७१

लुम्बिनी प्रदेश, नेपाल

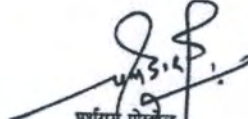
प.सं. : ०६८/०६९
स.सं. : १४६९

मिति: २०७१/०१/१२

श्री प्राविण सडक संजाल सुधार आयोगका
आयोजना समन्वय इकाई
श्रीमहल पुन्चोक, सलिलपुर

विषय: जानकारी सम्बन्धमा।

प्रस्तुत विषयमा तैह कार्यालयबाट मिति २०७१/०१/०६ मा प्रकाशित भगवानपुर-धकघई-खैरनी सडक
आयोजनाको प्रारम्भिक यातावरणीय परिधान प्रतिवेदन तयारी सम्बन्धि सूचना यस कार्यालयको सूचना पाटीमा टाँस
गरिएको व्यहोरा अनुरोध छ।


प्रमुख प्रशासकीय अधिकृत
धरुराम पोखरेल
प्रमुख प्रशासकीय अधिकृत

Phone: 071-411047 Fax: 071-411047 Email: mdr073@gmail.com

Scanned with CamScanner



देवदह नगरपालिका
वडा नं १ को कार्यालय

प.सं. २०७८/०७९
च.नं. १८०९

भवरावारी, रुपन्देही, नेपाल

लुम्बिनी प्रदेश
मिति: २०७९.११.०९



श्री ग्रामीण सडक सञ्जाल सुधार आयोजना,
आयोजना समन्वय इकाई
श्रीमहल पुलचोक, ललितपुर

बिषय- सूचना टाँस सम्बन्धमा ।

आज मिति २०७९।०९।०९ गतेका दिन श्री ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई- श्रीमहल पुलचोक, ललितपुर प्रस्तावक रहेको "भगवानपुर – धकधई – खैरनी" सडक खण्ड निर्माण आयोजनाको प्रारम्भिक वातावरणीय परीक्षण गर्ने कार्यको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयार गर्ने सिलसिलामा निम्न बमोजिमको प्रारम्भिक वातावरणीय परीक्षण तयारी सम्बन्धी, प्रस्तावकले प्रमाणित गरेको, निम्न बमोजिमको सार्वजनिक सूचना परामर्शदाताका प्रतिनिधिले यस कार्यालयको सूचना पाटीमा टाँसेको व्यहोरा प्रमाणित गरिन्छ ।

(Signature)
२०७९।०९।०९
रमेश शर्मा गुरुवाल
वडा अध्यक्ष

पूर्वाधार समृद्ध देवदहको मूल आधार
Email: devdahamun.wardno1@gmail.com





प स २०७८/०७९

च.नं. ११२४

देवदह नगरपालिका
वडा नं. ५ को कार्यालय
बैकुण्ठनगर, रुपन्देही
लुम्बिनी प्रदेश, नेपाल



मिति: २०७९/०१/०९

विषय :-जानकारी सम्बन्धमा।

श्री ग्रामिण सडक संजाल सुधार आयोजना
आयोजना समन्वय इकाइ
श्रीमहल मुल्चोक, ललितपुर

प्रस्तुत विषयमा तहाँ कार्यालयबाट मिति २०७९/०१/०६ मा प्रकाशित भगवानपुर-धकधई-खैरेनी सडक
आयोजनाको प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदन तयारी सम्बन्धि सूचना यस कार्यालयको सूचना
पाटीमा टाँस गरिएको व्यहोरा अनुरोध छ।

१२/०१/२०७९
शिल्पु प्रसाद न्योपाने

वडा अध्यक्ष

शिल्पु प्रसाद न्योपाने
वडा अध्यक्ष



c. Letter of Recommendation



ओमसतिया गाउँपालिका
Omsatiya Rural Municipality
गाउँ कार्यपालिकाको कार्यालय
Office of the Rural Municipal Executive

पत्र संख्या :-/Ref. No. २०७९/०१०६८

पत्रावली सं. :-/Dispatch No. १९८७

हाटी फाउण्डेसन, रूपन्देही
Hati Foundation, Rupandehi

५ नम्बर प्रदेस, नेपाल
5 No. Province, Nepal

मिति : २०७९.०१.२०

श्री सामीग सडक सञ्जाल सुधार आयोजना,
आयोजना समन्वय इकाई
श्रीमहाल पुल्चोक, रतिलेखपुर

विषय: राय सुझाव सहित सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा प्रस्तावक श्री सामीग सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई-श्रीमहाल पुल्चोक, रतिलेखपुर को मिति २०७९/०१/०६ को प्रकाशित सूचना अनुसार कार्यन्वयन हुने सुम्बिनी प्रदेश, रुपन्देही जिल्ला रोहिणी गा.पा., ओमसतिया गा.पा. र देवदह न.पा. हरूमा कार्यन्वयन हुने "भगवानपुर- धखैरी" सडक निर्माण तथा स्तरोन्नती आयोजनाको प्रारम्भिक वातावरणीय परीक्षणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा निम्नानुसारको वातावरणीय प्रभाव पर्ने जाने देखिन्छ ।

क) सकारात्मक प्रभावहरू

- सडक वातावरण/पूर्वाधारको विकास तथा स्तरोन्नती हुने ।
- आवागमनमा सुविधा हुने ।
- उत्पादित वस्तु/सेवा को ओसारपसारमा सहज भई व्यापार व्यवसायमा वृद्धि हुने ।
- सडक निर्माण तथा स्तरोन्नती हुनेहुदाँ सडक दुर्घटनामा न्यूनीकरण हुने ।

ख) नकारात्मक प्रभावहरू

- सडक विमानमा केहि विबाद हुने सम्भावना रहेको ।
- निर्माण अवधिभर वातावरणीय प्रदूषण तथा आवागमन, ओसारपसारमा कठिनाई हुने सम्भावना रहेको ।

उल्लेखित प्रभावहरूको आधारमा सकारात्मक प्रभाव अतिबढि गर्ने र नकारात्मक प्रभाव न्यूनीकरण गर्ने वातावरणीय व्यवस्थापनको योजना कार्यन्वयन गर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव नकारात्मक प्रभावभन्दा कम हुने देखिएकाले उल्लेखित प्रस्ताव निम्न आधारमा कार्यन्वयन गर्न मिल्ने जगहोस उल्लेख गरी यो सिफारिस गरिएको छ ।

प्रस्ताव कार्यन्वयन गर्न मिल्ने आधारहरू:

- प्रस्तावित आयोजनामा साविकको सडक सञ्जाल अत्यन्तै साधुरो तथा विर्ग आसन्नबाट भएको हुदाँ सोको मापदण्ड सुधार तथा स्तरोन्नती गर्न सक्ने हुदाँ ।

(Signature)
२०७९/०१/१२

सागर गौतम
सहायक प्रशासकीय अधिकृत
उपमुख प्रशासकीय अधिकृत





रोहिणी गाउँपालिका गाउँ कार्यपालिकाको कार्यालय

धकधई, रुपन्देही

सुदूरपश्चिम प्रदेश, नेपाल
२०७१

सुदूरपश्चिम प्रदेश, नेपाल

प.सं.: ०६८/०६५
स.सं.: १९८०

मिति: २०७९/०९/२२

श्री प्रमिण सडक संज्ञात सुधार आयोजना
आयोजना समन्वय इकाइ
धीमहल पुन्चोक, सल्लितपुर

विषय: सिफारिस सम्बन्धमा।

प्रस्तुत विषयमा प्रस्तावक श्री प्रमिण सडक संज्ञात सुधार आयोजना, आयोजना समन्वय इकाइ धीमहल पुन्चोक, सल्लितपुरको मिति २०७९/०९/०६ को प्रकृतिगत सूचना अनुसार कार्यन्वयन हुने भगवानपुर-धकधई-खैरानी सडक निर्माण तथा स्तरउभरी आयोजनाको प्रारम्भिक वातावरणीय परिक्षण गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा निम्न अनुसारको वातावरणीय प्रभाव पर्न जाने देखिन्छ।

क) सकारात्मक प्रभावहरू

- 1) सडक वातावात/पूर्याधारको विकास हुने
- 2) आवश्यकतामा सुविधा तथा उत्पादित वस्तु तथा सेवाको भोसा पस्तरमा सहज हुने।
- 3) सडक स्तरउभरी हुने हुदा दुर्घटनामा ग्मुनिकरण हुने।
- 4) पर्यटन विकासमा टेवा पुग्ने।
- 5) व्यापार व्यावसायमा सहजिकरण हुने।

ख) नकारात्मक प्रभावहरू

- 1) सडक सिमानमा विवाद हुने सम्भावन रहेको।
- 2) निर्माण अवधिभर वातावरणीय प्रदुपण हुने सम्भावना।
- 3) वातावरणीय प्रकोपको डर बाटि ।

उल्लेखित प्रभावहरूको आधारमा सकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव ग्मुनिकरण गर्ने वातावरणीय व्यावस्थापनको योजना कार्यन्वयन गर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव नकारात्मक प्रभाव भन्दा कम हुने देखिएकोले उल्लेखित प्रस्ताव निम्न आधारमा कार्यन्वयन गर्न विन्ने व्याहोरा उल्लेख गरी यो सिफारिस गरिएको छ।
प्रस्ताव कार्यन्वयन गर्न विन्ने आधारहरू

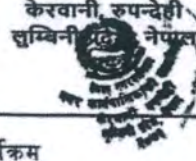
- 1) प्रस्तावित आयोजना सचिबको सडक संज्ञात सापुरो भएको हुदा सोको मापदण्ड सुधार गर्न सक्ने हुँदा।

प्रकाश पोखरेल
प्रमुख प्रशासकीय अधिकृत
धरंराज पोखरेल
प्रमुख प्रशासकीय अधिकृत





देवदह नगरपालिका
नगर कार्यपालिकाको कार्यालय



प.सं. २०७८/०७९
च.नं. २०८०९

मिति: २०७९/०९/२३

श्री ग्रामिण सडक संजाल सुधार कार्यक्रम
आयोजना समन्वय इकाई,
श्रीमहल, पुलचोक, ललितपुर ।

विषय:- जानकारी सम्बन्धमा ।

उपरोक्त विषयमा ग्रामिण सडक संजाल सुधार आयोजना (RCIP) द्वारा स्तरोन्नती हुने भगवानपुर-धकधई-खैरनी सडकको सम्बन्धमा नगर कार्यपालिकाको मिति २०७८/१२/१२ को निर्णय अनुसार उक्त सडक खण्ड (Ch: 0+000 देखि 22+800) का लागि आवश्यक पर्ने चौडाइ १० मिटर सडक केन्द्र देखि दायाँ ५ मि. र बायाँ ५ मि. पर्ने प्रभावित व्यक्तिगत जग्गा र संरचनाहरू निःशुल्क रूपमा उपलब्ध गराउन सहजिकरण र समन्वय गर्ने भनि प्रतिबद्धता व्यक्त गरिएको व्यहोरा जानकारीका लागि अनुरोध छ ।

डिल्लीराज बेल्वासे
प्रमुख प्रशासकीय अधिकृत

डिल्लीराज बेल्वासे
प्रमुख प्रशासकीय अधिकृत





देवदह नगरपालिका
वडा नं. ५ को कार्यालय
वैकुण्ठनगर, रुपन्देही
लुम्बिनी प्रदेश, नेपाल

प.स. २०७८/०७९
च.नं. १४३६

मिति: २०७९/०९/१९

विषय :-सिफारिस सम्बन्धमा।

श्री ग्रामिण सडक संजाल सुधार आयोजना
आयोजना समन्वय इकाई
श्रीमहल पुल्चोक, ललितपुर

प्रस्तुत विषयमा प्रस्तावक श्री ग्रामिण सडक संजाल सुधार आयोजना, आयोजना समन्वय इकाई श्रीमहल पुल्चोक, ललितपुरको मिति २०७९/०९/०६ को प्रकाशित सूचना अनुसार कार्यान्वयन हुने भगवानपुर-धकधई-खैरेनी सडक निर्माण तथा स्तरोन्नती आयोजनाको प्रारम्भिक वातावरणीय परिक्षणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा निम्नानुसारको वातावरणीय प्रभाव पर्न जाने देखिन्छ।

(क) सकारात्मक प्रभावहरू:

- १) सडक यातायात/पूर्वाधारको विकास हुने
- २) आवतजावतमा सुविधा तथा उत्पादित वस्तु तथा सेवाको ओसारपसारमा सहज हुने।
- ३) सडक स्तरोन्नती हुनेहुँदा दुर्घटनामा न्यूनिकरण हुने।

(ख) नकारात्मक प्रभावहरू

- १) सडक सिमानामा विवाद हुने संभावना रहेको।
- २) निर्माण अवधिभर वातावरणिय प्रदुषण हुने संभावना।
- ३) वातावरणिय प्रकोपको डर आदी।

उल्लेखित प्रभावहरूको आधारमा सकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्यूनिकरण गर्ने वातावरणीय व्यवस्थापनको योजना कार्यान्वयन गर्दा उल्लेखित प्रस्तावहरूको सकारात्मक प्रभाव नकारात्मक प्रभावभन्दा कम हुने देखिएकोले उल्लेखित प्रस्ताव निम्न आधारमा कार्यान्वयन गर्न मिल्ने व्यहोरा उल्लेख गरि यो सिफारिस गरिएको छ।

प्रस्ताव कार्यान्वयन गर्न मिल्ने आधारहरू:-

- १) प्रस्तावित आयोजना साविकको सडक संजाल अत्यन्तै साघुरो भएको हुँदा सोको मापदण्ड सुधार गर्न सक्ने हुँदा।


प्रसाद न्योपाने
१९

डिल्लु प्रसाद न्योपाने

वडा अध्यक्ष

डिल्लु प्रसाद न्योपाने
वडा अध्यक्ष





देवदह नगरपालिका

४ नं.वडा कार्यालय

देवदह, रुपन्देही, लुम्बिनी प्रदेश, नेपाल

प.स. - ०६८/७९
च.न - १९२५

मिति - २०७९/०९/२३

श्री ग्रामीण सडक सञ्जाल सुधार आयोजना,
आयोजना समन्वय इकाई
श्रीमहल मुल्भोक, ललितपुर

विषय: राय सुझाव सहित सिफारिस गरिएको बारे।

प्रस्तुत विषयमा प्रस्तावक श्री श्री ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई-श्रीमहल मुल्भोक, ललितपुर को मिति २०७९/१०/१० को प्रकाशित सूचना अनुसार कार्यान्वयन हुने लुम्बिनी प्रदेश, रुपन्देही जिल्ला, रोहिणी गा.पा., ओमसतिवा गा.पा. देवदह न.पा. हरमा कार्यान्वयन हुने "भगवानपुर - धकधई - खैरानी" सडक निर्माण तथा स्तरोन्नती " आयोजनाको प्रारम्भिक वातावरणीय परीक्षणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा निम्नानुसारको वातावरणीय प्रभाव पर्ने जाने देखिन्छ।

(क) सकारात्मक प्रभावहरू

- सडक स्तरोन्नतीसँगै धुलोको समस्या अन्त्य हुने
- सडक दुर्घटना न्यूनीकरण हुने
- अवस्थित परित विकासमा टेवा पुग्ने
- सडकमा सवारी चाँप र काम कम हुने
- हरित सडक निर्माण गर्न सकिने

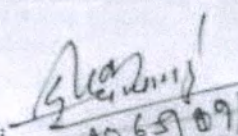
(ख) नकारात्मक प्रभावहरू

- निर्माणको क्रममा तत्काल वातावरण गर्न कठिन हुने
- सडक किनारमा रहेका अव्यवस्थित तरिकाले रहेका सडक किनारमा कानुनपूर्वक त्यसको वातावरणमा नकारात्मक प्रभाव पर्ने

उल्लेखित प्रभावहरूको आधारमा सकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्यूनीकरण गर्ने वातावरणीय व्यवस्थापनको योजना कार्यान्वयन गर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव नकारात्मक प्रभावभन्दा कम हुने देखिएकाले उल्लेखित प्रस्ताव निम्न आधारमा कार्यान्वयन गर्न मिल्ने व्यहोरा उल्लेख गरी यो सिफारिस गरिएको छ।

प्रस्ताव कार्यान्वयन गर्ने मिल्ने आधारहरू:

- सडक स्तरोन्नतीसँगै धुलोको समस्या अन्त्य हुने
- सडक दुर्घटना न्यूनीकरण हुने
- अवस्थित परित विकासमा टेवा पुग्ने
- सडकमा सवारी चाँप र काम कम हुने
- हरित सडक निर्माण गर्न सकिने
- यात्रा सहज हुने

पदाधिकारीको: 

दस्तावेज: २०७९/०९/०२

नाम: दिपक चापागाई

पद: वडा अध्यक्ष

दिपक चापागाई
वडा अध्यक्ष


 Government of Nepal
 Ministry of Urban Development
 Department of Local Infrastructure
 Rural Connectivity Improvement Project (RCIP)
 Project Coordination Unit
 Lalitpur


 नेपाल सरकार
 पर्यटन, शान्ति तथा सांस्कृतिक विभाग
 नेपाल, काठमाडौं


 Iteco Nepal Pvt. Ltd.
 Inclusive Consultants



देवदह नगरपालिका
७ नं. वडा कार्यालय
सितसुनगर, रुपन्देही
लुम्बिनी प्रदेश, नेपाल

प.सं. : ०७८/०७९
चलानी नं. १८०२

मिति: २०७९/०९/१९

विषय: राय सुझाव सहित सिफारिस गरिएको बारे।

श्री ग्रामीण सडक सञ्जाल सुधार आयोजना,
आयोजना समन्वय इकाइ
श्रीमहल पुल्चोक, ललितपुर

प्रस्तुत विषयमा प्रस्तावक श्री श्री ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ-श्रीमहल पुल्चोक, ललितपुर को मिति २०७९/०९/०६ को प्रकाशित सूचना अनुसार कार्यान्वयन हुने लुम्बिनी प्रदेश, रुपन्देही जिल्ला, रोहिणी गा.पा., ओमसतिया गा.पा. र देवदह गा.पा. हरूमा कार्यान्वयन हुने "भगवानपुर - धकधई - खैरेनी" सडक निर्माण तथा स्तरोन्नती" आयोजनाको प्रारम्भिक वातावरणीय परीक्षणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा निम्नानुसारको वातावरणीय प्रभाव पर्न जाने देखिन्छ।

(क) सकारात्मक प्रभावहरू

- वातावरणीय प्रदुषण कम हुने।
- सडक दुर्घटना न्युनिकरण हुने।
- व्यवस्थित बस्ती विकास हुने।
- सवारी चाँप र जाम कम हुने।

(ख) नकारात्मक प्रभावहरू

- सडक निर्माणको क्रममा निर्माण समायो अव्यवस्थित हुनु।
- वातावरणीय प्रदुषण हुनु।
- सहज यातायातमा असुविधा हुनु।

उल्लेखित प्रभावहरूको आधारमा सकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्युनिकरण गर्ने वातावरणीय व्यवस्थापनको योजना कार्यान्वयन गर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव नकारात्मक प्रभावभन्दा कम हुने देखिएकाले उल्लेखित प्रस्ताव निम्न आधारमा कार्यान्वयन गर्न मिल्ने ब्यहोरा उल्लेख गरी यो सिफारिस गरिएको छ।

प्रस्ताव कार्यान्वयन गर्न मिल्ने आधारहरू:

- विद्यमान सडक विर्ण अवस्थामा हुनु।
- अत्याधिक सडक दुर्घटना हुनु।
- स्थानीय स्तरबाट स्तरीय सडक निर्माणका लागि निरन्तर माग हुनु।

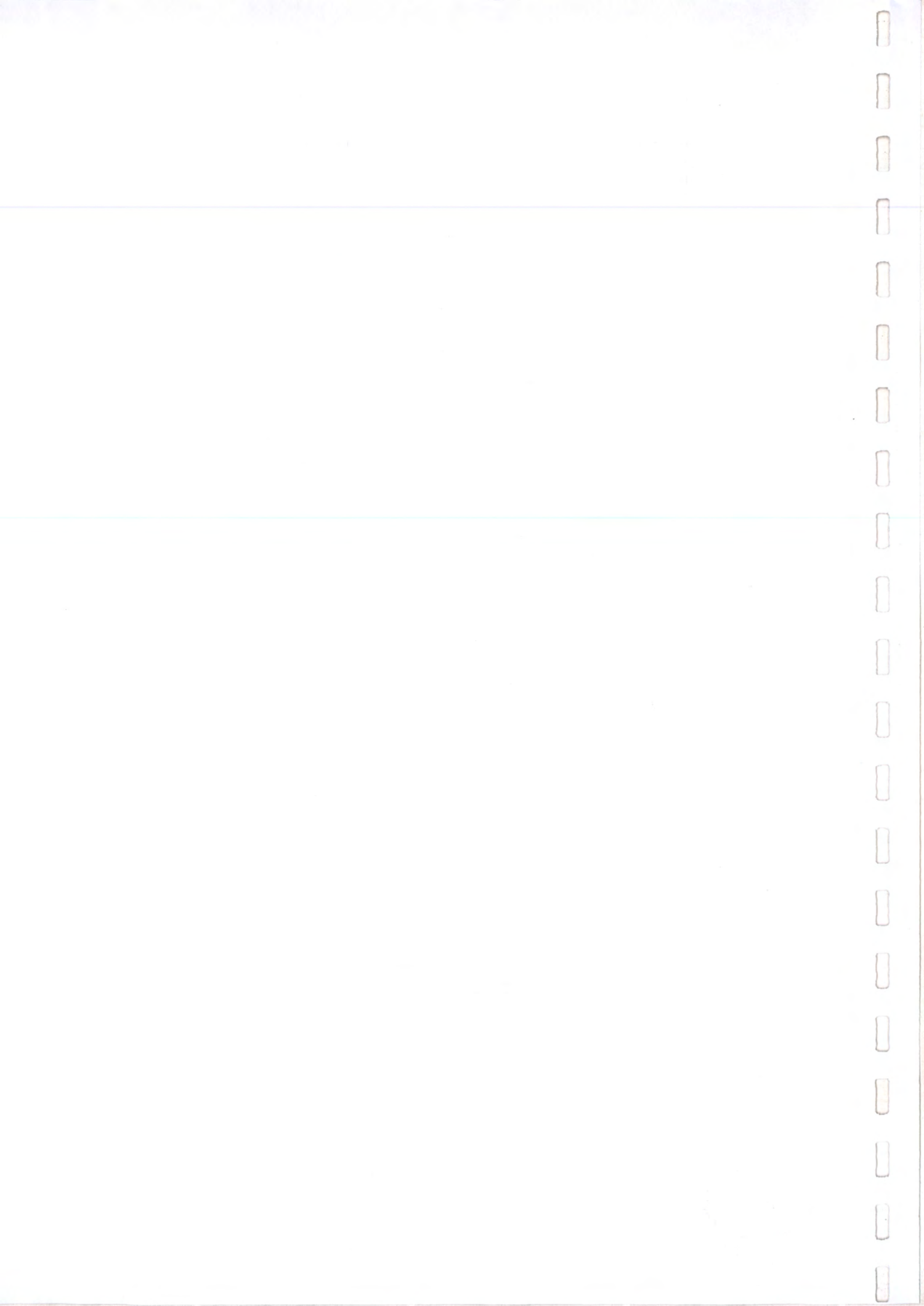
माया शर्मा
२०७९/०९/१९
का.वा. उ.स. अ.स.स.

पयटन, काँप र पुवाधार, समृद्ध देवदह नगरपालिका मूल आधार
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०७९-४७७०९२



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Annex 5: Consent papers from the land owners and house owners in the RoW

a. Landowners and house owners in the RoW

S. N	Tentative Chain age	Name of Landowner (As per consultation)	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
						LHS	RHS
1	1+752 to 3+268	Sharwan kumar chaudhary	Pokharvindi - 1		6 m		2
2		Lakkichand Chaudhary	Pokharvindi - 1		6 m		2
3		Bijaya kumar pandey	Pokharvindi - 1		6 m		2
4		Rabindra kumar pandey	Pokharvindi - 1		6 m		2
5		Saroj kumar pandey	Pokharvindi - 1		6 m		2
6		Rajendera Thakur	Pokharvindi - 1		6 m		2
7		Hardish Pathan	Pokharvindi - 2		6 m		2
8		Munir Pathan	Pokharvindi - 1		6 m		2
9		Ganga Chauhan	Pokharvindi - 1		6 m		2
11		Ashok kumar chaudhary	Pokharvindi - 1	1064	6 m		2
10		Pingle Prasad chaudhary	Pokharvindi - 1	522	6 m		2
11		Nabi Mohammad Shahu	Pokharvindi - 1		6 m		2
12		Abdul Rajak khan	Pokharvindi - 1		6 m		2
13	1+752 to 3+268	Kapil dev pandey	Pokharvindi - 1		6 m		2



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
		(As per consultation)				LHS	RHS
14		Bhuwal Prasad chauhan	Pokharvindi - 1		6 m		2
15		Atish kumar kewat	Pokharvindi - 1		6 m		2
16		Gurucharan Harijan	Pokharvindi - 1		5m		2.5
17		Bagedu Harijan	Pokharvindi - 1		5m		2.5
18		Nirmala devi nayak	Pokharvindi - 2	494	5m		2.5
19		Binod Yadav	Pokharvindi - 2	205	6m		2
20		Hasamudin Ali	Pokharvindi - 1	811	6m		2
21		Ramnaresh Chauhan	Pokharvindi - 2		6m		2
22		Nurulla Pathan	Pokharvindi - 1		6m		2
23		Jamil Ajar khan	Pokharvindi - 2		5m		2.5
24		Ganga Prasad launiyar	Pokharvindi - 2		5.5m		2.5
25		Abdul Raufkhan	Pokharvindi - 2		5m		2.5
26		Sahi Muhammad Pathan	Pokharvindi - 2		5.5m		2.5
27		Rajendra Prasad pandey	Pokharvindi - 2		5.5m		2.5
28		Jalim dewan	Pokharvindi - 2		6m		2



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)		
		(As per consultation)				LHS	RHS	
29		Bajresh kumar pandey	Pokharvindi - 2		6m		2	
30		Nabi Mohammad	Pokharvindi - 2		6m		2	
31		Bobi Ullal Pathan	Pokharvindi - 2		6m		2	
32		Rambrij Chamar	Pokharvindi - 2		6m		2	
33		Guddu Harijan	Pokharvindi - 2		6m		2	
34		Durgesh Harijan	Pokharvindi - 2		6m		2	
35		Hasamat Ali	Pokharvindi - 2		6m		2	
36		Ram Oli Dhawal	Pokharvindi - 2		6m		2	
37		Basmati Koiri	Pokharvindi - 2		6m		2	
38		4+110 to 4+900	Jokhan kohar	Dhakdahi - 5	75,77,5 92,617	5 m		2.5
39			Bechan yadav	Dhakdahi - 5		5m		2.5
40			Bhola Kahar	Dhakdahi - 5		5m		2.5
41			Chotelal Tiwari	Dhakdahi - 5		5m		2.5
42	Santi Badai		Dhakdahi - 5		5m		2.5	
43	Ram prasad kohar		Dhakdahi - 5		5m		2.5	



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
		(As per consultation)				LHS	RHS
44		Bhola Kahar	Dhakdahi - 5		4 m		3
45		Basanti kohar	Dhakdahi - 5		4m		3
46		Sadhu kohar	Dhakdahi - 5		4m		3
47		Aani kohar	Dhakdahi - 5		4m		3
48		kohil kohar	Dhakdahi - 5		4m		3
49		Manohar kohar	Dhakdahi - 5		4m		3
50		Muresh Dhawal	Dhakdahi - 5		4m		3
51		Jagannath Dhawal	Dhakdahi - 5		4m		3
52		Okil Darji	Dhakdahi - 5		7m		1.5
53		Mukta Darji	Dhakdahi - 5		4m		3
54		Bijaya yadav	Dhakdahi - 5		8m		1
55		Rojindra harijan	Dhakdahi - 5		8m		1
56		Kewal dhari pasi	Dhakdahi - 5		8m	1	
57		Laxman Gupta	Dhakdahi - 5		8m	1	
58		Janaki Pasi	Dhakdahi - 5		8m		1



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
		(As per consultation)				LHS	RHS
59		Buddhiram Hela	Dhakdahi - 5		4m		3
60		Masudhan Dhawal	Dhakdahi - 5		4m		3
61		Channnar Kuwar	Dhakdahi - 6		6m	2	
62		Daljit singh	Dhakdahi - 6		4m	2	
63		sayab kurmi	dhakdahi-6		4m	1	
64		Jokhan Kurmi	dhakdahi- 6		4m		3
65		Kismat Bahadur Singh	dhakdahi- 6		4m		3
66		Bechan Pathan	Dhakdahi-6		4m	3	
67		Sanjaya Singh	Dhakdahi-6		5m	2.5	
68		Matrika Yadav	Dhakdahi-6		5m		2.5
69		Ramdhani Kohar	dhakdahi- 6		5m	2.5	
70		Askar Ali	dhakdahi- 6		7m	1.5	
71		Rojan Teli	dhakdekhi-6		7m		1.5
72		Akwar Ali	dhakdahi-6		7m		1.5
73		Haisiyat Banjara	dhakdahi- 6		7m		1.5
74		Rahammad Ali	dhakdahi- 6		7 m		1.5
75		Jalalu Bhatt	dhakdahi- 6		7 m		1.5
76		Ballu Kurmi	dhakdahi- 6		7 m		1.5
77		Bhola Kshetri	dhakdahi- 6		6m		2m
78		Prem nath Tripathi	dhakdahi -6		6m		2m



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
		(As per consultation)				LHS	RHS
79		Sanjaya Kumar Mishara	dhakdahi -6		6m		2m
80		Tribeni Prasad Kohar	dhakdahi - 6		6 m	2m	
81		Masuhur Aalam Pathan	dhakdahi- 6		6 m	2m	
82		Husen Mohammad	dhakdahi- 6		6m	2m	
83		Mosandhar Pathan	dhakdahi- 6		7m	1.5	
84		Pramila Kalawar	dhakdahi - 6		6 m		2
85		Lautan Teli	dhakdahi - 6		6 m		2
86		Tar Mohammad Khan	dhakdahi- 6		4m		3
87		Safad Ahammad pathan	Rohini - 3		6m	2m	
88		Bhannar prasad kohar	Rohini - 3		5m	2.5	
89		Ram prasad Raya	Rohini - 3		4m	3m	
90		Sudam Teli	Rohini - 3		5m	2.5m	
91		Durbijaya Singh	Rohini - 3		6m	2m	
92		Chandar Kumar singh	Rohini - 3		6m	2m	
93		sayab kurmi	Rohini - 3		5m	2.5m	
94		Rajkumar Kurmi	Rohini - 3		5m	2.5 w	
95		Taranath Tripathi	Rohini - 3	land	5m	2.5m	
96		Parash Dhobi	Rohini - 3		5m	2.5m	
97		Suresh Prasad Dhawal	Rohini - 3		5m	2.5m	



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
		(As per consultation)				LHS	RHS
98		Bahadur Dhobi	Rohini - 3	land	5m	2.5m	
99		Jogindar Yadav	Rohini - 3		4m	3m	
100		Durga Mandir	Rohini - 3		5m	2.5m	
101		Mohanlal Binda	Rohini - 3		5m	2.5m	
102		Jokhan Kurmi	Rohini - 3		6m	2m	
103		Sushila Mishra	Rohini - 3		7m	1.5m	
104		Sushila Mishra, Harinarayan Mishara	Rohini - 3		7m	1.5m	
105		Sushila Mishra, Krishna Chandra Mishara	Rohini - 3		7m	1.5m	
106		Bijay Yadav	Om Satiya-5	land	8m	1m	
107		Birendra Yadav	Om Satiya-5		8m	1m	
108		Bhadai Sahani	Om Satiya-5		8m	1m	
109		Rojindra harijan	Om Satiya-5		8m	1m	
110		Laxman Gupta	Om Satiya-5		8m	1m	
111		Uttam Yadav	Om Satiya-5		8m	1m	
112		Fulkumari Tharu	Kerwani - 5		6m	2	
113		Jiwan Lal Dumre	Kerwani - 5		7m	1.5	
114		Mina Gurung	Kerwani - 5		7m		1.5
115		Kashiram Gairhe	Devdaha- 4		7m		1.5
116		Prem Kandel	Kerwani - 5		8m	1	
117		Radhika Gairhe	Kerwani - 5		8m		1
118		Prem Kunwar	Kerwani - 5		8m	1	
119		Mohanlal Pandey	Kerwani – 8		8m	1	



S. N	Tentative Chain age	Name of Landowner	Address	Parcels No.	Existing road width (m)	Additional Land Required (m)	
		(As per consultation)				LHS	RHS
120		Nabin Kumar shrestha	Kerwani- 8		8m	1	
121		Balaram Neupane	Kerwani- 8		8m	1	
122		Rampriz Baniya	Kerwani- 8		7m		1.5
123		Binod Baniya	Kerbani-8		7m		1.5
124		Rishi Ram Kurmi	Kerwani - 8		7m	1.5	
125		Rajindar Kurmi	Kerwani- 8		7m	1.5	
126		Eknarayan Neupane	Kerwani- 8		8m	1	
127		Janajagaran youth Club	Kerwani- 8		8m		1
128		Bhumi Sara Chaudhary	Kerwani- 8		8m		1
129		Sumitra Singh	Kerwani- 8		8m		1
130		Rukmagat Neupane	Kerwani-9		8m	1	
131		Chudamani Tiwari	Kerwani-4		8m	1	
132		Liladhar Pandey	Kerwani- 4		8m	1	
133		Srijana Puri	Kerwani - 4		8m	1	
134		Tikaram Poudel	Kerwani - 4		8m	1	



b. Consent papers from the land owners and house owners in the RoW

स्वीचिक्क जग्गा/संरचना सान सहमती पत्र

नेपाल सरकार, सशिव यापिका तथा सामान्य प्रशासन मन्त्रालय, उपानिय प्रशासन विभाग अन्तर्गत श्रमिय सडक नजाल सुधार आयोजना (RCIP) ले सपनेनी जिम्मा अन्तरगतको पत्रवातपत्र- हकबन्दी - शैली सडक (Ch: 0+000 - 22+750) को चौडाई केन्द्र रेवी दया/ बाया, ५/५ मिटर स्तरीन्ती गर्नका लागि हाल प्रयोगमा रहेको सडक देवी आवश्यक पर्ने दया/ बाया कत हाथी तपौलिका सडक प्रभावित जग्गाधनि र संरचना धनिहरूले निमुल्य रूपमा जग्गा सान दिन र संरचना आफै गटाउन सम्बन्धित छी भनि सामुहिक रूपमा सहमती पत्रमा हस्ताक्षर गरि दिवै । यस पत्रवात कुनै पनि शर्ती, विरोध गर्ने छैनौ ।

क्र.नं	जग्गा धातारको नाम	बाबुको नाम	ठेपाना / बाटो नं	कि.नं. / बिट नं	जग्गा क्षेत्रफल वर्ग मि.			प्रभावित संरचना		हस्ताक्षर
					वर्तमान सडकको चौडाई	नयाँ गण आवश्यक पर्ने	अपतकसत पर्ने क्षेत्रफल	संरचनाको विवरण	जाति, पुर्ण/ अंशिक	
१.	शिवराज बुआ (जोडा)	चन्द्र शुकुठ कोटाकोटी	१	१	६ मि	६ मि	✓	सकल जग्गा	आसिडे	5580572196
२.	दाम्पती चन्द्र चौधरी	हरिहरापुरी	" १	१	६ मि	६ मि		"	आसिडे	5208855592
३.	विजयप्रसाद पाठे	सुन्दर पाठे	" १	१	६ मि	६ मि		पलट्टे	आसिडे	5226000000
४.	रविन्द्र बुआ पाठे	अठल बुजुद सुब्बा	" १	१	६ मि	६ मि	✓	२ लडा सकल जग्गा	जुगा	5256000000
५.	सुनिल बुआ पाठे	जगदल बुआ सुब्बा	" १	१	६ मि	६ मि		पलट्टे + सकल जग्गा	आसिडे	5299220000
६.	राजिन्द्र ठाकुर	साधु ठाकुर	" १	१	६ मि	६ मि		पलट्टे + सकल जग्गा	आसिडे	522222550000
७.	दाहरा पठान	आसिन पठान	" २	२	६ मि	६ मि		सकल जग्गा	जुगा	52988200909
८.	मुनिरे पठान	मुसमान पठान	" २	२	६ मि	६ मि		पलट्टे	जुगा	

नाम, पत्र :
हस्ताक्षर :

साउपानिका/ नगरपालिका, बगर नं. :



Annex 6: Demographic Information of Rural Municipality and Municipality of Proposed Road Alignment

S.N.	Rural Municipality/ Municipality and wards	Major Settlements lie on road alignments	Major Caste/ Ethnicity	HHs	Population		
					Male	Female	Total
1.	Rohini Rural Municipality- ward no.- 2	Bhattapokha tole Pokharvindi	Teli, kurmi, yadav, ahir, kawat, kohar, harijan, pandey, muslim	773	2552	2529	5081
2.	Rohini Rural Municipality- ward no.- 3	Dhakdhai	Teli, kurmi, yadav, ahir, kawat, kohar, harijan, pandey, muslim	1104	3478	3478	6956
3.	Om Satiya Rural Municipality- ward no.- 5	Darkhasowa,	Teli, kurmi, yadav, ahir, kawat, kohar, harijan, pandey, muslim	973	2553	2356	4909
4.	Om Satiya Rural Municipality- ward no.- 6	Majhauri, Sukrauli	Teli, kurmi, yadav, ahir, kawat, kohar, harijan, pandey, muslim	1071	3111	2960	6071
5.	Devdaha Municipality -ward no.- 12	Birta bazaar, shankarpur,	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, madeshi muslim Others	812	2389	2442	4831



S.N.	Rural Municipality/ Municipality and wards	Major Settlements lie on road alignments	Major Caste/ Ethnicity	HHs	Population		
					Male	Female	Total
6.	Devdaha Municipality -ward no.- 11	Bhabarabari,	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, madeshi muslim Others	1031	2769	2970	5739
7.	Devdaha Municipality -ward no.- 1	6 no. chowk, siktan	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, Others	833	1986	2251	4237
8.	Devdaha Municipality -ward no.- 2	Dekar, Shirtole	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, Others	857	1647	2053	3700
9.	Devdaha Municipality -ward no.- 3	Suryapura tole, Pragati path, Semrahana	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, Others	698	1568	1778	3346
10.	Devdaha Municipality -ward no.- 4	Saiya tole	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, Others	744	1646	1810	3456
11.	Devdaha Municipality -ward no.- 8	Sigana tole,	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, guring Dalit, Others	865	1743	2186	3929



Ministry of Urban Development
Department of Local Infrastructure
Project Improvement Project (RCIP)
Project Coordination Unit
Lalitpur



S.N.	Rural Municipality/ Municipality and wards	Major Settlements lie on road alignments	Major Caste/ Ethnicity	HHs	Population		
					Male	Female	Total
12.	Devdaha Municipality -ward no.- 7	Gurung tole	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, gurung Dalit, Others	1331	2588	3062	5650
13.	Devdaha Municipality -ward no.- 5	Lokeshor tole, Khairani bazaar	Brahman, Kshetri, Magar, Tharu/ Chaudhary, Newar, gurung Dalit, Others	1365	2762	3358	6120
Total				12457	30792	33233	64025

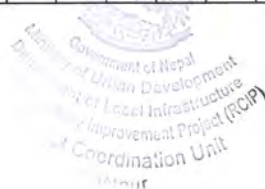
(Source: Field Survey, CPP, 2078)



Annex 7: Health and Education Status

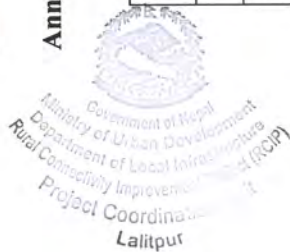
S.no.	Rural Municipality/ Municipality and wards	Healthpost/ Sub- Healthpost	Education status				Total	
			Primary	Secondary	Higher Secondary	Campus school		
1.	Rohini Rural Municipality- ward no.- 2	1	2	1	3	0	2	8
2.	Rohini Rural Municipality- ward no.- 3	1	2	1	3	0	4	10
3.	Om Satiya Rural Municipality- ward no.- 5	1	2	1	2	0	2	7
4.	Om Satiya Rural Municipality- ward no.- 6	1	3	1	1	0	1	6
5.	Devdaha Municipality -ward no.- 12	1	1	2	0	0	0	3
6.	Devdaha Municipality -ward no.- 11	1	3	1	0	0	0	4
7.	Devdaha Municipality -ward no.- 1	1	1	0	1	0	0	2
8.	Devdaha Municipality -ward no.- 2	1	1	2	0	0	0	3
9.	Devdaha Municipality -ward no.- 3	1	2	0	0	0	0	2
10.	Devdaha Municipality -ward no.- 4	1	1	0	0	0	0	1
11.	Devdaha Municipality -ward no.- 8	1	1	2	0	0	0	3
12.	Devdaha Municipality -ward no.- 7	1	2	1	0	0	0	3
13.	Devdaha Municipality -ward no.- 5	3						0
	Total	15	21	12	10	0	9	43

(Source: Field Survey, CPP, 2078)



**Annex 8: Average Daily traffic in Bhagwanpur – Khaireni road per count on August and November
Average Daily count on August**

SN	Vehicle Type	ADT of Station-1 (Bhagwanpur)	ADT of Station-2 (Birta Bazzar)	ADT of Station-3 (Khaireni)	ADT
1.	Motorcycle	81	125	152	119
2.	Car/Van	20	57	73	50
3.	Jeep	15	39	50	35
4.	Pickup	14	30	38	27
5.	Bus	9	20	28	19
6.	Mini-bus	14	20	28	21
7.	Microbus	11	19	23	18
8.	Truck	17	34	46	32
9.	Mini-truck	19	30	38	29
10.	Tractor	9	25	30	21
11.	Pedestrians	137	138	155	143
12.	Porters	13	10	11	11
13.	Bullock Cart	2	2	0	1
14.	Bicycle	99	84	84	89
15.	Rickshaw	21	20	28	23



Average Daily Count on November

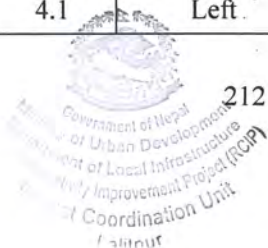
SN	Vehicle Type	ADT of Station-1 (Dhakdhai)	ADT of Station-2 (Khaireni)	ADT
1.	Motorcycle	1457	1338	1398
2.	Car/Van	70	92	81
3.	Jeep	40	49	45
4.	Pickup	75	89	82
5.	Bus	3	3	3
6.	Mini-bus	20	19	20
7.	Microbus	2	2	2
8.	Truck	30	14	22
9.	Mini-truck	13	10	12
10.	Tractor	39	21	30
11.	Pedestrians	197	207	202
12.	Porters	1	1	1
13.	Bullock Cart	0	0	0
14.	Bicycle	1262	1305	1284
15.	Auto Rickshaw	216	216	216



Annex 9: Details of existing utilities**a. Bhagwanpur-Dhakhai-Khairani Road Electric Pole Data**

S.N.	Chainage	Nos	Dist. From CL	Side (Left/Right)	Lying on the section	Replacement Recommended
1	5+400	1	3.8	Right	Kerb stone line	0
2	5+855	1	4.19	Left	Drain	0
3	5+862	1	2.45	Left	Carriage way	1
4	5+862	1	4.04	Left	Drain	0
5	5+943	1	3.85	Right	Shoulder	0
6	5+946	1	4.59	Right	Shoulder	0
7	5+987	1	3.85	Right	Shoulder	0
8	6+103	1	4.27	Right	Shoulder	0
9	6+240	1	4.45	Right	Shoulder	0
10	6+636	1	4.09	Right	Shoulder	0
11	6+825	1	4.21	Right	Shoulder	0
12	6+896	1	4.56	Left	Drain	0
13	7+062	1	4.51	Right	Shoulder	0
14	7+090	1	1.88	Right	Carriage way	1
15	7+202	1	4.25	Left	Shoulder	0
16	8+527	1	5.1	Left	Drain	0
17	9+203	1	4.28	Left	Shoulder	0
18	9+300	2	3.97	Right	Shoulder	0
19	10+496	1	4.25	Left	Shoulder	0
20	10+496	2	2.5	Right	Carriage way	1
21	10+538	1	3.15	Right	Carriage way	1
22	10+541	1	4.21	Right	Shoulder	0
23	10+635	1	3.5	Right	Shoulder	0
24	6+658	1	3.52	Right	Shoulder	0
25	10+684	1	2.94	Right	Carriage way	1
26	10+786	1	2.82	Right	Carriage way	1

S.N.	Chainage	Nos	Dist. From CL	Side (Left/Right)	Lying on the section	Replacement Recommended
27	10+838	1	2.44	Right	Carriage way	1
28	10+838	1	3.94	Right	Shoulder	0
29	10+882	1	2.88	Right	Carriage way	1
30	10+936	1	2.54	Right	Carriageway	1
31	11+163	1	3.5	Right	Shoulder	0
32	11+216	1	3.53	Right	Shoulder	0
33	11+263	1	2.94	Right	Carriage way	1
34	11+308	1	3.51	Right	Shoulder	0
35	12+218	1	3.51	Right	Shoulder	0
36	12+223	1	3.21	Left	Carriage way	1
37	14+162	1	5.1	Right	Drain	0
38	14+416	1	3.5	Right	Shoulder	0
39	14+408	1	3.52	Right	Shoulder	0
40	16+316	1	3.4	Left	Carriage way	1
41	16+409	1	3.51	Left	Shoulder	0
42	16+788	1	4	Left	Shoulder	0
43	16+798	1	4.1	Right	Shoulder	0
44	16+805	1	3.51	Left	Shoulder	0
45	16+825	1	4.1	Right	Shoulder	0
46	16+950	1	3.05	Right	Shoulder	0
47	16+952	1	4	Left	Shoulder	0
48	16+982	1	2.5	Left	Carriage way	1
49	17+005	2	4.2	Left	Shoulder	0
50	17+022	1	4.25	Right	Shoulder	0
51	17+023	1	4.15	Left	Shoulder	0
52	17+056	1	4.15	Right	Shoulder	0
53	17+085	1	2.22	Left	Carriage way	1
54	17+530	1	4.05	Left	shoulder	0
55	17+758	1	2.78	Left	Carriage way	1
56	17+803	1	4.1	Left	Shoulder	0



S.N.	Chainage	Nos	Dist. From CL	Side (Left/Right)	Lying on the section	Replacement Recommended
57	17+920	1	4.97	Left	Drain	0
58	18+258	1	4.1	Right	Shoulder	0
59	18+318	1	4.95	Left	Drain	0
60	18+328	1	4.2	Right	Shoulder	0
61	18+527	1	5.2	Left	Drain	0
62	18+600	1	3.96	Right	Shoulder	0
63	18+625	1	2.27	Right	Carriage way	1
64	18+625	1	3.75	Right	Shoulder	0
65	18+678	1	3.53	Right	Shoulder	0
66	18+726	1	2.95	Right	carriage way	1
67	18+941	1	3.8	Right	Shoulder	0
68	18+972	1	3.55	Right	Shoulder	0
69	19+025	1	3.52	Right	shoulder	0
70	19+032	1	3.57	Right	Shoulder	0
71	19+058	1	4.2	Right	Shoulder	0
72	19+390	1	4.05	Right	Shoulder	0
73	19+445	1	4.15	Right	Shoulder	0
74	19+458	1	3.5	Right	Carriage way	1
75	19+735	1	4.46	Right	Shoulder	0
76	19+865	1	4.47	Left	Drain	0
77	20+038	1	4.25	Right	Shoulder	0
78	20+086	1	3.23	Right	Carriage way	1
79	20+345	1	4.7	Right	Drain	0
80	20+384	1	1.58	Right	Carriage way	1
81	20+405	1	5.02	Right	Drain	0
82	20+538	1	3.85	Right	Shoulder	0
83	20+586	1	2.21	Right	Carriage way	1
84	20+640	1	4.3	Right	Drain	0
85	21+258	1	3.95	Right	Shoulder	0
86	21+498	1	4.5	Left	Shoulder	0
87	21+520	1	3.5	Right	Shoulder	0
88	21+590	1	2.61	Right	carriage way	1
89	21+701	1	3.8	Right	Shoulder	0
90	21+940	1	3.43	Right	Carriage way	1
91	22+212	1	3.41	Left	Carriage way	1
92	22+290	1	4.41	Left	Shoulder	0

S.N.	Chainage	Nos	Dist. From CL	Side (Left/Right)	Lying on the section	Replacement Recommended
93	22+800	1	3.9	Right	Drain	0
<i>Total No. of poles to be replaced</i>						24
*The data is of the electric poles lying upto the design drainage from the road center line.						

b. Other public utilities

S. N	Name of public utilities	(Chainage)	Number
1.	Transmission line	2+600, 3+300, 7+450, 14+700	4
2.	Hume pipe culvert	0+882, 2+341, 2+620, 3+820, 4+003, 4+158, 4+420, 4+642, 4+900, 6+299, 7+163, 7+370, 8+159, 8+306, 8+640, 8+730, 8+983, 9+067, 9+552, 9+980, 10+130, 10+153, 10+370, 10+676, 10+900, 11+780, 12+000, 12+225, 12+595, 112+725, 12+977, 13+250, 13+671, 13+780, 14+200, 14+320, 15+185, 15+946, 16+040, 16+240, 16+745, 16+955, 17+120, 17+143, 17+205, 18+553, 18+741, 18+869, 19+150, 19+550, 19+680, 19+943, 20+826, 21+295, 21+760	57
3.	Slab Culvert	5+285, 5+840, 6+035, 6+658, 6+809, 6+918, 7+460, 7+912, 8+433, 9+260, 9+360, 9+675, 12+225, 13+129, 14+000, 14+661, 14+800, 15+025, 15+150, 15+525, 15+616, 15+885, 16+322, 19+360, 21+295, 22+320	26
4.	Box Culvert		3
5.	Bridge	16+550 Kataral Khola/ Khaireni Khola	1
6.	Tube well	5+400, 8+550, 15+650	3

c. Summary of Impacts on Structures (Private/Public)

S.N.	Municipality/Rural Municipality Wards	Chainage	Impact in Structure		Mitigation
			Structure Type	Nos. of Impacted	
1	Devdaha Municipality (Ward no. 8)	20+500	Residential structure	1(Partial)	Assistance for the loss of residential structures will be provided as per updated ESMF/ Project provisions
		20+510	Residential structure	1(Partial)	
		20+515	Residential structure	1(Partial)	
		20+525 to 20+560	Residential structure (2 nos.)		Decrement of the shoulder during construction
		21+140	Residential structure	1(Partial)	Assistance for the loss of residential structures will be provided as per



S.N.	Municipality/Rural Municipality Wards	Chainage	Impact in Structure		Mitigation
			Structure Type	Nos. of Impacted	
					updated ESMF/ Project provisions
		21+820	Residential structure	1(Partial)	Assistance for the loss of residential structures will be provided as per updated ESMF/ Project provisions
		22+340	Residential structure (1 no.)		Decrement of the shoulder during construction
2	Devdaha Municipality (Ward no. 7)	22+640 to 22+670	Residential structure (3 nos.)		
Total				5 (Partial)	


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 नेपाल सरकार
 शहरी विकास विभाग
 स्थानीय तहहरूको संयोजकतामा
 ग्रामीण सञ्जाल सुधार परियोजना (RCIP)
 प्रोजेक्ट समन्वय इकाई
 ललितपुर


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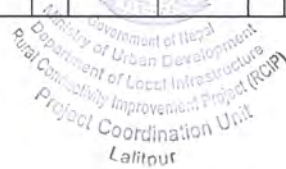
Annex 10: Change in Land use

S. N	From Chainage	To Chainage	RoW Length	Area of RoW with width of 20m of the road in (Hectare)	Area of existing road with a width of 6.5 m in (Hectare)	Area of Required Road with Formation Width 8.5m in (Hectare)	Additional Land area required (2m Width) of the road in (Hectare)	Land Use on the Left	Land Use in Right
1.	0+000	0+175	175.00	0.350	0.114	0.149	0.035	Bhagwanpur Settlement	Bhagwanpur Settlement
2.	0+175	0+295	120.00	0.240	0.078	0.102	0.024	Cultivated Land	Cultivated Land
3.	0+295	0+415	120.00	0.240	0.078	0.102	0.024	Mango Orchard	Mango Orchard
4.	0+415	0+480	65.00	0.130	0.042	0.055	0.013	Cultivated Land	Cultivated Land
5.	0+480	0+549	69.00	0.138	0.045	0.059	0.014	Tilkkar Settlement	Tilkkar Settlement
6.	0+549	0+720	171.00	0.342	0.111	0.145	0.034	Tikkar Settlement	Cultivated Land
7.	0+720	0+997	277.00	0.554	0.180	0.235	0.055	Cultivated Land	Tikkar Settlement
8.	0+997	1+021	24.00	0.048	0.016	0.020	0.005	Cultivated Land	Cultivated Land
9.	1+021	1+183	162.00	0.324	0.105	0.138	0.032	Cultivated Land	Pokharbhandi Settlement
10.	1+183	1+428	245.00	0.490	0.159	0.208	0.049	Cultivated Land	Cultivated Land
11.	1+428	1+565	137.00	0.274	0.089	0.116	0.027	Pokharbhandi Settlement	Pokharbhandi Settlement
12.	1+565	1+691	126.00	0.252	0.082	0.107	0.025	Cultivated Land	Cultivated Land
13.	1+691	2+016	325.00	0.650	0.211	0.276	0.065	Pokharbhandi Settlement	Pokharbhandi Settlement
14.	2+016	2+111	95.00	0.190	0.062	0.081	0.019	Cultivated Land	Cultivated Land
15.	2+111	2+497	386.00	0.772	0.251	0.328	0.077	Pokharbhandi Settlement	Pokharbhandi Settlement
16.	2+497	2+710	213.00	0.426	0.138	0.181	0.043	Cultivated Land	Cultivated Land



S. N	From Chainage	To Chainage	RoW Length	Area of RoW with width of the road in (Hectare)	Area of existing road with a width of 6.5 m in (Hectare)	Area of Required Road with Width 8.5m in (Hectare)	Additional Land area required (2m Width) of the road in (Hectare)	Land Use on the Left	Land Use in Right
17.	2+710	2+997	287.00	0.574	0.187	0.244	0.057	Cultivated Land	Pokharbhandi Settlement
18.	2+997	4+166	1169.00	2.338	0.760	0.994	0.234	Cultivated Land	Cultivated Land
19.	4+166	4+260	94.00	0.188	0.061	0.080	0.019	Cultivated Land	Dhakhai Settlement
20.	4+260	4+928	668.00	1.336	0.434	0.568	0.134	Dhakhai Settlement	Dhakhai Settlement with Cultivated Land
21.	4+928	5+704	776.00	1.552	0.504	0.660	0.155	Dhakhai Settlement	Dhakhai Settlement
22.	5+704	6+038	334.00	0.668	0.217	0.284	0.067	Kadamhawa Settlement with Cultivated Land	Kadamhawa Settlement with Cultivated Land
23.	6+038	6+195	157.00	0.314	0.102	0.133	0.031	Cultivated Land	Cultivated Land
24.	6+195	6+668	473.00	0.946	0.307	0.402	0.095	Kadamhawa Settlement with Cultivated Land	Kadamhawa Settlement with Cultivated Land
25.	6+668	7+740	1072.00	2.144	0.697	0.911	0.214	Darkhas Settlement	Darkhas Settlement
26.	7+740	7+866	126.00	0.252	0.082	0.107	0.025	Cultivated Land	Cultivated Land
27.	7+866	7+956	90.00	0.180	0.059	0.077	0.018	Darkhas Settlement	Darkhas Settlement with Cultivated Land
28.	7+956	8+561	605.00	1.210	0.393	0.514	0.121	Cultivated Land	Majhauri Settlement with Cultivated Land

S. N	From Chainage	To Chainage	RoW Length	Area of RoW with width of 20m of the road in (Hectare)	Area of existing road with a width of 6.5 m in (Hectare)	Area of Required Road with Formation Width 8.5m in (Hectare)	Additional Land area required (2m Width) of the road in (Hectare)	Land Use on the Left	Land Use in Right
29.	8+561	8+715	154.00	0.308	0.100	0.131	0.031	Majhauri Settlement	Majhauri Settlement
30.	8+715	9+297	582.00	1.164	0.378	0.495	0.116	Cultivated Land	Cultivated Land
31.	9+297	9+474	177.00	0.354	0.115	0.150	0.035	Narayanpur Settlement	Narayanpur Settlement
32.	9+474	9+647	173.00	0.346	0.112	0.147	0.035	Cultivated Land	Cultivated Land
33.	9+647	10+152	505.00	1.010	0.328	0.429	0.101	Narainapur Settlement with Cultivated Land	Narainapur Settlement with Cultivated Land
34.	10+152	10+498	346.00	0.692	0.225	0.294	0.069	Narainapur Settlement	Narainapur Settlement with Cultivated Land
35.	10+498	10+568	70.00	0.140	0.046	0.060	0.014	Cultivated Land	Cultivated Land
36.	10+568	11+396	828.00	1.656	0.538	0.704	0.166	Shankarpur Settlement with Cultivated Land	Shankarpur Settlement with Cultivated Land
37.	11+396	12+024	628.00	1.256	0.408	0.534	0.126	Birtabazaar Settlement	Birtabazaar Settlement
38.	12+024	12+449	425.00	0.850	0.276	0.361	0.085	Birta Settlement with Cultivated Land	Birta Settlement with Cultivated Land
39.	12+449	13+539	1090.00	2.180	0.709	0.927	0.218	Cultivated Land	Cultivated Land
40.	13+539	13+660	121.00	0.242	0.079	0.103	0.024	Bhaurwabari Settlement	Bhaurwabari Settlement
41.	13+660	14+117	457.00	0.914	0.297	0.388	0.091	Cultivated Land	Cultivated Land



S/N	From Chainage	To Chainage	RoW Length	Area of RoW with width of 20m in the road in (Hectare)	Area of existing road with a width of 6.5 m in (Hectare)	Area of Required Road with Formation Width 8.5m in (Hectare)	Additional Land area required (2m Width) of the road in (Hectare)	Land Use on the Left	Land Use in Right
42.	14+117	14+257	140.00	0.280	0.091	0.119	0.028	Rajabari Road Settlement	Rajabari Road Settlement
43.	14+257	14+509	252.00	0.504	0.164	0.214	0.050	Cultivated Land	Cultivated Land
44.	14+509	14+802	293.00	0.586	0.190	0.249	0.059	Rajabari Road Settlement with Cultivated Land	Rajabari Road Settlement with Cultivated Land
45.	14+802	15+746	944.00	1.888	0.614	0.802	0.189	Shiwalayatal Settlement	Shiwalayatal Settlement
46.	15+746	16+042	296.00	0.592	0.192	0.252	0.059	Shiwalayatal Settlement with Cultivated Land	Shiwalayatal Settlement with Cultivated Land
47.	16+042	16+398	356.00	0.712	0.231	0.303	0.071	Shreetol Settlement	Shreetol Settlement
48.	16+398	16+480	82.00	0.164	0.053	0.070	0.016	Cultivated Land	Cultivated Land
49.	16+480	16+545	65.00	0.130	0.042	0.055	0.013	Barren Land	Barren Land
50.	16+545	16+650	105.00	0.210	0.068	0.089	0.021	Khairanikhola	Khairanikhola
51.	16+650	16+690	40.00	0.080	0.026	0.034	0.008	Cultivated Land	Cultivated Land
52.	16+690	17+149	459.00	0.918	0.298	0.390	0.092	Suryapura Settlement	Suryapura Settlement
53.	17+149	17+648	499.00	0.998	0.324	0.424	0.100	Suryapura Settlement with Cultivated Land	Suryapura Settlement with Cultivated Land
54.	17+648	17+750	102.00	0.204	0.066	0.087	0.020	Somrahana Settlement	Cultivated Land
55.	17+750	17+812	62.00	0.124	0.040	0.053	0.012	Cultivated Land	Cultivated Land
56.	17+812	17+936	124.00	0.248	0.081	0.105	0.025	Pariwantsitol Settlement	Cultivated Land

S. N	From Chainage	To Chainage	RoW Length	Area of RoW with 20m width of the road in (Hectare)	Area of existing road with a width of 6.5 m in (Hectare)	Area of Required Road with Formation Width 8.5m in (Hectare)	Additional Land area required (2m Width) of the road in (Hectare)	Land Use on the Left	Land Use in Right
57.	17+936	18+094	158.00	0.316	0.103	0.134	0.032	Pariwartansilto Settlement with Cultivated Land	Pariwartansilto Settlement with Cultivated Land
58.	18+094	18+245	151.00	0.302	0.098	0.128	0.030	Cultivated Land	Cultivated Land
59.	18+245	18+514	269.00	0.538	0.175	0.229	0.054	Kaptantol Settlement with Cultivated Land	Kaptantol Settlement with Cultivated Land
60.	18+514	18+614	100.00	0.200	0.065	0.085	0.020	Kaptantol Settlement	Kaptantol Settlement
61.	18+614	18+859	245.00	0.490	0.159	0.208	0.049	Semrahanachowk Settlement with Cultivated Land	Semrahanachowk Settlement with Cultivated Land
62.	18+859	19+106	247.00	0.494	0.161	0.210	0.049	Cultivated Land	Cultivated Land
63.	19+106	19+177	71.00	0.142	0.046	0.060	0.014	Saiya Settlement with Cultivated Land	Saiya Settlement with Cultivated Land
64.	19+177	19+696	519.00	1.038	0.337	0.441	0.104	Saiya Settlement	Cultivated Land
65.	19+696	19+880	184.00	0.368	0.120	0.156	0.037	Cultivated Land	Cultivated Land
66.	19+880	19+962	82.00	0.164	0.053	0.070	0.016	Bijaypur Settlement	Cultivated Land
67.	19+962	20+154	192.00	0.384	0.125	0.163	0.038	Cultivated Land	Cultivated Land
68.	20+154	20+293	139.00	0.278	0.090	0.118	0.028	Bijaypur Settlement with Cultivated Land	Bijaypur Settlement with Cultivated Land
69.	20+293	20+661	368.00	0.736	0.239	0.313	0.074	Bijaypur Settlement	Bijaypur Settlement



S. N	From Chainage	To Chainage	RoW Length	Area of RoW with width of the road in (Hectare)	Area of existing road with a width of 6.5 m in (Hectare)	Area of Required Road with Width 8.5m in (Hectare)	Additional Land area required (2m Width) of the road in (Hectare)	Land Use on the Left	Land Use in Right
70.	20+661	20+787	126.00	0.252	0.082	0.107	0.025	Cultivated Land	Cultivated Land
71.	20+787	21+256	469.00	0.938	0.305	0.399	0.094	Sigaha Settlement with Cultivated Land	Sigaha Settlement with Cultivated Land
72.	21+256	21+508	252.00	0.504	0.164	0.214	0.050	Sigaha Settlement	Cultivated Land
73.	21+508	22+200	692.00	1.384	0.450	0.588	0.138	Sigaha Settlement with Cultivated Land	Sigaha Settlement with Cultivated Land
74.	22+200	22+395	195.00	0.390	0.127	0.166	0.039	Cultivated Land	Gurungtol Settlement
75.	22+395	22+489	94.00	0.188	0.061	0.080	0.019	Gurungtol Settlement	Gurungtol Settlement
76.	22+489	22+610	121.00	0.242	0.079	0.103	0.024	Khairani Settlement with Cultivated Land	Khairani Settlement with Cultivated Land
77.	22+610	22+820	210.00	0.420	0.137	0.179	0.042	Khairani Settlement	Khairani Settlement
Total			22820.00	45.640	14.833	19.397	4.564		


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Annex 11: Number of trees to be cleared from private land along the road alignment

SN.	Local Name	Botanical Name	Chainage	Ownership	Number	DBH (Meter)	Height (Meter)	Area (M ²)	Volume (M ³)	Tree Volume (Volume*0.5)
1	Kadam	<i>Anthrocephalus chinensis</i>	1+700,		4	0.61	4.88	0.29	1.42	0.71
2	Kadam	<i>Anthrocephalus chinensis</i>	3+410,			0.46	4.27	0.16	0.70	0.35
3	Kadam	<i>Anthrocephalus chinensis</i>	17+650,			0.52	4.57	0.21	0.96	0.48
4	Kadam	<i>Anthrocephalus chinensis</i>	17+660,			0.64	5.18	0.32	1.67	0.83
5	Sisoo	<i>Delbergia Sisoo</i>	18+950,		4	0.61	5.18	0.29	1.51	0.76
6	Sisoo	<i>Delbergia Sisoo</i>				0.64	4.57	0.32	1.47	0.74
7	Sisoo	<i>Delbergia Sisoo</i>				0.52	3.96	0.21	0.84	0.42
8	Sisoo	<i>Delbergia Sisoo</i>	7+600 to			0.49	4.27	0.19	0.80	0.40
9	Aap	<i>Magnifera indica</i>	7+700			0.52	4.57	0.21	0.96	0.48
10	Aap	<i>Magnifera indica</i>				0.91	7.92	0.66	5.20	2.60
11	Aap	<i>Magnifera indica</i>				1.01	6.71	0.79	5.33	2.66
12	Aap	<i>Magnifera indica</i>				0.85	4.57	0.57	2.61	1.31
13	Aap	<i>Magnifera indica</i>	1+552, 3+420, 7+600 to 7+700	0.40	3.66	0.12	0.45	0.23		
14	Aap	<i>Magnifera indica</i>		0.52	4.57	0.21	0.96	0.48		
15	Aap	<i>Magnifera indica</i>		0.73	6.40	0.42	2.69	1.34		
16	Aap	<i>Magnifera indica</i>		0.91	6.71	0.66	4.40	2.20		
17	Simal	<i>Bombex ceiba</i>	2+100,		1	1.07	9.75	0.89	8.71	4.36
18	Pipal	<i>Ficus religiosa</i>				1.04	7.62	0.84	6.42	3.21
19	Pipal	<i>Ficus religiosa</i>	0+652,			0.67	6.10	0.35	2.15	1.08
20	Pipal	<i>Ficus religiosa</i>	1+550,			1.25	9.14	1.23	11.21	5.60
21	Pipal	<i>Ficus religiosa</i>	11+200,			0.82	5.49	0.53	2.92	1.46
22	Bel	<i>Aegle marmelos</i>	20+250			0.30	3.66	0.07	0.27	0.13

Private



SN.	Local Name	Botanical Name	Chainage	Ownership	Number	DBH (Meter)	Height (Meter)	Area (M ²)	Volume (M ³)	Tree Volume (Volume*0.5)
23	Bel	<i>Aegle marmelos</i>	0+650,			0.34	3.66	0.09	0.32	0.16
24	Bel	<i>Aegle marmelos</i>	0+655,			0.37	3.66	0.11	0.38	0.19
25	Bel	<i>Aegle marmelos</i>	0+660,			0.30	3.66	0.07	0.27	0.13
26	Bel	<i>Aegle marmelos</i>	0+665,			0.40	3.66	0.12	0.45	0.23
27	Bayar	<i>Zizyphus jujuba</i>	3+200			0.24	3.35	0.05	0.16	0.08
28	Bayar	<i>Zizyphus jujuba</i>	1+200,		2	0.27	3.35	0.06	0.20	0.10
29	Badar	<i>Artocarpus lakoocha</i>	1+553			0.30	3.35	0.07	0.24	0.12
30	Badar	<i>Artocarpus lakoocha</i>	1+200,			0.34	3.35	0.09	0.30	0.15
31	Badar	<i>Artocarpus lakoocha</i>	1+210,		3	0.37	3.35	0.11	0.35	0.18
32	Neem	<i>Azadirachta indica</i>	1+125,			0.46	4.57	0.16	0.75	0.38
33	Neem	<i>Azadirachta indica</i>				0.40	3.66	0.12	0.45	0.23
34	Neem	<i>Azadirachta indica</i>				0.61	5.18	0.29	1.51	0.76
35	Neem	<i>Azadirachta indica</i>	1+200,			0.37	4.27	0.11	0.45	0.22
36	Neem	<i>Azadirachta indica</i>	1+210,			0.67	5.49	0.35	1.94	0.97
37	Neem	<i>Azadirachta indica</i>	1+125,			0.64	3.96	0.32	1.27	0.64
38	Neem	<i>Azadirachta indica</i>	3+300,			0.49	4.27	0.19	0.80	0.40
39	Neem	<i>Azadirachta indica</i>	7+600 to			0.61	4.88	0.29	1.42	0.71
40	Neem	<i>Azadirachta indica</i>	7+700,			0.30	3.96	0.07	0.29	0.14
41	Neem	<i>Azadirachta indica</i>	22+200,		10	0.40	4.27	0.12	0.53	0.26
42	Bakaino	<i>Melia azerdarch</i>	22+210			0.91	4.27	0.66	2.80	1.40
43	Bakaino	<i>Melia azerdarch</i>				0.61	4.88	0.29	1.42	0.71
44	Bakaino	<i>Melia azerdarch</i>	7+600 to			0.30	5.18	0.07	0.38	0.19
45	Bakaino	<i>Melia azerdarch</i>	7+700,			0.76	4.88	0.46	2.22	1.11
46	Bakaino	<i>Melia azerdarch</i>	17+650		8	0.94	4.27	0.70	2.99	1.50

SN.	Local Name	Botanical Name	Chainage	Ownership	Number	DBH (Meter)	Height (Meter)	Area (M ²)	Volume (M ³)	Tree Volume (Volume*0.5)
47	Bakaino	<i>Melia azerdarch</i>				0.79	3.96	0.49	1.95	0.98
48	Bakaino	<i>Melia azerdarch</i>				0.82	3.96	0.53	2.11	1.05
49	Bakaino	<i>Melia azerdarch</i>				0.24	3.05	0.05	0.14	0.07
50	Tik	<i>Tectona grandis</i>				0.61	6.10	0.29	1.78	0.89
51	Tik	<i>Tectona grandis</i>				0.67	8.84	0.35	3.12	1.56
52	Tik	<i>Tectona grandis</i>	17+650 to			0.52	5.49	0.21	1.16	0.58
53	Tik	<i>Tectona grandis</i>	17+660		4	0.49	5.18	0.19	0.97	0.48
54	Kabro	<i>Ficus lacor</i>	3+200		1	1.37	5.49	1.48	8.10	4.05
55	Ashok	<i>Saraca asoca</i>	3+400,			0.30	3.96	0.07	0.29	0.14
56	Ashok	<i>Saraca asoca</i>	3+410,			0.37	4.57	0.11	0.48	0.24
57	Ashok	<i>Saraca asoca</i>	3+420		3	0.34	4.27	0.09	0.38	0.19
58	Saal	<i>Shorea robusta</i>	7+300,			1.25	9.75	1.23	11.96	5.98
59	Saal	<i>Shorea robusta</i>	11+200		2	0.46	4.57	0.16	0.75	0.38
60	Swami	<i>Ficus benjamina</i>	20+250		1	0.82	4.88	0.53	2.59	1.30
61	Amroot	<i>Psidium guajaba</i>	3+420,			0.61	4.57	0.29	1.33	0.67
62	Amroot	<i>Psidium guajaba</i>	3+430		2	0.52	4.27	0.21	0.90	0.45
63	Bar	<i>Ficus benghalensis</i>	3+410		1	0.91	7.62	0.66	5.00	2.50
Total					63					



• **Compensatory Plantation in Sub-project Areas**

Subproject	No. of trees to be felled from roadside	Trees to be raised (1:10)	No. of seedlings to be planted	Cost (NRs)	Nursery requirement	Remarks
Bhagwanpur-Dhakdhai-Khaireni	63	630	1050*	5,25,000	No	Plantation work will be done on the roadside of the proposed road alignment

- As per the Ministry of Forestry and Environment, the project should grow 10 trees for each tree felled
- *Considering 60% survival rate of seedlings planted.
- **Cost:** Rs 500/seedling including seedling cost, planting area preparation and composting, transportation, planting, and management work including plant growing up to 5 years.



Annex: 12 Query site of Construction Materials

a. Summary of Test Results of Construction Materials (Sand, Aggregate & Base/Sub-base)

S.N.	Location (Km)	Material	Grain Size Distribution			AIV	LAA (%)	Compaction		CBR (%)	Estimated Quantity (m ³)
			Gravel (%)	Sand (%)	Silt+Clay (%)			OMC (%)	MDD (g/cc)		
1	Ghodahakhola River	Sand									
		Aggregate									
		Sub base/ Base	78.3	21.48	0.22	15.3	34.48	7.6	2.25	49.2	Sufficient
2	Tinau River	Sand									
		Aggregate									
		Sub base/ Base	85.83	12.66	1.51	8.04	22.8	6	2.21	33.9	Sufficient
3	Badganga River	Sand									
		Aggregate									
		Sub base/ Base	96.33	3.56	0.11	15.3	23.52	5.95	2.23	31.28	Sufficient



b. Summary of Test Results of Construction Materials (Boulder)

S.N.	Location	Material	Bulk Specific Gravity (Oven Dry)	Bulk Specific Gravity (SSD)	Apparent Specific Gravity	Water Absorption	Estimated Quantity
1	Ghodahakhola	Boulder	2.642	2.667	2.71	0.96	Sufficient
2	Bhumahi	Boulder	2.694	2.728	2.788	1.244	Sufficient



Annex 13: Photographs



PHOTOGRAPH 1: PUBLIC HEARING



PHOTOGRAPH 2: INTERACTION WITH LOCAL PEOPLE



PHOTOGRAPH 3: INTERACTION WITH STAKEHOLDERS



PHOTOGRAPH 4: LOCAL PEOPLE GIVE THEIR OPINION



PHOTOGRAPH 5: STARTING POINT BHAGWANPUR (NEPAL –INDIA BORDER) AT CHAINAGE 0+000



PHOTOGRAPH 6: ROHINI WARD NO. 2 OFFICE ON THE ROAD SIDE AT CHAINAGE 1+910





PHOTOGRAPH 7: DHAKDHAIBAZAAR AT CHAINAGE 5+240



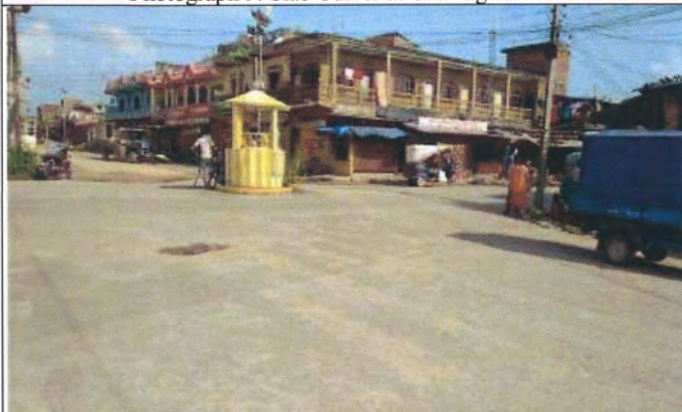
PHOTOGRAPH 8: ROAD SURFACE, DELINEATOR POSTS, SLAB CULVERT AT CHAINAGE 3+400



Photograph 9: Slab Culvert at Chainage 3+400



Photograph 10: Road Alignment at Chainage 13+090



PHOTOGRAPH 11: SHANKARPUR CHOWK AT CHAINAGE 11+690



PHOTOGRAPH 12: ENDPOINT KHAIRENI AT MAHENDRA HIGHWAY AT CHAINAGE 22+820



Photograph 13: Starting Point (India-Nepal Border, Bhagwanpur)



Photograph 14: Settlement and Mandir Within Formation Width

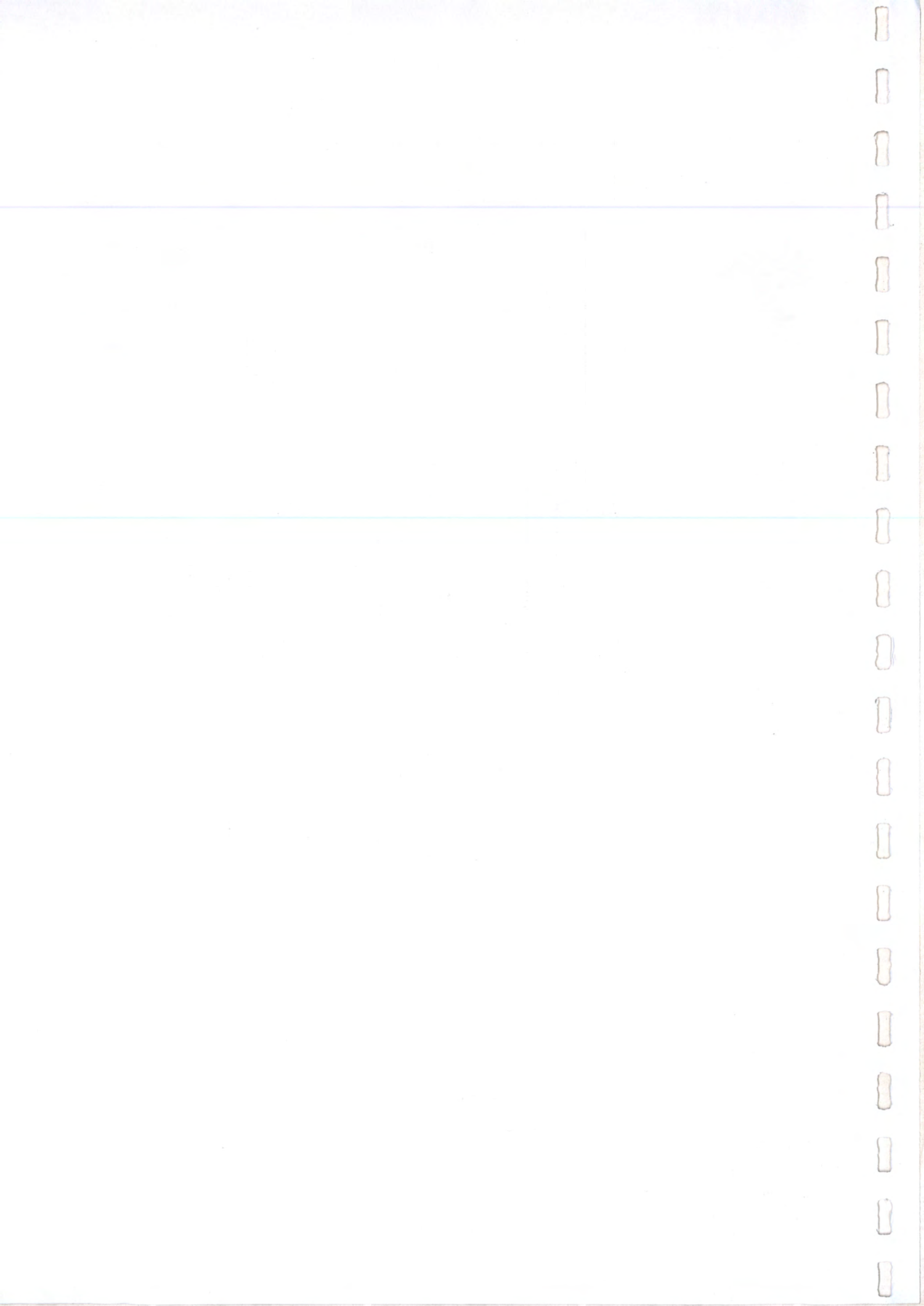


PHOTOGRAPH 15: PUBLIC CONSULTATION



PHOTOGRAPH 16: END POINT OF ALIGNMENT (KHAIRENI)





ANNEX 14: CV of Experts**Curriculum Vitae**

POSITION TITLE	Team Leader / Environment Safeguard Specialist
Name of Firm	Inclusive Consultant P. Ltd
NAME OF EXPERT	NAVARAJ POKHAREL
DATE OF BIRTH	11 December 1981
CITIZENSHIP	Nepalese

EDUCATION:

- **M.Sc. in Environmental Science (Distinction)**, Central Department of Environmental Science, T.U., Kathmandu, Nepal, 2005
- B.Sc. in Environmental Science, Tri-Chandra College, T.U., Kathmandu, Nepal, 2003

Key Qualification:

- Mr. Pokharel has completed M.Sc. in Environmental Science (Distinction), Central Department of Environmental Science, T.U., Kathmandu, Nepal, 2005 and B.Sc. in Environmental Science, Tri-Chandra College, T.U., Kathmandu, Nepal, 2003. He has undergone several trainings including Climate Risk Vulnerability assessment, EIA Training conducted by the School of Environment Management and Sustainable Development, Kathmandu (ScHEMS, Nepal) (2005). He has overall 10 years of professional experience in Disaster Riskfinancing, Management, Climate Risk, Environmental Impact Assessment, Initial Environment Examination, Impact of Climate Change on Livelihood of human beings, Solid Waste management Resettlement Plan, Environmental Management from Project Preparation, Solid Waste Management, Monitoring and Evaluation of Environmental and Social Aspects of Project, etc.

Training / Workshop / Seminar:

- Post Graduate Course on **Mountain Resources, Sustainability, Disaster and Economic Challenges** July3 to 19th July, 2017 Organized by **University Torino and University of Tuscan, Italy**
- As a Participant for Two Weeks Training on Global Environment Training (Environment Economics and Sustainability) conducted by **UNEP, Nairobi Kenya (November, 2015)**
- As a Participant for 4 Days Training for Trainer on **Participatory Disaster Risk Management** at Kathmandu on 11-14 June, 2013, organized by **University of Auckland, and Leaders Nepal**
- As a Participant for one day Training of **Safeguard Monitoring Software** for Asian Development Bank , Nepal Resident Mission , Kathmandu, March, 2013.
- As a Participant for Public **Private Partnership for Resource Management** Organized By Public Private partnership for Urban Environment (PPPUE), UNDP /MLD, Nepal Kathmandu 2 weeks (2007)
- As a participant in an 45-days long Training course on Remote Sensing and GIS course conducted by the Central Department of Geography, T.U. (2005).
- As a participant in a 15-days long EIA Training conducted by the School of Environment Management and Sustainable Development, Kathmandu (ScHEMS, Nepal) (2005).
- As a participant in a 7-days long Proposal Writing Training conducted by Nepal Health Research Council, Nepal (2005).

Research and Publication:

- <https://www.adb.org/sites/default/files/publication/481246/environmental-dimensions-sdgs-stocktake-report.pdf?fbclid=IwAR1Lup2kfdNf7afq19AW5bwsB4ek51OAbDMABIY1UbrSyZ8P1pMXBvf3EvE>
- Pokharel, N. (2007) "Ecotourism: A perspective for Nepal" research article published in The Earth Preservation, Volume 1, Issue 1.
- Pokharel, N.R & Joshi, D.(2009) "Assessment of the fuel wood resources and utilization: a case study of Deutiko Than Community Forest, in Mid hill of Nepal" Proceeding on Environment Energy and Water in Nepal: Recent



Researches and Direction for Future 31 March - 01 April 2009, Kathmandu, Nepal Organized by University of Yamanashi Japan

<http://www.nardf.org.np/seeport%20proj/part%201/chapter6/Chapter6Synopsis.htm#NRENV-6>

- Pokharel, N. R. (2008) Fuel wood Consumption and its impact on Forest area of Parbat District, Nepal Proceeding on The Fifth National Conference of Science and technology November 10-12 Kathmandu, Nepal, Organised by Nepal Academy of Science and Technology (NAST) Nepal
- Pokharel, N. R. & Uprety H. (2007) " Study of fuelwood consumption in Langtang Valley of Rasuwa District , Nepal" Proceeding published in National Conference on Environment 22-24 June 2007 Kathmandu, Nepal organised by Ministry of Environment Science and Technology Nepal Government.

Research Supervise

- "Ecotourism and environmental concern: case of Ghandruk Village of Kaski District" Dissertation for Master in Environmental Science, Tribhuvan University, Nepal.
- "Impact of Climate Change on Agriculture: Case of Dhading District" Dissertation for Master in Environmental Science, Tribhuvan University, Nepal.

Articles on Magazines

- Pokharel N (2013) Science at Work Article on The Republica Daily , 22nd July, 2013 http://myrepublica.com/portal/index.php/twb/?action=news_details&news_id=58172
- Pokharel N,(2013) **Disaster Risk, Challenges of Dealing with it** The Himalayan Times, April 15, 3013 <http://www.thehimalayantimes.com/fullNews.php?headline=Disaster+risk+&NewsID=372911>
- Pokharel, N(2009) "combating the climate change : individual decision important" Article published in The Himalaya Times, in 2009
- Pokharel, N(2010) "KATHAMANDU DEKHI COPENHAEGON SAMMA " Article published in GORKHAPATRA in 2 January 2010
- Pokharel, N(2009) "HAWAPANI PARIBARTAN " Article published in GORKHAPATRA in 6 June 2009
- Pokharel, N (2007) "Energy Consumption in Rural Area of Nepal" Article published in The Rising Nepal in 2007
- Pokharel, N(2008) "Energy use and climate change" Article published in The Himalaya Times, in 2008
- Pokharel, N (2008) "Public Private Partnership for development in Nepal" Article published in The Rising Nepal in 2009 http://www.gorkhapatra.org.np/detail.php?article_id=8824&cat_id=7
- Pokharel, N(2008) "KATHAMANDU KO JYANMARA HAWA " Article published in Kantipur daily in 18 March, 2008
- Pokharel, N (2008) "SANGHIYA RAJYA MA PARBYABARANIYA SIMANA " Article published in Kantipur daily in 11 March, 2008
- Pokharel, N(2065) "NAYA RAJYA PRANALIMA BIGYAAN PRABIDHI " Article published in ANNAPURNA POST daily in 5 FAGUN 2065 BS
- Pokharel, N(2065) "PRAKRITIK SHROT RA SANGHIYATA " Article published in ANNAPURNA POST daily 16 Baisakh 2065 BS
- Pokharel, N(2065) "FOHOR KO PUNA PRAYOG RA PRASODHAN " Article published in ANNAPURNA POST daily 8 Magh 2065 BS
- Pokharel, N(2009) "VUICHALO BIDHWANSA KO PARKHAI " Article published in GORKHAPATRA in 19 June 2009
- Pokharel, N(2007) "KATHAMANDU FOHOR BYABASTHAPAN MA SAJHEDARI " Article published in Kantipur daily in 29 November 2007
- Pokharel, N(2007) "KATHAMANDU YATAYATAMA NIYAMAN " Article published in Kantipur daily in 17 December 2007
- Pokharel, N(2065) "NEPALMA SAHARIKARAN KA MUDDA RA CHUNAUTI " Article published in ANNAPURNA POST daily in 24 Mangsir 2064BS
- Pokharel, N(2065) "SAHARI CHHETRA MA BATABARAN PUNABYABASTHAPAN KO AABASKATA " Article published in ANNAPURNA POST daily in 27 Poush 2064 BS
- Pokharel, N(2065) "SARBAJANIK NIJI SAJHEDHARI " Article published in ANNAPURNA POST daily in 7 kattik 2065 BS



EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT:

Period	Employing organization and your title/position.	Country	Summary of activities Performed Relevant to the Assignment
January 2016 onwards	<p>Employer; Multi Disciplinary Consultant P. Ltd</p> <p>Position: Team Leader / Environment Safeguard Specialist</p>	Nepal	Overall responsibility for the EIA Report Preparation of DPR , IEE and EIA works under the firm
December, 2013 to December, 2016	<p>Employer: Department of Hydrology and Meteorology, Government of Nepal. (Pilot Programme of Climate Resilience, Building Resilience to Climate Related Hazards (BRCH) Kathamandu, Nepal</p> <p>Position: Environment Safeguard Specialist</p>	Nepal	<p>Overall responsibility to implement the Building Resilience to Climate related Hazards (BRCH) throughout Nepal. It includes preparation of Environmental Assessment Report and approval from the concerned agency, including Weather RADAR , monitor for the waste management, preparation and implements the hazardous waste from Department of Hydrology and Meteorology.</p> <p>Preparation of Climate Disaster Management Plan for various Climate induced Disasters including the Floods, Landslides Cloud Burst and their Financial Analysis etc.</p>
March , 2018 to June , 2018	<p>Employer: Asian Development Bank, Manila, TA Strengthening Capacities to Design and Implement Smart Urban Infrastructure - (49378-001)</p> <p>Position Held: Climate Change and Disaster Risk (CRVA) Specialist</p>	Nepal	Overall responsibility for the Preparation of Climate risk Vulnerability Assessment and Climate change adaptation management Plan preparation and suggest to prepare the Project document for Urban Water Supply and Sanitation Project for Nepal.
January, 2018 to March , 2018	<p>Employer: Asian Development Bank,</p> <p>ADB TA-9245 Regional Capacity Building for Integration of Environmental SDGs into National Policy and Planning</p> <p>Position: National Coordinator</p>	Nepal	Overall responsibility for the integrations' of Environment on SDG documents of Nepal. Prepare and assist for the preparation of Stocktaking of SDG Environment documents for Nepal.



January, to March, 2017	Employer; UNICEF, Nepal Post: Environment Specialist for School Construction Project at Nuwakot, Kavrepalanchok and Sindhupalchok District , Nepal	Nepal	Preparation of the Disaster Management Plan for the Community and Public School while construction of the Teaching Learning Center (TLC) and Environmental Assessment. This includes the Scientific, Environmental and Financial Assessment.
September, 2016 to December, 2016(Intermittent)	Asian Development Bank, Manila Position Held: Climate Risk and Disaster Risk Specialist (46470-001) Nepal Rural Road Project	Nepal	Nepal Rural Road Project, Assessment of the Climate Risk and Disaster potential for the rural roads, Suggest for the Mitigation measures and adaptation measures based on the financial analysis for the climate risk and disasters aspects.
October, 2013 to December, 2013	EMPLOYER: SILT Consultant Pvt. Ltd POSITION HELD: Environment Safeguard and Disaster Specialist	Nepal	Consulting Service for Water Resource Project Preparatory Facility for Community Managed Irrigation Project Additional Financing by Asian Development Bank (ADB) and Government of Nepal Joint Project for Environment Assessment (Social, Cultural and Financial Assessment), environment Screening, Preparing Environment Management plans especially for 5 subprojects of Mid Hills.
April, 2013 to September, 2013	EMPLOYER: Adel Al-Obaid Engineering Consultants with Hamza Associates and in association with Multi Disciplinary Consultants (P)Ltd. and Total Management Service Pvt Ltd(Nepal POSITION HELD: Environment Safeguard Specialist	Nepal	Consulting Services for Sitapaila Dharke Road. 26 KM of Detail Design Study Road, OPEC Fund , Department of Roads, Foreign Department. Responsible for environment examination(Ecological, Social and Financial assessment), environment Screening ,Preparing Environment Management plans. Beneficial Population: 1,600,000
November 2011 To April , 2013	EMPLOYER: SNC Lavalin Canada in association with SILT Consultants (P) Ltd Consulting Services for Project Preparatory Consultant 1 for Road	Nepal	Consulting Services for Project Preparatory Consultant 1 for Road Component (PPC1 - Road – approx. 900 KM) of Transport Project Preparatory Facility (TPPF) with approx. 500 KM of Detail Design Study and more than 900 KM



	Component (PPC1 - Road – approx. 900 KM) of Transport Project Preparatory Facility (TPPF) POSITION HELD: Environmental Safeguard Specialist		Feasibility Study of Road, ADB Grant No. 0227 – NEP, Department of Roads, Project Directorate (ADB). Responsible for environment examination (Ecological, Social and Financial Assessment), environment Screening ,Preparing Environment Management plans.
February 2011 to December 2012	EMPLOYER: Tara Gaun Bikas Samiti Board, Ministry of Tourism, GoN POSITION HELD: Environmentalist/Climate Expert	Nepal	Coordination on the environmental and natural resource management aspects during the preparation of Tourism Master Plan .Preparation of District Tourism Master Plan for Achham ,District , Kavre District Nepal.
August 2009 to November 2011	EMPLOYER: ERMC (P.) Ltd POSITION HELD: Environmentalist/Team Leader	Nepal	Initial Environment Examination (IEE) of the proposed 400 kv Cross Boarder Transmission Line for Arun-3rd Project with Length 209 km (Sankhuwasabha, Bhojpur, Khotang, Udayapur, Dhanusha, Mahottari) from Diding of Sankhuwasabha - Dhalkebar- Bathanaha (India, Nepal Boarder).
2011 to 2012	EMPLOYER: ERMC (P.) Ltd POSITION HELD: Environmentalist/Team Leader	Nepal	Coordination on Preparation of Scoping, ToR and Environmental Impact Assessment (EIA) of Num - Kimathanka (72 km) Road Project Sankhuwasabha, GESU, Ministry of Physical Planning and Works, GoN. Total Cost;US\$ 18000 Beneficial Population: 250,000
January 2011 to 2013	EMPLOYER: Menchhiyam Hydropower Company POSITION HELD: Environmentalist/Team Leader	Nepal	Menchhiyam Menchhiyam Hydropower Company, Ltd. Itahari, Coordination on preparation and approval of ToR and Initial Environment Examination (IEE) of the proposed project Upper Piluwa Khola



			Hydropower Project Sankhuwasabha, Nepal with installed capacity, 2.475 MW. Total Cost;US\$ 45000 (Detail Design) Beneficial Population: 100,000
January 2012 to August 2012	EMPLOYER: Nepal Health Care Co-operative Ltd Kathamandu POSITION HELD: Environmentalist/Team Leader	Nepal	Coordination on Preparation and approval of Terms of References (TOR) and Initial Environment Examination (IEE) of the Manamohan Memorial Eastern Regional Hospital, with 100 beds capacity, in Jhapa.
January 2012 to August 2012	EMPLOYER: Energy Venture Pvt. Ltd POSITION HELD: Environmentalist/Team Leader	Nepal	Coordination on Preparation and approval of Scoping, ToR and Environmental Impact Assessment (EIA) study reports of the Lapche Khola Hydropower Project in Dolkaha with installed capacity of 99 MW. Total Cost;US\$ 115000 (Detail Design) Beneficial Population: 500,000
January, 2011 to March,2012	EMPLOYER: Siddhartha Environmental Service, Nepal POSITION HELD: Environmentalist	Nepal	Preparation of Scoping and ToR for Bheri-Babai Multipurpose Diversion Project component B , Dol, Nepal Total Cost;US\$ 5000 Beneficial Population: 100,000
December 2011 To February 2013	EMPLOYER: Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal POSITION HELD: Environmentalist/Team Leader	Nepal	Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal. Coordination on Preparation of Scoping, ToR and Environmental Impact Assessment Study Report of Suri Khola Hydropower Project, Dolakha with installed capacity of 3.6 MW, Field Survey, Public consultation on Environmental Impact Assessment study report preparation and Approval. Total Cost;US\$ 65000 (Detail Design) Beneficial Population: 100,000

May 2011 To October 2012	EMPLOYER: Peoples, Hydropower Pvt. Ltd, Anamnahgar, Kathamandu POSITION HELD: Environmentalist/Team Leader	Nepal	Coordination on Preparation of the ToR for IEE, Identify, Predict and Management of various issues and preparation of Environmental Management Plan for 49.6 MW Hydropower at Dordi Khola of Lamjung District, Nepal. Total Cost;US\$ 95000 (Detail Design) Beneficial Population: 100,000
December 2007 To July 2011	EMPLOYER: District Development Committee Office, Kaski, Pokhara POSITION HELD: Environmentalist/Team Leader	Nepal	Prepare the Initial Environment Examination (IEE) of the Sustainable Sand, Gravel and stone collection from the Seti, Madi, Bhurjung and other rivers of Kaski District, DDC Kaski study Report including field visit, Public consultation field survey and approved from Ministry of Local Development, GoN. Total Cost;US\$ 10000 Beneficial Population: 400,000
June 2010 To Dec 2011	EMPLOYER: e-RG Nepal POSITION HELD: Environmentalist	Nepal	Coordination on Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechaap District. Total Cost;US\$ 10000 Beneficial Population: 50,000
November 2009 To November 2011	EMPLOYER: e-RG Nepal POSITION HELD: Environmentalist	Nepal	Coordination on Preparation and Approval of Scoping, ToR and EIA study for the Deumai Khola Medium Reservoir Hydropower Project, with 30 MW, Ilam. Total Cost;US\$ 7000 Beneficial Population: 50,000



Jan 2009 To April 2011	EMPLOYER: e-RG Nepal POSITION HELD: Environmentalist	Nepal	Coordination on Preparation and approval of EIA study of Upper Tadi Hydroelectric Project installed Capacity 11 MW at Nuwakot District. Total Cost;US\$ 75000 (Detail Design) Beneficial Population: 50,000
April 2009 To May 2010	EMPLOYER: e-RG Nepal POSITION HELD: Environmentalist	Nepal	Preparation Of Tor And IEE Study Of Puwa Khola Small Hydropower Project With 2.4 Mw, Ilam. Total Cost;US\$ 35000 (Detail Design) Beneficial Population: 50,000
2010	EMPLOYER: Finland Consulting Group, ERMC Nepal POSITION HELD: Environmental Specialist	Nepal	Handle all environment aspects of the Pre-Project Technical Assistance of the Community Irrigation Project , funded By Asian Development Bank (ADB) with Department of Irrigation, GoN. Total Cost;US\$ 20,000 (Detail Design) Beneficial Population: 100,000
January 2010 to March 2012	EMPLOYER: Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB) POSITION HELD: Team Leader/Environmentalist	Nepal	Handle all the Urban Environmental and Improvement Project (UEIP), Kathmandu; Environmental Impact Assessment (EIA) of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project at Banepa, Dhulikhel and Panauti Municipalities of Kavre District funded by, Asian Development Bank Total Cost;US\$ 85000 (Detail Design) Beneficial Population: 150,000
January 2010 to March 2012	EMPLOYER: Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)	Nepal	Social Impact Assessment (SIA) of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)

	POSITION HELD: Environmentalist		Total Cost;US\$ 85000 (Detail Design) Beneficial Population: 150,000
February 2008 to June 2009	EMPLOYER: Himalayan Hydropower Company, Nepal POSITION HELD: Environmentalist	Nepal	Responsible for the Biological aspects of Environmental Impact Assessment (EIA) of Super Madi Hydropower (44 MW) Kaski, Nepal. Total Cost;US\$ 20000 (Detail Design) Beneficial Population: 100,000
June 2007 To August 2007	EMPLOYER: ERMC (P) Ltd POSITION HELD: Environmentalist	Nepal	Environmental data collection for the Bagmati Watershed Development Project from various districts of Bagmati Watershed Total Cost;US\$ 25000 (Detail Design) Beneficial Population: 600,000
January 2006 To January 2011	EMPLOYER: e-RG Consultancy, Kathmandu, Nepal POSITION HELD: Environmentalist	Nepal	Partial inputs for various Environmental Impact Assessment Projects on different sectors.
February 2009 To July 2010	EMPLOYER: Himalayan Hydropower Company Kathmandu, Nepal POSITION HELD: Environmentalist	Nepal	Responsible for the Biological Environment of Environmental Impact Assessment (EIA) of Namarjuna Madi Hydropower (20 MW) Kaski, Nepal.
February 2007 To January 2009	EMPLOYER: Nepal Jalabidhyut Prabardhan Company, Kathmandu, Nepal POSITION HELD: Environmentalist	Nepal	Coordination on preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal as Biological Aspects. Total Cost;US\$ 3000 Beneficial Population: 50,000



February 2007 To January 2009	EMPLOYER: UNDP POSITION HELD: Environmentalist	Nepal	Support on the various urban environment related projects under Public Private Partnership for Urban Environment, UNDP Supported Project. This Project was Working on the Management of urban environmental problems through Public private Partnership mechanism in 10 municipalities of Nepal
March 2005 To August 2005	EMPLOYER: TRPAP/UNDP/MoTCA POSITION HELD: Environmentalist	Nepal	Collection of the environmental data from Langtang National Park area on environmental and forest based data.
2003 to 2005	EMPLOYER: The Earth Preservation a magazine POSITION HELD: Chief Editor	Nepal	The Earth Preservation a magazine of Environment; Coordinate on the Publishing the magazine including the editing and setting the magazine "The Earth Preservation" Environmental Magazine about "Natural Resource Management and Pollution Control".
Aug2007- ill to date	Environmental Science Lecturer for College of Applied Sciences, Nepal	Nepal	Teaching and supervise on Environmental Science for the Bachelor and Master level of Student based on the Tribhuvan University Course.

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS AND PUBLICATIONS:

- General Secretary, Environment Protection Campaign, Nepal registered and working Non Governmental Organization of Nepal
- Member, Nepal Environmentalist Association
- Member, Global Mountain Forum, ICIMOD,
- Member. Environmental Graduates of Himalayas (EGH)

LANGUAGE SKILLS:

	Speaking	Reading	Writing
Nepali	Mother Tongue		
English	Excellent	Excellent	Excellent
Hindi	Excellent	Excellent	Excellent



ADEQUACY FOR THE ASSIGNMENT:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p>Name of the Assignment: Various Employer: Multi Disciplinary Consultants Pvt. Ltd ; Location: Kathamandu , Field;Position held: Team Leader : (i) Review all available relevant project documents and, in close with client ;(ii) Collate, organize, and review available baseline biophysical, environmental, demographic, socioeconomic, and policy data and information relevant to climate risk management within the context of the project Prepare IEE, EIA Reports. Name of Project Involved :</p> <ul style="list-style-type: none"> • Master Plan and Detailed Engineering Design of Shopping Complex at Rupakot Municipality, Diktel, Khotang June 2018 Dec 2019 • Master Plan and Detailed Engineering Design of Multipurpose Building at Lalitpur Metropolitan City, Lagankhel June 2018 Feb 2020 • Topographical Survey, Soil Investigation, Detailed Architectural and Engineering Design and Detailed Water Supply Survey and Design of Dhaulagiri Polytechnic Institute at Balewa, Baglung District July 2013 April 2014 • Study, Design and Construction Supervision of Four Regional Markets (Contract ID PACT / S - AF 20.a/2013) <ul style="list-style-type: none"> ❖ Fruit and Vegetable Wholesale Market, Katahari, ❖ Biratnagar ❖ Livestock Poultry Wholesale Market, Damak, Jhapa ❖ Fruit and Vegetable Wholesale Market, Butwal, ❖ Rupandehi, ❖ Livestock and Poultry Wholesale Market, ❖ Mahendrangar, Dhanusha Dec 2014 to Dec 2018 • Feasibility Study and Master Plan and Detailed Engineering of Regional Bus park Project in Pokhara- Lekhnath Metropolitan City, Pokhara July 2018 January 2020 • Topographical Survey, Soil Investigation, Master Plan, Preparation and Cost Estimate for Madan Pokhara Polytechnic Institute, Damkada, Palpa (Contract No. CTEVT/TEVT Exp 069/70/AED-04) August 2013 to April 2014 • Topographical Survey, Soil Investigation, Master Plan, Preparation and Cost Estimate for Rolpa Polytechnic Institute, Liwan, Rolpa (Contract No. CTEVT/TEVT Exp 069/70/AED-01) August 13 to April 2014 • Feasibility Study and Detail Engineering Design of Model Waste Processing (Management) Center with Material Recovery Facilities (MRF) at 7 Different Places of 7 States, the Contract ID No. SWMTSC/S/QCBS-I March 2017 to July 2018 • Master Plan and Detailed Engineering Design of Bus park July 2016 April 2017 • Study, Design and Construction Supervision of Four Regional Markets (Contract ID PACT / S - AF 20.a/2013) • Detailed Design and Construction Supervision of Administrative Building of Lumbini development Scared Garden at Lumbini, Rupandehi July 2013 Nov 2015 • Local Road Asset Management Support (LRAMS) {Package: RAP3/2013/011 Achham District} Feb 2014 to Jan 2016 • Environmental Impact Assessment (EIA) of Seti-Lok-Marga Package No. GESU/SLM-01/067-68 Jan 2012 to Nov 2016



- EIA Study for the Construction of GETA Medical College, Geta,
- Kailali, Contract No. GMC-K/S/LCS-1/EIA Study May 2015 to July 2016
- "Master Planning and Detailed Project Report (DPR) Preparation of Buddha Statue (World's Tallest Buddha Statue)" July 2016 to Feb 2017
- Construction of Technical Cum Administrative Building Complex of NTC June 2005 to June 2015
- Design and Supervision Consultant's Services in Melamchi Water Supply Project/ Melamchi Diversion Scheme/ Contract MDS/DT/01 July 2008 to May 2015
- Detailed Engineering Survey, Design and Cost Estimate for Banchara Danda Long-Term Sanitary Landfill Site July 2014 to July 2015
- Initial Environmental Examination (IEE) of Infrastructure Development Project of Hile Weekly Market August 2014 to March 2014
- Preparation of Detailed Engineering Design of Land Development Programme (DPR) of Biratnagar Ring Road Oct 2014 to July 2016
- Detail Engineering Survey, Design and Report Preparation of Road of (i) Kaptangaunj Pawo Simar, (Sima)Nayahatiya-Paschim Devgunj
- Kandhyaharshahi-Thana –Ramnagar-Bhutaha Chaprahi-Narshing-Janta Choke
- MRM Sunsari.(24.5km), (ii) Kathauna Pato sadak, Saptari (17.8km), (iii) Siraha Na Pa 2-Goriya-Laxminiya-Sikka-Joti-Lagadi Gadiyani Sadak, Siraha (8.3km) (iv) Fuljor-Ishworpur-Babargunj-Mohanpur-Buhaypuri-Velhi-Triviwannagar sadak, Sarlahi (23.1km), (v) Nagarain chwok-Purwari Tole-Lahukiya sadak, Dhanusha
- (4.5km),(vi) Shubachwok Dhanushadham Dharapani Section of Jatahi Shubachwok
- Dhanushadham Dharapani Sadak, Dhanusha (11.7km) Contract ID:
- PME/337159/073/74 DPR 17 2018
- Topographical Survey, Soil Investigation, Detailed Architectural and Engineering Design and Detailed Water Supply Survey and Design of Dhaulagiri Polytechnic Institute at Balewa, Baglung District July 2013 April 2014
- Topographical Survey, Soil Investigation, Master Plan, Preparation and Cost Estimate for Madan Pokhara Polytechnic Institute, Damkada, Palpa (Contract No. CTEVT/TEVT Exp 069/70/AED-04) August 2013 April 2014
- Topographical Survey, Soil Investigation, Master Plan, Preparation and Cost Estimate for Rolpa Polytechnic Institute, Liwan, Rolpa (Contract No. CTEVT/TEVT Exp 069/70/AED-01) August 2013 April 2014
- Feasibility Study of Highway, Nepalthok – Pokhara Sector of Puspahal (MidHill) Highway "Ch 0+000 to Ch 272+695", Contract No. MHH/FS/2-01/068/69 March 2012 to Sep 2012
- Detailed Engineering Survey, DCP Test, Design of
- Roads, Concise IEE Study and Cost Estimate &
- Preparation of Detailed Project Report (DPR) of
- Sahajpur – Bogtan Dipayal Road in Doti District June 2013 to August 2015

Name of the Assignment: Supporting Implementation of Environment-Related Sustainable Development Goals in Asia and the Pacific **Employer:** Asian Development Bank, Manila ; **Location Kathamandu** **Position held:** National Coordinator for Environmental SDGs (Nepal) (50158-001) **Activities performed:** The ADB approved a regional technical assistance (TA) 9245 on Supporting the Implementation of Environment-Related Sustainable Development Goals (SDGs) in Asia and the Pacific in November 2016 this TA seeks to strengthen the capacities of developing member countries (DMCs) to integrate the environmental dimensions of the SDGs into their national policies, plans and programs; and to address implementation issues, such as strengthening environmental data, developing partnerships mobilizing finance and harnessing science, technology and innovation.

The TA requires the engagement of a national coordinator with expertise in environment-related SDGs (SDG 12, 14, and 15) to support the stocktaking study on mainstreaming of environment-related SDGs. The consultant will support the ADB TA officer, TA lead, and TA coordinator.



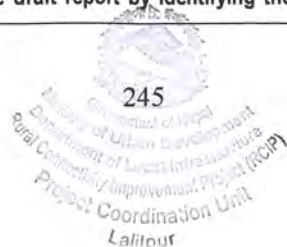
	<ul style="list-style-type: none"> i. Liaise with ADB Resident Mission, government ministries, and development partners to fill in the identified stocktaking gaps. ii. Prepare a Stocktaking Report of Nepal iii. Assist liaising with the workshop participants and helping them prepare presentation.
	<p>Name of the Assignment: Building Resilience to Climate Related Hazards, (BRCH) a project by Pilot Programme on Climate Resilience(PPCR) , GoN Employer: Department of Hydrology, Meteorology, Ministry of Science, Technology and Environment, GoN ; Location: Kathamandu; Position held: Environment Safeguard Specialist; Activities performed: Ensuring that each subproject and activities under the project is subjected to the Project ESMF process and procedures. , Prepare guidelines, tools and notes for use in the project based on relevant environmental policies, acts and regulations/ directives of the Government of Nepal (GoN) and relevant safeguard policies of World Bank Group and the ESMF; Carry out environmental screening of subprojects and activities, and help to prepare subproject or activity specific Environmental Management Plans (EMPs). , Organize environmental orientation & awareness, and training , Help commissioning and managing Initial Environmental Examination (IEE), if necessary and other special studies/ assessment such as hazardous & e-waste management. Prepare environmental information materials and help the client in disseminating the information to the relevant Support the client in recruiting and managing independent consultant for mid-term and end-term evaluation of ESMF Compliance.</p> <p>Identify requirements of permission for setting up observation and measurement system in areas secured for conservation and protection;</p> <p>Coordinate with relevant agencies for obtaining permission;</p> <p>Communicate with vendors, contractors, and subcontractors for necessary environmental compliance;</p> <p>Evaluate environmental risks associated with floods, landslides, erosion, bank cutting and shifting channel as a result of project activities;</p> <p>Monitor potential collaboration with specific key stakeholders, such as Ministry of Science, Technology and Environment, Department of Wildlife and National Parks, Department of Forest,</p>
	<p>Name of the Assignment: Preparation of Disaster Risk management Plan and Environmental Assessment Plan for the Reconstruction of The school Building at Sindhupalchok, Nuwakot and Kavrepalanchok District Employer: UNICEF, Nepal ; Location: Kathamandu , Field ; Position held: Disaster Risk Management and Environment Safeguard Specialist; Activities performed: Preparation of Disaster Risk management and Environment Assessment Plan for the School Building and Teaching Learning Ceter (TLC) for Sindhupalchok, Nuwakot and Kavrepalanchok Districts.</p>



	<p>Name of the Assignment: Preparation of Climate Risk and Disaster Management Plan for 4 Selected Roads for the Neplese Hilly Roads Employer: Asian Development Bank(Nepal Rural Roads Improvement Project), Nepal ; Location: Kathamandu , Field ;Position held: Climate Risk and Disaster Managemnet Specialist; Activities performed: (i) Support CRVA consultations and assist the International Climate Scientist to develop a methodological framework for the CRVA studies pertinent to the context and objective of the investment project; (ii) Undertake data collection and research, for the development of the methodological framework and climate change scenarios, including where necessary providing support and coordination for obtaining permissions for data access;(iii) Support the coordination and management of the CRVA activities including providing logistical and communication support (iv) Provide regular updates on CRVA activities, including the proposing of realistic corrective measures, if required; (v) Assist in the preparation of the final CRVA report;(vi) Liaise with the ADB teams and government counterparts in the discussions on the identified vulnerabilities of the project and the associated risks to the structural components of the project under these scenarios, including implications for performance nd operation;(vii) Support the identification and assessment of adaptation measures and required changes in the project design, and provide necessary input on considerations for national regulatory frameworks and standards for design and construction;(viii) Perform other tasks as deemed necessary to ensure the successful execution of the assignment and outputs.</p>
	<p>Name of the Assignment: Consulting Services for Project Preparatory Consultant 1 for Road Component (PPC1 - Road – approx. 900 KM) of Transport Project Preparatory Facility (TPPF); Employer: SILT Consultant Pvt Ltd; Location: ; Main Project features: ;Position held: Environmentalist; Activities performed: Transport Project Preparatory Facility (TPPF) with approx. 500 KM of Detail Design Study and more than 900 KM Feasibility Study of Road, ADB Grant No. 0227 – NEP, Department of Roads, Project Directorate (ADB).Responsible for <i>environment examination, environment Screening ,Preparing Environment Management plans. Preparation of ToR for all the sub projects as per the rule of GoN. Collection of the Baseline information of Physical, Biological and Social environment. Identification of the possible impacts and preparation of the EMP for all roads separately. Preparation of IEE and EIAof the proposed roads as per the guidelines of the Asian Development Bank. Public hearing and focus group discussion with all the stakeholders and collection of the suggestions and comments from the Governmental and Non Governmental stakeholders. Preparation of BiD Documents for the Proposed Roads on EMP. Inputs on the Feasibility reports of all the sub projects and Detail Design reports for all the Roads.</i></p>



	<p>Name of the Assignment: preparation of Tourism Master Plan; Year: February 2011 to June 2012; Employer: Tara Gaun Bikas Samiti Board, Ministry of Tourism, GoN; Location: Kathamandu; Main Project features: Preparation of the Tourism Master Plan for the Achham and Kavre District; Position held: Environmentalist; Activities performed: Coordination on the environmental and natural resource management aspects during the preparation of Tourism Master Plan. Collection of the data related to the Natural resources. Identification of the possible environmental inputs during the preparation of the Tourism on Master Plan of both districts. Preparation of the Management Plan for the Tourism activities. Identification of the sectorwise possible tourism development areas, Collection of the perception of the local peoples on the tourism development. Presentation of the Master plan of the district with the various stakeholders.</p>
	<p>Name of the Assignment: Initial Environment Examination (IEE) of the proposed 400 kv Cross Boarder Transmission Line for Arun-3rd Project with Length 209 km; Employer: ERM (P.) Ltd; Location: Sankhuwasabha, Bhojpur, Khotang, Udayapur, Dhanusha, Mahottari; Position held: Environmentalist; Activities performed: Initial Environment Examination (IEE)</p> <p>Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR for IEE. Collection of the Baseline data from the Project affected area of Sankhuwasabha, Bhojpur, Khotang, Udayapur, Dhanusha, Mahottari districts on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Presentation made on the team of experts with Ministry of Energy. Get approval of the EIA report of the proposed project.)</p>
	<p>Name of the Assignment: Preparation of Scoping, ToR and Environmental Impact Assessment (EIA) of Num - Kimathanka (72 km) Road Project; Year: 2011 to 2012; Employer: ERM Nepal.; Location: Sankhuwasabha,; Position held: Environmentalist/Team Leader; Activities performed:</p> <p>Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Sankhuwasabha District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Make correction and incorporation of the comments from the Public Hearing. Presentation made on the team of experts with Ministry of Environment. Get approval of the EIA report of the proposed project.</p>
	<p>Name of the Assignment: Initial Environment Examination (IEE) of the proposed project Upper Puluwa Khola Hydropower Project; Year: January 2011 to 2013; Employer: Menchhiyam Hydropower Company, Ltd. Itahari; Position held: Environmentalist/Team Leader; Activities performed: Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR for IEE. Collection of the Baseline data from the Project affected area of Sankhuwasabha on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the</p>



mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Presentation made on the team of experts with Ministry of Energy. Get approval of the EIA report of the proposed project..

Name of the Assignment: *Initial Environment Examination (IEE)* of the Manamohan Memorial Eastern Regional Hospital, with 100 beds capacity; **Year:** January 2012 to August 2012; **Employer:** Nepal Health Care Co-operative Ltd Kathamandu

; **Position held:** Environmentalist/Team Leader; **Activities performed:** Coordination on Preparation and approval of Terms of References(TOR) *and Initial Environment Examination (IEE)* of the Manamohan Memorial Eastern Regional Hospital, with 100 beds capacity, in Jhapa.

Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR for IEE. Collection of the Baseline data from the Project affected area of Jhapa on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Presentation made on the team of experts with Ministry of Energy. Get approval of the EIA report of the proposed project.

Name of the Assignment: *Environmental Impact Assessment (EIA) study reports* of the Lapche Khola Hydropower Project; **Year:** January 2012 to August 2012; **Employer:** Energy Venture Pvt. Ltd; **Position held:** Environmentalist/Team Leader; **Activities performed:** Coordination on Preparation and approval of Scoping, ToR and *Environmental Impact Assessment (EIA) study reports* of the Lapche Khola Hydropower Project in Dolkaha with installed capacity of 99 MW. **Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Dolakha District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Make correction and incorporation of the comments from the Public Hearing. Presentation made on the team of experts with Ministry of Environment. Get approval of the EIA report of the proposed project.**

Name of the Assignment: *Environmental Impact Assessment* Study Report of Suri Khola Hydropower Project, Dolakha with installed capacity of 3.6 MW; **Year:** December 2011 To February 2013; **Employer:** Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal.; **Position held:** Environmentalist/Team Leader ; **Activities performed:** Preparation of Scoping, ToR and *Environmental Impact Assessment* Study Report of Suri Khola Hydropower Project, Dolakha with installed capacity of 3.6 MW,

Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Dolakha District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination



on Public Hearing at Project site and discussion with governmental and non governmental organizations. Make correction and incorporation of the comments from the Public Hearing. Presentation made on the team of experts with Ministry of Environment. Get approval of the EIA report of the proposed project.

Name of the Assignment: Preparation of Scoping and Bheri- Babai Multipurpose Project with 50 MW at Surkhet District.; **Year:** Jan 2011 To March 2012; **Employer:** Siddhartha Environmental Services, Nepal; **Position held:** Environmentalist; **Activities performed:** Coordination on Preparation of Scoping and ToR of Bheri- Babai Multipurpose Project Hydropower and Irrigation Component B. **Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Surkhet District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them**

Name of the Assignment: preparation of Environmental Management Plan for 49.6 MW Hydropower at Dordi Khola of Lamjung District, Nepal; **Year:** May 2011 To October 2012; **Employer:** Peoples, Hydropower Pvt. Ltd, Anamnahgar, Kathamandu; **Position held:** Environmentalist/Team Leader; **Activities performed:** Coordination on Preparation of the ToR for IEE, Identify, Predict and Management of various issues and preparation of Environmental Management Plan for 49.6 MW Hydropower at Dordi Khola of Lamjung District, Nepal.

Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR for IEE. Collection of the Baseline data from the Project affected area of Lamjung on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Presentation made on the team of experts with Ministry of Energy. Get approval of the EIA report of the proposed project.

Name of the Assignment: Initial Environment Examination (IEE) of the Sustainable Sand, Gravel and stone collection from the Seti, Madi, Bhurjung and other rivers of Kaski District; **Year:** January to October 1998; **Employer:** District Development Committee Office, Kaski, Pokhara; **Position held:** Environmentalist/Team Leader; **Activities performed:** Prepare the Initial Environment Examination (IEE) of the Sustainable Sand, Gravel and stone collection from the Seti, Madi, Bhurjung and other rivers of Kaski District, DDC Kaski study Report including field visit, Public consultation field survey and approved from Ministry of Local Development, GoN.

Name of the Assignment: Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechaap District.; **Year:** June 2010 To Dec 2011; **Employer:** e-RG Nepal; **Position held:** Environmentalist; **Activities performed:** Coordination on Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechaap District. **Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Ramechhap District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them**

Name of the Assignment: Scoping, ToR and EIA study for the Deumai Khola Medium Reservoir Hydropower Project, with 30 MW ; **Year:** November 2009 To November 2011; **Employer:** e-RG Nepal; **Position held:** Environmentalist; **Activities performed:** Coordination on Preparation and



Approval of Scoping, ToR and EIA study for the Deumai Khola Medium Reservoir Hydropower Project, with 30 MW, Ilam.

Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Ilam District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Make correction and incorporation of the comments from the Public Hearing. Presentation made on the team of experts with Ministry of Environment. Get approval of the EIA report of the proposed project.

Name of the Assignment: Preparation and approval of *EIA study* of Upper Tadi Hydroelectric Project ; **Year:** Jan 2009 To April 2011; **Employer:** United Builders, Kathamandu; **Position held:** Environmentalist/Team Leader; **Activities performed:** Coordination on Preparation and approval of *EIA study* of Upper Tadi Hydroelectric Project installed Capacity 11 MW at Nuwakot District. **Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Nuwakot District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Make correction and incorporation of the comments from the Public Hearing. Presentation made on the team of experts with Ministry of Environment. Get approval of the EIA report of the proposed project.**

Name of the Assignment: Preparation of ToR and *IEE Study* Of Puwa Khola Small Hydropower Project With 2.4 Mw, Ilam; **Year:** April 2009 To May 2010; **Employer:** Joshi Hydropower Company, Kathamandu, Nepal; **Position held:** Team Leader; **Activities performed:** Coordination on Preparation and approval of Puwa Khola Small Hydropower Project With 2.4 Mw, Ilam.

Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR for IEE. Collection of the Baseline data from the Project affected area of Ilam on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Presentation made on the team of experts with Ministry of Energy. Get approval of the EIA report of the proposed project.

Name of the Assignment: *Community Irrigation Project*, funded By Asian Development Bank (ADB); **Year:** 2010; **Employer:** Finland Consulting Group, ERM Nepal; **Position held:** Environmentalist; **Activities performed:** Identification of the pre sub projects to identify the possible environmental aspects of the whole project. Conduct IEE including the identification of Environmental impacts, Mitigation of the projects environmental impacts and preparation of the IEE report as per the ADB Guidelines.



Preparation of Environmental and Social Management guidelines of the proposed project. Preparation of methodology to categories the Environmental impacts of the projects on Pre Project Technical Assistance period.

Name of the Assignment: Environmental Impact Assessment Kavre Valley Water Supply Project, Kavre District, Nepal. Urban Environmental and Improvement Project (UEIP); **Year:** January 2010 to March 2012; **Employer:** BDA, TAEC, ICON Nepal Consortium; **Position held:** Team Leader/Environmentalist; **Activities performed:** EIA of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project at Banepa, Dhulikhel and Panauti Municipalities of Kavre District

Identification of the Project impact areas, Collection of the Baseline information on Physical, Biological and Social domain, Preparation of the ToR and Scoping Documents for EIA. Collection of the Baseline data from the Project affected area of Kavre District on Physical, Biological and Social domain. Preparation of the draft report by identifying the possible impacts and proposing the mitigation measures for them. Make coordination on Public Hearing at Project site and discussion with governmental and non governmental organizations. Make correction and incorporation of the comments from the Public Hearing. Presentation made on the team of experts with Ministry of Environment. Get approval of the EIA report of the proposed project.

Name of the Assignment: Social Impact Assessment (SIA) of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP); **Year:** January 2010 to March 2012; **Employer:** Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB); **Position held:** Environmentalist; **Activities performed:** Social Impact Assessment (SIA) of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB). **Responsible for the activities related with the various environmental aspects of the SIA. Identification of the Physical and Biological impacts of the proposed project. Support for the identification of the overall impacts of the proposed project on the environment. Support on the preparation of the report for ADB and finalization of the Physical and Biological impacts, Mitigation and compensation for the proposed project affected area of Kavre District.**

Name of the Assignment: Environmental Impact Assessment (EIA) of Super Madi Hydropower (44 MW) Kaski, Nepal; **Year:** June 2007 To August 2007; **Employer:** Himalayan Hydropower Company, Nepal; **Position held:** Environmentalist; **Activities performed:** Responsible for the Biological Environment of **Environmental Impact Assessment (EIA)** of Super Madi Hydropower (44 MW) Kaski, Nepal. Identification and preparation of scoping document for the proposed Hydropower Project. Collection of the baseline data for the Proposed Environmental Study. Identification of the impacts especially on the forest area of the proposed Hydropower Project. Analysis of the various Environmental data's from the field about the forest and aquatic environment. Propose for the various mitigation measures for the various environmental impacts of the hydropower project to the biological environment. Preparation of the Environmental Impact Assessment report. Support for the Public Hearing with the various project affected stakeholders. Make presentation at Ministry of Environment and incorporation of the comments and suggestions for the report.

Name of the Assignment: Bagmati Watershed Development Project; **Year:** February 2008 to June 2009; **Employer:** ERMC Nepal **Position held:** Environmentalist; **Activities performed:** Responsible for the data collection for the various areas on the Bagmati catchment specially the water sources and level of pollution. Identification of all the water resources of the area and plot them all on the toposheet. Collection of the Muchukas from the all of the project affected VDCs and DDCs. Discussion about the requirements and availability of the various water resources on the project



<p>affected area and the various stakeholders. Discussion with the local stakeholders on the alternative sources of the water sources on the project affected area. Support on the preparation of the report about the status of the water sources on Bagmati River Basin and Catchment areas etc.</p>
<p>Name of the Assignment: Environmental Impact Assessment Projects on different sectors; Year: January 2006 To January 2011; Employer: e-RG Consultancy, Kathmandu, Nepal; Position held: Environmentalist; Activities performed: Partial inputs for various Environmental Impact Assessment Projects on different sectors. Monitoring of the environmental Management Plan Implementation for the Hydropower Project. Preparation of the Monitoring Reports for the Environmental aspects.</p>
<p>Name of the Assignment: <i>Environmental Impact Assessment (EIA)</i> of Namarjuna Madi Hydropower (20 MW) Kaski, Nepal; Year: February 2009 To July 2010; Employer: Himalayan Hydropower Company Kathmandu, Nepal; Position held: Environmentalist; Activities performed: Responsible for the Biological Environment of <i>Environmental Impact Assessment (EIA)</i> of Namarjuna Madi Hydropower (20 MW) Kaski, Nepal. Identification and preparation of scoping document for the proposed Hydropower Project. Collection of the baseline data for the Proposed Environmental Study. Identification of the impacts especially on the forest area of the proposed Hydropower Project. Analysis of the various Environmental data's from the field about the forest and aquatic environment. Propose for the various mitigation measures for the various environmental impacts of the hydropower project to the biological environment. Preparation of the Environmental Impact Assessment report. Support for the Public Hearing with the various project affected stakeholders. Make presentation at Ministry of Environment and incorporation of the comments and suggestions for the report.</p>
<p>Name of the Assignment: Preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal; Year: February 2007 To January 2009; Employer: Nepal Jalabidhyut Prabardhan Company, Kathmandu, Nepal; Position held: Environmentalist; Activities performed: Coordination on preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal as Biological Aspects. Identification of the project impacts on the biological resources of the proposed project. Collection of the environmental data's from the project affected areas. Collection of the data relating to the aquatic environment of the project vicinity areas. Get discussion and collection of the various suggestions and comments from the stakeholders of the proposed project. Make IEE Report and collection of the comments from the concern line ministry. Incorporation and finalization of the report and get approval from the Ministry of energy, GoN.</p>
<p>Name of the Assignment: Projects Under Public Private Partnership For Urban Environment; Year: March 2005 To August 2005; Employer: PPPUE/ MoLD/ UNDP; Position held: Environmentalist; Activities performed: Support on the identification of the possible Public Private Partnership project on the various urban areas. (10 Municipalities). Support for the preparation of the various PPP projects to solve the urban environment problems. Support for the implementation of the proposed PPP projects coordinating with the agencies of Local Development Ministry.</p>
<p>Name of the Assignment: Langtang National Park area; Year: February 2007 To January 2009; Employer: TRPAP/UNDP/MoTCA; Position held: Environmentalist; Activities performed: Collection of the environmental data from Langtang National Park area on environmental and forest based data. Support for the preparation of the report relating to the environmental impacts of the tourism on Langtang area. Group discussion with the local stakeholders of the project area.</p>



Identification of the environmental impacts and consequently to propose of the various mitigation and compensatory measures on the local level project impact areas.

EXPERT'S CONTACT INFORMATION: Email : navarajp@gmail.com; Phone No. : 977- 9851117882 (Mobile)

Certification:

I, the undersigned, certify to the best of my knowledge and belief that

- (i) This CV correctly describes my qualifications and experience
- (ii) I am not a current employee of the GoN
- (iii) In the absence of medical incapacity, I will undertake this assignment for the duration and in terms of the inputs specified for me in Form TECH 6 provided team mobilization takes place within the validity of this proposal.
- (iv) I was not part of the team who wrote the terms of reference for this consulting services assignment
- (v) I am not currently debarred by a multilateral development bank (In case of DP funded project)
- (vi) I certify that I have been informed by the firm that it is including my CV in the Proposal; I confirm that I will be available to carry out the assignment for which my CV has been submitted in accordance with the implementation arrangements and schedule set out in the Proposal.

I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.

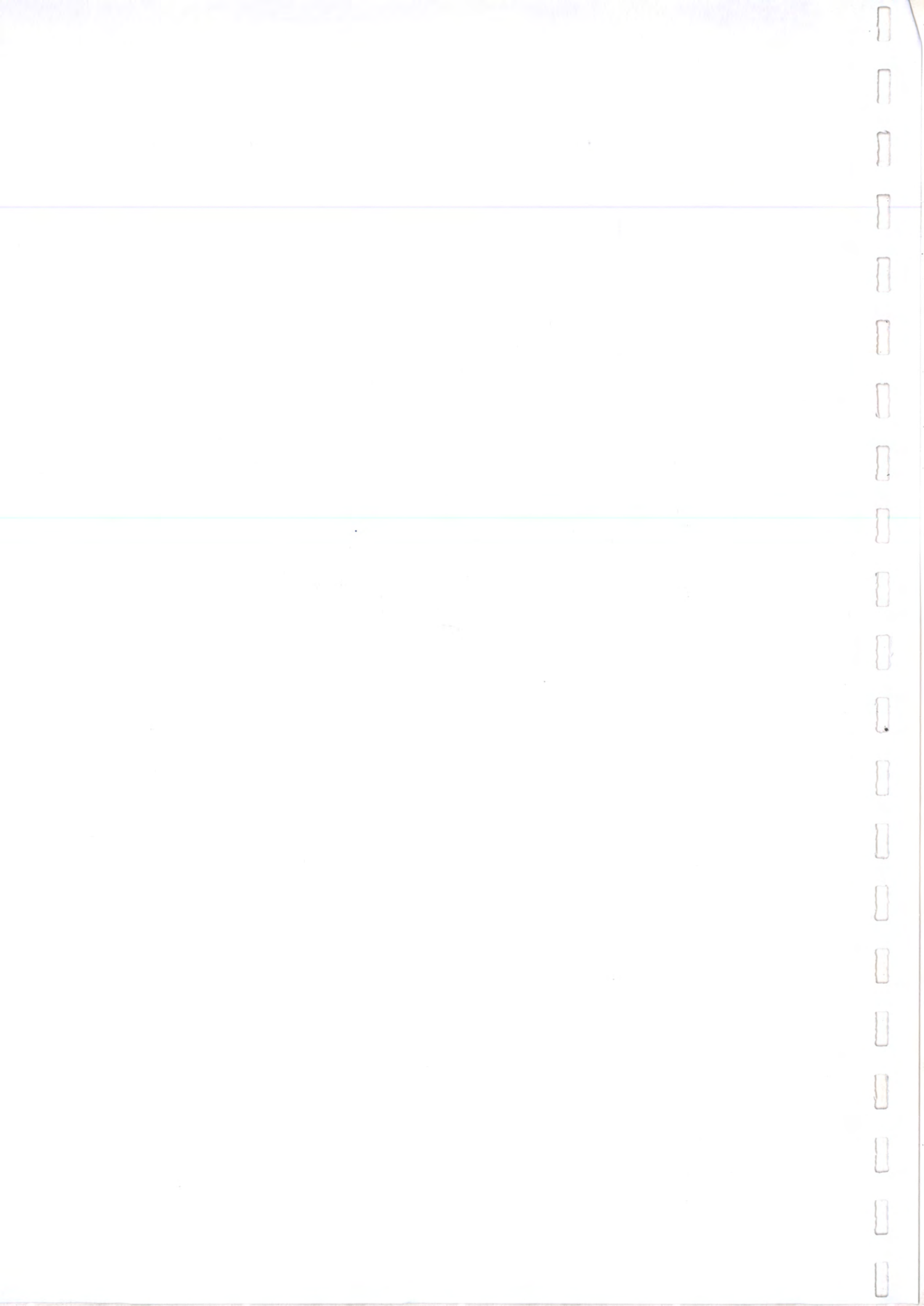


Name of Expert Nav Raj Pokharel

Signature

Date





CURRICULUM VITAE (CV)

Position Title and No.	Road/ Highway Engineer
Name of Firm:	Inclusive Consultant P. Ltd
Name of Expert:	Ranjan Suwal
Date of Birth:	25th May, 1978
Country of Citizenship/ Residence:	Nepali

EDUCATION:

- Master in Transport Engineering and Management, Pokhara University 2018
- Bachelor in Civil Engineer (BE), Purbanchal University 2005
- Diploma in Civil Engineering , Tribhuvan University, 1998
- School Leaving Certificate, HMG Board of Nepal, 1995

EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT:

Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
November , 2018 - November 2019	<p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer</p> <p>Ref: Mr. Bipin Shakya/MD</p> <p>Tel: +977- 1- 4468885</p> <p>Email: greenplanet.aso@gmail.com</p>	Nepal	Responsible for engineering design of geometry of roads, retaining structures, cross drainage structures, drainage system, with quantity calculation, design verification at site, preparation of Location Map, typical drawing, social Cadastral mapping for land acquisition of around Detail Survey and Engineering Design for Road Upgrading, Widening. Rehabilitation



Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
April 2017 – November 2018	<p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer</p> <p>Ref: Mr. Bipin Shakya/MD</p> <p>Tel: +977- 1- 4468885</p> <p>Email: greenplanet.aso@gmail.com</p>		Responsible for Feasibility Study and Report Preparation of Manang (Chame) – Muktinath – Kagbeni – Ekalbhatti – Sangta Road section (180 km) of Manang–Mustang–Dolpa-Jumla Road (Package no: PME/337362/073/074 F-1)
June 2017- July 2018	<p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer</p> <p>Ref: Mr. Bipin Shakya/MD</p> <p>Tel: +977- 1- 4468885</p> <p>Email: greenplanet.aso@gmail.com</p>		<p>Detail Engineering Survey, Design and Report Preparation of Different Roads in (Package no: PME/337159/073/74/DPR-53)</p> <p>Roads Lists:</p> <p>Barabise Thotneri Ratamata Chulthidamar Ghunda Om Park Sadak (Bhirkhana – Ghunde – Bimire – Section), Sindhupalchok (9.94 Km); Kiratchhap Kaatakuti Dudhpokhara Ekkais Kilo Sadak Dolakha(38.41 Km); Mulpani 10(Kamidaada) Dekhi Ne. Ma. Bi Sadak,(1.15 Km) ; Sankhu Dahaltar Ekleykhet Bimire Baseri Bp Marga Jodney Sadak, (Dhaltar – Ekleykhet – Bimire – Darimbot – Khasi Section) Kavre, (19. 30 Km) ; Nisi 1 Bowang Dhorpatan Sadak, (Nisi - KhumChaur - Samja Dhiri Section)</p>



Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
			Banlung, (16.51 Km) ; Gajuridaha hudai Kusheshore Dumja Bastipur Sadak,(Dumja – Bastipur – Chandanpur Section) Sindhuli,(18. 69 Km)
August 2016 – May 2017	<p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer</p> <p>Ref: Mr. Bipin Shakya/MD</p> <p>Tel: +977- 1- 4468885</p> <p>Email: greenplanet.aso@gmail.com</p>		Involve in Design and Drawing of Rap Road in Jumla District, Preparation of Project Report for Construction of Approach Road from Bramhdev, Nepal to Pancheshwar, of Project area for Pancheshwar Multipurpose Project
May, 2016 - July, 2016	<p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer</p> <p>Ref: Mr. Bipin Shakya/MD</p> <p>Tel: +977- 1- 4468885</p> <p>Email: greenplanet.aso@gmail.com</p>	Nepal	Preparation of Detailed Project Report of Barabis VDC BetalmanduTrishaktiJuwapaniJayabageswori to Kanda VDC Jadibuti Pahunch Marg (18.0 km),Contract No.DDC/CS/01/072/73



Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
July, 2015 –April 2016	<p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer</p> <p>Ref: Mr. Bipin Shakya/MD</p> <p>Tel: +977- 1- 4468885</p> <p>Email: greenplanet.aso@gmail.com</p>	Nepal	<p>TPPF-2, Design Drawing and Cost Estimate of Narayanghat-Butwal Six lane Road(115 Km)</p>
Feb, 2011 - May, 2015	<p>Employer : ERMIC Pvt. Ltd.</p> <p>Position : Highway Engineer/Senior Design Engineer</p> <p>Ref: Hem Nidhi Sharma/Director of ERMIC;</p> <p>Mob: 9851102437;</p> <p>Email: ermec@ermecnepal.com</p>	Nepal	<p>Nov, 2013 - May2015, Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP).</p> <p><i>Responsible for Survey data checking, detail design and quantity calculation of 1000 km of different road selected by the 20 District Development Committee (DDC)</i></p> <p>Oct, 2011 - Oct2013, Transport Project Preparatory Facility (TPPF),ADB funded.<i>Involved in inventory survey, Detailed Design, cost estimate and report preparation of various road and bridge projects</i></p> <p>July, 2012 - Sept 2012, Rural Access Improvement and Decentralization Project (RAIDP) funded by World</p>



Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
			<p>Bank. Responsible for Checking of detail design and cost estimate including contract packaging works</p> <p>Feb, 2011 - Sept, 2011, Decentralized Rural Infrastructure & Livelihood Programme (DRILP). Assist DTL (District Team Leader) to prepare inception report, Annual work Programme, Contract document and Maintenance plans. Responsible in all aspects of construction activities including survey, detail Design and drawing following labour and local technology based approaches as per program guidelines. Conduct different kinds of training/workshops for users committee and team members like green road, Supervision, Record keeping, and leadership etc. Prepare cost estimate for items of works to conduct the work through user's committee & local contractor. Provide actual lines & layout for construction work and supervise the quality of work .Check attendance record of labours & certify payment measurement & valuation in worked performed by RBG's .Prepare plan and procedure for quality assurance (QA) and quality control(QC) and implement at the site. Reviews the measurement submitted by the contractors and works measured for User Committee works and recommends to the</p>



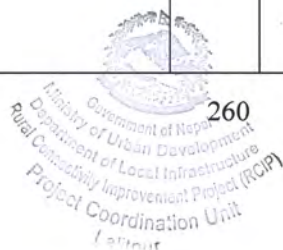
Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
			District Team Leader for further processing. Assist DTL to maintain constant liaison with key Stakeholders, DPO, DTO, CISC, PCU and national NGO. Assist SMC and SMs to conduct various life skill and awareness raising training. Play a vital role in the absence of DTL. Participates in trainings, workshops, meeting, public audits etc when necessary and directed by the DTL. Dhungagade Arughat (35 Km)
April, 2010 - June, 2010	<p>Employer:MMM Group Ltd.(Formerly ND Lea Inc.) Canada in association with CEMAT Consultant Pvt. Ltd., Soil Test Pvt. Ltd. & TMS</p> <p>Position : Design Engineer (Intermittent input)</p> <p>Ref: Ravi Raj Bhandari/Director of Cemat; Tel: 01-5520243; Email: cemat@wlink.com.np.</p>	Nepal	<i>Involve in a inventory survey, Check day to day Survey works, Detail Design, Drawing and cost estimation including contract packaging work.</i>
Feb, 2009 - Jan, 2011	<p>Employer: ERMC – GEC JV</p> <p>Position : Design Engineer/Assistant Resident Engineer</p>		Upper Tamakoshi Hydroelectric Project (UTHEP). Responsible in all aspects of construction activities (Survey, setting out works and supervision of construction works).Responsible for cost effective design modification of road alignment as well as off

Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
	Ref: Hem Nidhi Sharma/Director of ERMC; Mob: 9851102437; Email: ermcc@ermcnepal.com		- road structures as per site-specific requirements. Ensured Smooth execution of works and assisted to prepare monthly bill of contractor and Support Resident Engineer to prepare regular report. Also, Involved in the Construction Supervision of Dolakha Singati Section of Access road - 35 km and 22m span Gumu Khola Motorable Bridge - (Upper Tamakoshi Hydro - electric Project) worked under Resident Engineer , responsible in all aspects of construction activities (Survey, setting out works and supervision of construction works), Responsible for cost effective design modification of road alignment as well as off - road structures as per site-specific requirements, Ensured the implementation of works as per Specification. Maintained site daily records of all the events of the day, weather conditions, visits, specific problems encountered and reporting. Ensured Smooth execution of works and checking of method and quality of work. Kept daily measurement records and assisted to prepare monthly bill of contractor. Assist Resident Engineer to prepare regular report. Main items of works under supervision are: Earthworks (excavation of hard rock, common material excavation), off -road structure works, sub-



Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
			base and base course laying, stone masonry (drain, retaining wall/breast wall), gabion works and bio-engineering works. Involve in the preparation of variation order of the project road.
Nov, 2008 - Jan, 2009	<p>Employer: DFID</p> <p>Position : Inspector of works in Rural Access Program</p> <p>Ref: Shrawan Thapa/District Engineer of RAP;</p> <p>Mob.: 9741050385 ;</p> <p>Email: rap3@rapnepal.com.</p>	Nepal	<p>Rural Access Program-2(RAP-2). <i>Involve in a Detail Survey, Design Drawing and cost estimation including packaging works of Hilebhanjyang – Dingla District Road (35 km) under RAP Rural Access Program-2(RAP-2).</i> Assist DEO to verify survey and relocation of peg, Assist DEO for profile survey and Soil classification. Assist team for cross section survey, plotting profile and cross section, Prepare design, drawing, quantity calculation and cost estimate including packaging of works for RBGs and contractor.</p>
Oct 2007 - Oct 2008	<p>Employer : ERM C Pvt. Ltd.</p> <p>Position : Design Engineer</p> <p>Ref: Hem Nidhi Sharma/Director of ERM C;</p> <p>Mob: 9851102437;</p> <p>Email: erm c@ermcnepal.com</p>	Nepal	Design of Road using SW_ROAD and SW_DTM software Prepare drawing and cost estimate. Responsible for the design of Road using SW_ROAD and SW_DTM software

Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
Aug, 2006 - Sept, 2007	<p>Employer : Softwel Private Limited.</p> <p>Position : Highway Engineer/ Road Designer, AutoCAD Expert</p> <p>Ref: Mr. Prashant Malla/MD</p> <p>Tel: +977- 1- 4104307</p> <p>Email: support@softwel.com.n</p>	Nepal	Sector Wide Road Programme & Priority Investment Plan Study, DOR, GON <i>Detail Design of Mangalsen-Karnali Highway and Martadi – Kolti(70 Km)Road</i> Road Design, Survey Data computation and testing of the SW_Road and SW_DTM Responsible to Road Designing, Survey Data computation for road designing, testing of the SW_Road and SW_DTM software
Dec, 2005 - July, 2006	<p>Employer: Charumati Builders</p> <p>Position : Civil Engineer</p> <p>Ref: Purshotam Dangol/ MD of Charumati Builders;</p> <p>Mob:9851070082;</p> <p>Email: dr.dangolp@gmail.com</p>	Nepal	Analysis and Design of RCC structures using Sap 2000, Quantity Estimation of a business complex as well as residential building. Property Valuation, Site Supervision, Layout and Prepare a bill of Quantities
Oct, 1998 - Sept, 2001	<p>Employer : Bhaktapur Municipality</p> <p>Position : Junior Engineer</p>	Nepal	<p><i>Prepare detail cost estimate, Site Supervision, maintain measurement sheet and certify the bill of quantities Identification of Project, to Prepare detail estimate, Supervision at the different construction site, to prepare working drawing. Provide advice and support in preparing Local user's group, especially with respect to:</i></p> <ul style="list-style-type: none"> • The understanding of the project principles, concept, strategy, procedures, work-norm etc.



Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
			<ul style="list-style-type: none"> Co- ordination of the mobilization of the required resources

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

- Member of Nepal Engineering Council , Membership No. 4415 'Civil' "A"
- Life Member: Nepal Engineers' Association, Membership No. 7095
- Epan No.: 10106425

Trainings:

- Road infrastructure Risk Assessments using VIDA to produce Star Rating and Safer Roads Investment Plans from December 3 to 6 conducted by International Road Assessment Programme (iRAP) and FEBRA (iRAP).
- AutoCAD 2D & 3D (3 months) from National Computer Development and Training Centre
- Computer Basic and MS-Office(3 months) from Indreni Computer Institute
- Engineering Softwares - Sap 2000, AutoCAD, AutoCAD Land Development
- Programming Language - C and C++, VB6, AutoCAD VBA, Excel VBA, Autolisp
- Road DesigningSoftware - SW_Road , SW_DTM, Rajmarg _dtm, Rajmarg
- (Software Developer, Consultant & Trainer)
- Others - Arc GIS

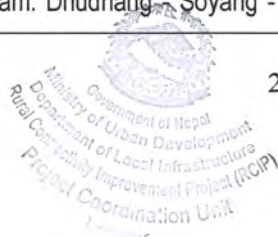
Languages and Degree

of Proficiency:	<u>Languages</u>	<u>Speaking</u>	<u>Reading</u>
	<u>Writing</u>		
	Nepali Very Good	Very Good	Very Good
	English Very Good	Very Good	Very Good



Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts	Reference to Prior Work/Assignments that Best Illustrates Capability to Fulfill the Assigned Tasks
<p>Mr. Suwal, as Road/Highway Engineer, will be responsible to carry out the following tasks:</p> <ul style="list-style-type: none"> • Work under the guidance of the Team Leader. • Conduct field survey for the access road connecting the bridges. • Assess social effect due to the proposed road works if any and focus to minimize the impact during design • Responsible for the engineering Design of road. • Responsible for the access road study for the bridges and assist TL to prepare Reports as specified in TOR. 	<p>From June, 2015 : To Till Date</p> <p>Employer : Green Planet Engineers Associate Pvt. Ltd.</p> <p>Position : Highway Design Engineer/Quantity Engineer</p> <p>Activities Performed :</p> <p>Road Projects –TPPF PPC-1, Jumla Road DPR of RAP Project, TPPF PPC-2. Responsible for engineering design of geometry of roads, retaining structures, crossdrainage structures, drainage system, with quantity calculation, design verification at site, preparation of Location Map, typical drawing, social Cadastral mapping for land acquisition of surrounding Detail Survey and Engineering Design for Road Upgrading, Widening.</p>
	<p>From Nov, 2013 : To May, 2015</p> <p>Employer : ERMC Pvt. Ltd.</p> <p>Position : Highway Engineer/Senior Design Engineer</p> <p>Activities Performed :</p> <p>Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP). Responsible for Survey data checking, detail design and quantity calculation of 1000 km of different road selected by the 20 District Development Committee (DDC). The major roads are as follows:</p> <p>Panchthar: Phidim-Nagin - Sidin - Prangbung - Falot Road (Phidim - Ludintar Sector) – 35 Km; Samdin - Chokmagu - Nawamidada - Faktep Ghurbisepanchami Road (Samdin - Nawamidada Sector) – 15 Km; Illam: Dhudhang – Soyang - Nayabazar Road (Dhung - Soyang - Nayabazar</p>



Sector) – 14 Km; Orwote (Biblayate) - Maipokhari (Deurali) -Budhabare - Goruwale - Sandakpur Road's Warbote – 14 Km; Nepaltar - Shantidada - Gagrebhangyang -Mangalbare - Dhuseni - Gajurmukhi - Ebhang - Chaturemoad Aadipur - Larumwa - Gharti Dobhan - Chapeti - Weldagi Damak Road (Ibhang - Chaturemoad Sector) – 8 Km; From Mangalbare - Phungfung - Aktappa Sikari Bhangyan- Phakphok - Ra.ma.bi. Khamwang - Thingepur - Aamchok - Jungetar - Phuyatappa - Rabi Road (Suru bindu khanda) – 20 Km;

Ref: Hem Nidhi Sharma/Director of ERMC; Mob: 9851102437; Email: ermc@ermcnepal.com.

Name of Assignment or Project : Transport Project Preparatory Facility (TPPF),ADB funded.

From Oct, 2011 : **To Oct, 2013**

Employer : SNC LAVALIN INTERNATIONAL INC, Canada in association with SPAN Pvt. Ltd., India and SILT, ERMC Pvt. Ltd

Position : Highway Engineer/Senior Design Engineer

Activities Performed :

Transport Project Preparatory Facility (TPPF),ADB funded. *Involved in inventory survey, Detailed Design, cost estimate and report preparation of Hile-Leguwachhat (26.0 KM); Manthali – Ramechhap (13 KM); Machipul-Chandragadhi(15KM); Leguwaghat-Bhojpur(65 Km); EWH-Chatara-EWH(71 Km); Dumre – Besisahar (43 KM)*

Involved in inventory survey, Preliminary Design, quantity estimate and report preparation of

Besisahar – Chame (61 KM); Ridi – Rudrabeni – Wami Taksar (57 KM); Dhadingbesi – Arughat – Gorkha (71 KM); Bhedetar – Rabi – Ranke (115 KM); Melamchipul – Ambathan Road (18 KM); Malekhu – Lothar (Tunnel option) – 35 KM; Udipur – Sera – Kirtipur - (18 KM); Khopasi – Dhunhkarka(18 KM). Ref: Hem Nidhi Sharma/Director of ERMC; Mob: 9851102437; Email: ermc@ermcnepal.com.

The feasibility study and detailed design of **20 Nos. bridges** under this project include the following:

Patnali Khola RCC T-Beam (125m); Karam Khola RCC T-Beam (25m); Gauri Khola RCC T-Beam (22m); Bagundre Khola RCC T-Beam (16m); Bairawa Khola RCC T-Beam (22m); Seti-1 RCC T-Beam (32m); Seti-2 RCC T-Beam (40m); Jarayo Khola RCC T-Beam (22m); Khar Kholsi RCC T-Beam (25m); Yasodha Khola RCC T-Beam (25m); Murti Khola RCC T-Beam (25m); Jogini Khola RCC T-Beam (16m); Katari Khola Prestress Bridge (40m); Sisuwa-1 Slab Bridge (45m); Sisuwa-2 RCC T-Beam (100m); Gideri Khola RCC T-Beam (75m); Kali Khola Prestress Bridge (40m); Chandra Canal RCC Slab Bridge (16m); and Trijuga Prestress Bridge (325m)

From July, 2012	:	To Sept, 2012
Employer	:	ERMC (P) Ltd.
Position	:	Highway Engineer/ Senior Design Engineer (Intermittent input)
Activities Performed	:	
<p>Rural Access Improvement and Decentralization Project (RAIDP) funded by World Bank. Responsible for Checking of detail design and cost estimate including contract packaging works</p> <p>Ref: Hem Nidhi Sharma/Director of ERMC; Mob: 9851102437; Email: ermc@ermcnepal.com.</p>		
From Feb, 2011	:	To Sept, 2011
Employer	:	MULTI-ERMC-PREMIUM (JV) Consultant
Position	:	Highway Engineer/Civil Engineer
Activities Performed	:	
<p>Decentralized Rural Infrastructure & Livelihood Programme (DRILP). Assist DTL (District Team Leader) to prepare inception report, Annual work Programme, Contract document and Maintenance plans. Responsible in all aspects of construction activities including survey, detail Design and drawing following labour and local technology based approaches as per program guidelines. Conduct different kinds of training/workshops for users committee and team members like green road, Supervision, Record keeping, and leadership etc. Prepare cost estimate for items of works to conduct the work through user's committee & local contractor. Provide actual lines & layout for construction work and supervise the quality of work .Check attendance record of labours & certify payment measurement & valuation in worked performed by RBG's .Prepare plan and procedure for quality assurance (QA) and quality control(QC) and implement at the site. Reviews the measurement submitted by the contractors and works measured for User Committee works and recommends to the District Team Leader for further processing. Assist DTL to maintain constant liaison with key Stakeholders, DPO, DTO, CISC, PCU and national NGO. Assist SMC and SMs to conduct various life skill and awareness raising training. Play a vital role in the absence of DTL. Participates in trainings, workshops, meeting, public audits etc when necessary and directed by the DTL.Dhungagade Arughat (35 Km)</p>		



Ref: Hem Nidhi Sharma/Director of ERMC; Mob: 9851102437; Email: ermnc@ermcnepal.com	
From April, 2010	: To June, 2010
Employer	: MMM Group Ltd.(Formerly ND Lea Inc.) Canada in association with CEMAT Consultant Pvt. Ltd., Soil Test Pvt. Ltd. & TMS
Position	: Design Engineer (Intermittent input)
Activities Performed	:
RCSP STEP-2. <i>Involve in a inventory survey, Check day to day Survey works, Detail Design, Drawing and cost estimation including contract packaging work.</i>	
<ul style="list-style-type: none"> • Jamunaha - Kohalpur Six lane Road (22.23 Km) • Bairahawa – Basantapur Road (3.30 km) • Chainpur – Khandbari Road (18.16 km) 	
Ref: Ravi Raj Bhandari/Director of Cemat; Tel: 01-5520243; Email: cemat@wlink.com.np.	
From Feb, 2009	: To Jan, 2011
Employer	: ERMC – GEC JV
Position	: Highway Engineer/ Design Engineer/Assistant Resident Engineer
Activities Performed	:
<p>Upper Tamakoshi Hydroelectric Project (UTHEP). Responsible in all aspects of construction activities (Survey, setting out works and supervision of construction works).Responsible for cost effective design modification of road alignment as well as off - road structures as per site-specific requirements. Ensured Smooth execution of works and assisted to prepare monthly bill of contractor and Support Resident Engineer to prepare regular report. Also, Involved in the Construction Supervision of Dolakha Singati Section of Access road - 35 km and 22m span Gumu Khola Motorable Bridge - (Upper Tamakoshi Hydro - electric Project) worked under Resident Engineer , responsible in all aspects of construction activities (Survey, setting out works and supervision of construction works), Responsible for cost effective design modification of road alignment as well as off - road structures as per site-specific requirements, Ensured the implementation of works as per Specification. Maintained site daily records of all the events of the day, weather conditions, visits, specific problems encountered and reporting. Ensured Smooth</p>	



execution of works and checking of method and quality of work. Kept daily measurement records and assisted to prepare monthly bill of contractor. Assist Resident Engineer to prepare regular report. Main items of works under supervision are: Earthworks (excavation of hard rock, common material excavation), off -road structure works, sub-base and base course laying, stone masonry (drain, retaining wall/breast wall), gabion works and bio-engineering works. Involve in the preparation of variation order of the project road.

Ref: Hem Nidhi Sharma/Director of ERM; Mob: 9851102437; Email: ermc@ermcnepal.com.

From Nov, 2008 : **To Jan, 2009**

Employer : DFID

Position : Inspector of works in Rural Access Program

Activities Performed :

Rural Access Program-2(RAP-2). Involve in a Detail Survey, Design Drawing and cost estimation including packaging works of *Hilebhanjyang – Dingla District Road (35 km)* under RAP Rural Access Program-2(RAP-2). Assist DEO to verify survey and relocation of peg, Assist DEO for profile survey and Soil classification. Assist team for cross section survey, plotting profile and cross section, Prepare design, drawing, quantity calculation and cost estimate including packaging of works for RBGs and contractor.

Ref: Shrawan Thapa/District Engineer of RAP; Mob.: 9741050385 ; Email: rap3@rapnepal.com.

From Oct 2007 : **To Oct 2008**

Employer : ERM Pvt. Ltd.

Position : Design Engineer

Activities Performed :

Design of Road using SW_ROAD and SW_DTM software Prepare drawing and cost estimate. Responsible for the design of Road using SW_ROAD and SW_DTM software

Ref: Hem Nidhi Sharma/Director of ERM; Mob: 9851102437; Email: ermc@ermcnepal.com.

From Aug, 2006 : **To Sept, 2007**



Employer	: Softwel Private Limited.
Position	: Highway Engineer/ Road Designer, AutoCAD Expert
Activities Performed	: Sector Wide Road Programme & Priority Investment Plan Study, DOR, GON <i>Detail Design of Mangalsen-Karnali Highway and Martadi –Kolti(70 Km)Road</i> Road Design, Survey Data computation and testing of the SW_Road and SW_DTM Responsible to Road Designing, Survey Data computation for road designing, testing of the SW_Road and SW_DTM software. Ref: Prashant Malla/ Director of Softwel; Tel:01-4104319/ 4104307
From Dec, 2005	: To July, 2006
Employer	: Charumati Builders
Position	: Civil Engineer
Activities Performed	: Analysis and Design of RCC structures using Sap 2000, Quantity Estimation of a business complex as well as residential building. Property Valuation, Site Supervision, Layout and Prepare a bill of Quantities. Ref: Purshotam Dangol/ MD of Charumati Builders; Mob:9851070082; Email: dr.dangolp@gmail.com
From Oct, 1998	: To Sept, 2001
Employer	: Bhaktapur Municipality
Position	: Junior Engineer
Activities Performed	: <i>Prepare detail cost estimate, Site Supervision, maintain measurement sheet and certify the bill of quantities Identification of Project, to Prepare detail estimate, Supervision at the different construction site, to prepare working drawing. Provide advice and support in preparing Local user's group. especially with respect to:</i> <ul style="list-style-type: none"> • The understanding of the project principles, concept, strategy, procedures, work-norm etc. • Co- ordination of the mobilization of the required resources



Expert's **Contact** **E-mail:** **Phone:** 9851132404
information: aar_yes@hotmail.com

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, that

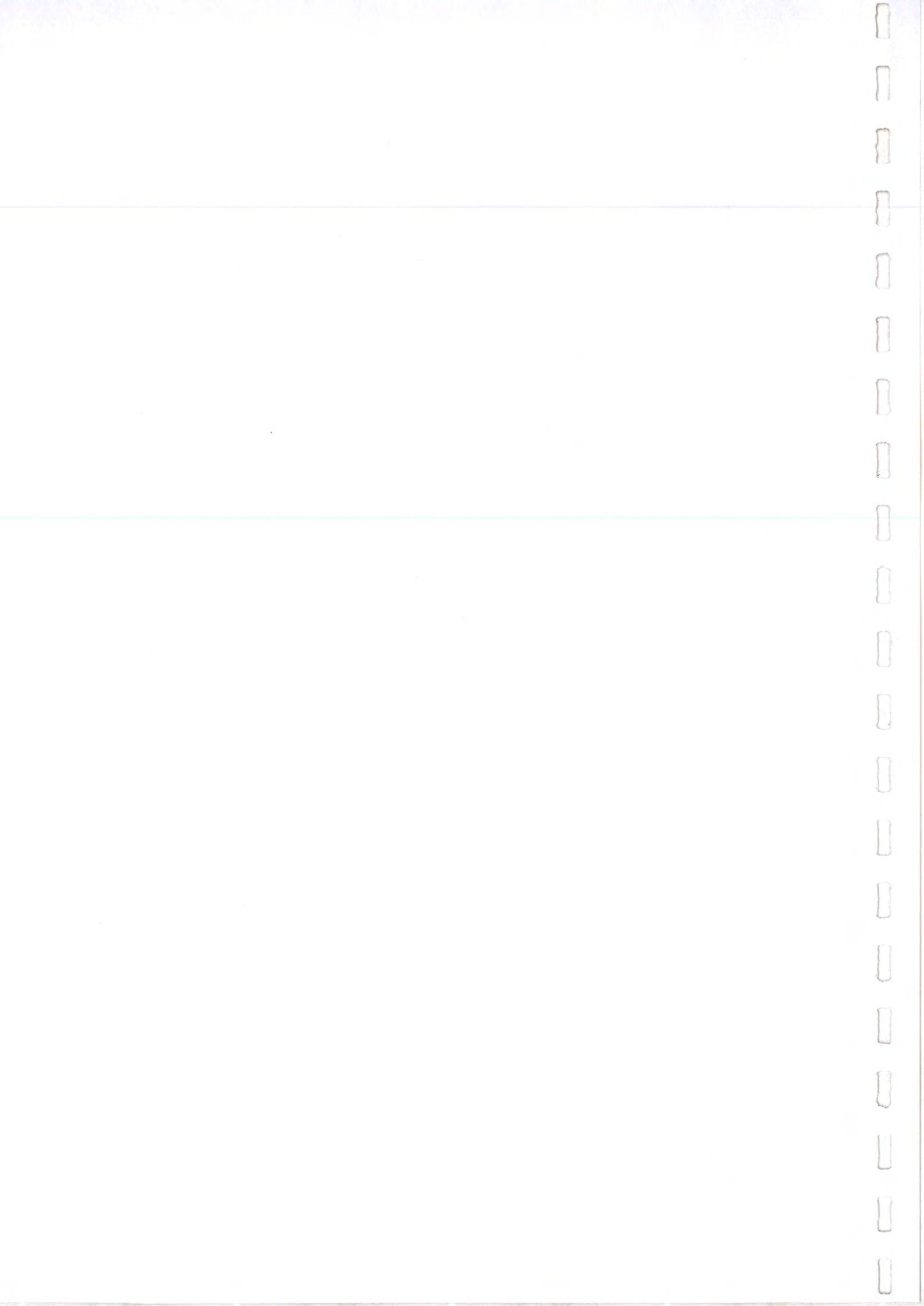
- (i) *This CV correctly describes my qualifications and experience.*
- (ii) *I am not a current employee of the RC IP.*
- (iii) *In the absence of of medical incapacity, I will undertake this assignment for the duration and in terms of the inputs specified for me in provided team mobilization takes place within the validity of this proposal.*
- (iv) *I was not part of the team who wrote the terms of reference for this consulting services assignment.*
- (v) *I am not currently debarred by a multilateral development bank (In case of DP funded project).*
- (vi) *I certify that I have been informed by the firm that it is including my CV in the proposal for the*

I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.



[Signature of Experts]





CURRICULUM VITAE

DESIGNATION: Geologist
NAME OF STAFF: KUMUD RAJ KAFLE, Ph.D
Name of Firm Inclusive Consultant P. Ltd
DATE OF BIRTH: June 7, 1969
NATIONALITY: Nepali
CONTACT No.: 9841851319
EMAIL: krkafle@yahoo.com

EDUCATION

- Doctor of Philosophy (Ph. D.) In Disaster Management in 2016
- Master's of Science (M. Sc.) in Natural Resource Management in 2005, Nepal Engineering College (NEC), Center for Advanced Studies, Pokhara University
- Master's of Science (M. Sc.) in Geology 1995 from Tribhuvan University (T.U.) Kathmandu, NEPAL

OTHER TRAININGS:

- As a trainee "Training workshop on River Basin Information System (RBIS) and DANUBIA Hydrological Modelling for Upper Brahmaputra Basin".
- Participation in a brainstorming workshop on "Establishing a National Climate Change Knowledge Management Platform in Nepal" 18 January 2010, Himalaya Hotel, Lalitpur, conducted by Government of Nepal Ministry of Environment National Adaptation Programme of Action (NAPA) to Climate Change
- As a trainee "Seismic Vulnerability Procedures Workshop" from 18 -28 April, 2011 at Nepal Army Club conducted by Civil-Military Emergency Preparedness (CMEP), US and funded by US AID
- As a trainee "Internation Train-The-Trainer Workshop on Integrated Water Resource Management, Feb 22-23, 2010 University of Madras Chennai, India
- Participation in a workshop on "Regional Workshop on Cryosphere Mapping and Monitoring in the HKKH region" from 31 March-2 April 2009 in ICIMOD Kathmandu
- As a trainee "DelPHE International Training on Disaster Risk Reduction (January-February, 009) at Northumbria University, Newcastle, UK
- Participation as a resource person on National Training on "Mainstreaming Gender into Disaster Risk Reduction" at Dhulikhel, Kavre, 8-12 December 2008 conducted by Ministry of Home Affairs and UNDP.
- As a trainee "Geographic Information System (GIS)" on ArcGIS 9.1 version from 12-16 Nov. 007, organized by Nepal GIS Society, in close collaboration with Tribhuvan University Institute of Engineering (IoE), Pulchowk Campus, Pulchowk, Lalitpur, ICIMOD and NepaSoft Solution at Pulchowk Campus, Lalitpur.
- As a trainee "Disaster Risk Management and Risk Transfer" from 8-12 Sep. 2007, Organized by the Postgraduate Programs in Disaster Management (PPDM), BRAC University In cooperation with the All India Disaster Management Institute (AIDMI), Dhaka, Bangladesh



- As a trainee “Interactive Training Program for Micro Hydro Design Engineers and Technicians” March 16-18, 2004 conducted by Alternative Energy Promotion Centre (AEPIC)/Energy Sector Assistance Program (ESAP)
- Two months (4 hrs/day) training on Geographic Information System (GIS) from HEET Consult Pvt. Ltd. in 2001
- As a trainee Land Risk Assessment in the Rural Access Sector" Using GIS, Training/workshop, Conducted by DFID at Central Geography Department, Kirtipur from 18 Dec. to 19 Dec. 2000.
- As a trainee 4 months computer training from Nepal Institute of Management Dillibazar, KTM in 1993 and sound knowledge of Softwares like Windows Office, ArcView, AutoCAD and Microsoft project.
- Two days First Aid Training at Sankerdev Campus Organized by Nepal Red Cross Society in 1989
- Basic Survey Training, Department of Geology, Trichandra Campus, 1992

RESEARCH PAPERS

- Khanal S. N., Hogland W., Bhatt R. P., Manandhar D. and Kafle K. R. (2013): "Implications of Climate Change and Tourism in the Mt. Everest Region in Nepal" paper published as "Chapter 20" in a book "Impact of Climate Change on Water and Health", a science publishers book CRC Press, Sweden 2013, pp 377-399
- Kafle K. R. and Khanal S. N. (2010): “Environmental Health Issues In High Altitude Areas of Sagarmatha (Everest) National Park and Buffer Zone (SNPBZ)” Paper Presented World Conference on Natural Sciences and Environmental Technologies for Waste and Wastewater Treatment, Remediation, Emissions Related to Climate, Environmental and Economic Effects Linnaeus ECO-TECH'10, 22-24 November 2010 in Kalmar, Sweden and paper published in proceeding paper of conference
- Kafle K. R. (2010): “Slope Mass Rating in Middle Mountain of Nepal: A case study on landslide at Rabi VDC Opi Village, Kavre, Nepal” Paper published in KUSET E- Journal, August, 2010
- Chiara E, Flury B., Viviano G., Thakuri S., Khanal, S. N., Jha P. K., Maskey R. K., Kayastha R. B., Kafle K. R., Bhochhibhoya S., Ghimire N. P., Shrestha B. B., Chaudhary G., Glannino F., Carteni F., Mazzoleni S., and Salerno F. (2010): “Solid Waste and Water Quality Management Models for Sagarmatha National Park and Buffer Zone, Nepal" Paper published in Mountain Research and Development (MRD) An International, peer-reviewed open access journal published by the International Mountain Society (IMS) www.mrd-journal.org, May 2010.
- Khanal S. N., Kayastha R. B., Maskey R. K., Kafle K. R., Bhochhibhoya S., Chaudhary G., Pandey R. and Sherpa Y. (2010): "A Study on Solid Waste Management in Sagarmatha National Park and Buffer Zone (SNPBZ)" Paper published on "Contemporary Research in Sagarmatha (Mt. Everest) Region, NAST, Nepal, 2010, pp 91-101
- Maskey R. K., Bhochhibhoya S. Pandey R. Khanal S. N., Kayastha R. B., Kafle K. R., , Salerno F., Flurry B. and Viviano G. (2010 "Energy Management Research in Sagarmatha National Park Buffer Zone (SNPBZ) and its Outcomes" Paper published on "Contemporary Research in Sagarmatha (Mt. Everest) Region, NAST, Nepal, 2010, pp 57-64
- Ghimire S., Kafle K. R. and Rai S. (2008): “Application of RADIUS as an Earthquake Risk Management Tool in Panauti Municipality.” Paper presented in



International Conference on Disaster and Development: Bridging the Gap Between Theory and Practice. November 23-24, 2008 Published in proceeding Nov 008

- Dahal, R.K, and K. R. Kafle, (2003): "Landslide Triggering by Torrential Rainfall, Understanding from the Matatirtha Landslide, South Western Outskirts of the Kathmandu Valley" paper presented in Seminar on Disasters Mitigation in Nepal, Jointly Organized by Nepal Engineering College Nepal and Ehime University, Japan and published in proceeding vol. Nov. 18 2003.
- Tuladhar A., Kayastha R. B., and Kafle K. R. (2012): "Geomorphological Mapping of the Lower Part of Lirung Glacier, Langtang Valley, Nepal" Paper presented in International Conference on May 29-31, 2012 accepted for publishing in proceeding
- Dahal, R.K Bhattarai K. D, Neupane G and Kafle K. R. (2004): Wind Power development in Kagbeni area Mustang, Nepal from view point of geological and meteorological concerns, paper presented in fourth Nepal Geological Congress, April 9 to 11, 2004 and published in vol. 29 April, 2004

PAPER PRESENTATIONS

- Kafle K. R. and Khanal S. N. (2010): "Environmental Health Issues In High Altitude Areas of Sagarmatha (Everest) National Park and Buffer Zone (SNPBZ)" Paper Presented World Conference on Natural Sciences and Environmental Technologies for Waste and Wastewater Treatment, Remediation, Emissions Related to Climate, Environmental and Economic Effects Linnaeus ECO-TECH'10, 22-24 November 2010 in Kalmar, Sweden.
- Kafle K. R., Khanal S. N. and Andrew Collins (2010): "A Preliminary Evaluation of Post Flood Epidemics of August 2008 Koshi Flood in Nepal." Paper Presented in Conference of the International Society for Integrated Disaster Risk Management – IDRIM, Sep. 1-4, 2010, Vienna, Austria
- Khanal S. N., Kayastha R. B., Kafle K. R., Manandhar D.R., Chaudhary G., Sherpa Y., Maskey R. K., Bhochohibhoya S. and Pandey R. (2010): "Solid Waste Management in Mount Everest (Sagarmatha National Park and Buffer Zone) region, Nepal", Paper Presented World Conference on Natural Sciences and Environmental Technologies for Waste and Wastewater Treatment, Remediation, Emissions Related to Climate, Environmental and Economic Effects Linnaeus ECO-TECH'10, 22-24 November 2010 in Kalmar, Sweden.
- Shrestha B. P., Kafle K. R. and Dahal K. R. (2010): "Integrated Water Resource Management Studies being Carried out Kathmandu University, Dhulikhel Nepal" Paper Presented in International Problem Analysis Workshop on Integrated Water Resource Management, Feb 24-25, 2010 University of Madras Chennai, India
- Ghimire S., Kafle K. R. and Rai S. (2008): "Application of RADIUS as an Earthquake Risk Management Tool in Panauti Municipality." Paper presented in International Conference on Disaster and Development: Bridging the Gap Between Theory and Practice. November 23-24, 2008
- Kumud R. Kafle, Sanjay N. Khanal, Rana B. Chhetri, Sabita A. Khanna "Issues and Challenges of Disaster Risk Reduction Teaching in Higher Education" Presented on Nepal – Bangladesh – UK Seminar on "Disaster Risk Reduction Studies in Higher Education: Linking Communities for Livelihood Sustainability July 1- 2, 2007 Kathmandu University, Dhulikhel, Nepal
- Shrestha B. P., Kafle K. R. and Dahal K. R. (2010): "Integrated Water Resource Management Studies being Carried out Kathmandu University, Dhulikhel Nepal"



Paper Presented in International Problem Analysis Workshop on Integrated Water Resource Management, Feb 24-25, 2010 University of Madras Chennai, India

LANGUAGES:

	Speaking	Reading	Writing
English:	Excellent	Excellent	Excellent
Nepali:	Excellent	Excellent	Excellent
Hindi:	Good	Good	Good

EMPLOYMENT RECORD:

From September 2013 to date

Associate Professor in Kathmandu University, Environmental Science and Engineering Department, teaching Engineering Geology, Environmental Geology and GIS (Geographic Information System) Remote sensing for B.Sc. and M.Sc. Students

From 2006 to 2013

Assistant Professor in Kathmandu University, Environmental Science and Engineering Department, teaching Engineering Geology, Environmental Geology and GIS (Geographic Information System) Remote sensing for B.Sc. and M.Sc. Students

From November 1999 to March 2001 and July 2003 till date

Part time Lecturer in Department of Geology, Trichandra Campus, Ghantaghar, Kathmandu teaching Environmental Geology and Engineering Geology.

From August 2016- Till now

Consulting Geologist/NRM Expert, EERC Pvt. Ltd. For

- *IEE Study for establishment of Godawari Technical College, Godawari Municipality-Lalitpur*
- *IEE for collection and extraction of stone and gravel from Devaniya River, Haldibari RM-Jhapa*
- *IEE for establishment of Buddha Pratima and View Tower of Konjyosom RM, Lalitpur*
- *IEE of Drinking Water Supply of Konjyosom RM-Lalitpur*
- *IEE of Dachhi – Bhardabas – Alapot – Chisapani Road (18 km), Kathmandu RCIP PIU -2, Lalitpur*
- *IEE of Bokhim – Piple Road (10.5km), Bhojpur, RCIP PIU -1, Jhapa*
- *IEE of Khandbari – Malta – Bhadaure – Chautara – Dovan Road (9.940km), Sankhuwasabha*
- *IEE of Rani Nimuha Canal Service Road (22.263km), Morang, RCIP PIU-1, Jhapa*



- *IEE of Sagarmatha – Haldibari – Goldhap – Rajghad Road (10.192km), Jhapa, RCIP-PIU Jhapa*
- *IEE Study for establishment of industry of Biovac Nepal Pvt. Ltd., BIOVAC Nepal Pvt. Ltd*
- *IEE of Construction of Road Infrastructure, Tulsipur Sub-Metropolitan City, Dang*
- *IEE for sand, gravel, aggregates extraction from Sunkoshi river flowing through Panchkhal Municipality, Kavrepalanchowk (on-going)*
- *IEE for sand gravel extraction from Bhramhyani and Sunkoshi River flowing through Balephi Rural Municipality*
- *IEE for sand gravel, stone extraction/collection from different proposed sites of Sunkoshi and Indrawati River flowing through ward no 6, 9 and 10 of Bhumlu Rural Municipality, Kavrepalanchowk*
- *IEE for extraction/collection of sand, gravel and aggregates from Tamakoshi River, Gaurisankhar RM*
- *IEE for sustainable extraction of sand gravel, stone extraction/collection from bank of Naya Khola, Sawa Khola and Bhuwa Khola of Tumbewa Rural Municipality, Panchthar*
- *IEE for sand, gravel and stone collection from proposed sites of Seti River flowing through ward no 2 and 5 of KI Singh Rural Municipality, Doti*
- *IEE study for Extraction/Collection of Construction material from Yogikuti Ghat of Tinau River*
- *IEE study for Boulder, Sand, Gravel extraction and collection from Kamala River Section II within Dudhauri Municipality*
- *IEE for sand gravel, stone extraction/collection from bank of Tamakoshi river of Gaurishankar Rural Municipality, Dolakha*
- *IEE for Establishment of Herbs Processing Distillation Unit in Jajarkot, HPPCL-Jadubuti*
- *IEE for Establishment of Industrial Village at Tarakhola Rural Municipality, Baglung*
- *IEE study of the proposed Bhabil 1 Jal Bidhyut Aayojana (13.86 MW)*
- *IEE Study of Balkot-Godawori Khola-Mahendra Shanti-Chitrapur-Daddhikot chok-Sikaritar-Krishna Mandir-Tarkhal-Antalingeshwor Mandir- Khadka gau Kalika danda-Dhobi khola - Ranikot Road (12.388 km),*
- *IEE Study of Babiya-Birta Road Upgrading (9.3 km), Morang, Province 1*
- *Initial Environmental Examination (IEE) of Upgrading of Puspahal Chowk-Gachhiya Road (23.7km) Morang, Province 1*
- *IEE Study of a) Sagarmatha-Haldibari-Goldhap-Rajgadh Road (10.192 km) (Upgrading) b) Khandbari Nagarpalika-Malta-Bhadaure-Chautara-Purano Gabisa Vawan-Dovan Road*



(9.940 km) (Upgrading) c) Rani Nimuha Koshi Nahar Service Road (22.263 km) (Upgrading)
d) Salleni-Dadhipur-Aahale-Khalde-Piple-Bokhim Road (10.5km, Upgrading)

- IEE Study of BIOVAC Pvt.Ltd

Consulting Geologist/NRM Expert, Malla and Group Engineering Services For

- IEE of Administrative Building of Bhimdatta Municipality, Kanchanpur
- EIA of major road section of Bhimdatta Municipality, Kanchanpur
- EIA of Zoological park of Krishnapur Municipality
- Initial Environmental Examination (IEE) of Kimdanda Co-Financing Water Supply and Sanitation Project, Province no. 5, Arghakhanchi
- Initial Environmental Examination (IEE) of Mulpani-Sankhadevi Co-Financing Water Supply and Sanitation Project, Province no. 3, Lalitpur
- Initial Environmental Examination (IEE) of Punarbas IBRD Sewerage Management Project, Sudurpaschim Province, Kanchanpur
- Initial Environmental Examination (IEE) of Punarbas Townbajar Sewerage Management Project, Sudurpaschim Province, Kanchanpur
- Initial Environmental Examination (IEE) of Waste Water Management Project, Belauri Sudurpaschim Province, Kanchanpur

From August 2016 – July 2017

Consulting Geologist, Pashchimanchal Consult Pvt. Ltd. for IEE study of Ridi Khola Bridge, Palpa, Tinau (Amlihan) Khola Bridge, Palpa, Madi Nadi (Jyamdu) Bridge, Kaski, Seti Nadi (Kharpani) Bridge, Kaski, Jalad Nadi Bridge, Dhausha etc.

Responsible for geological analysis, baseline information collection, impact identification and evaluation, suggest appropriate mitigation measures and assist team leader for IEE report preparation.

From March 2016 – May 2016

Consulting Geologist, Pashchimanchal Consult Pvt. Ltd. for IEE study of Chabighat Bridge Project, Rolpa

Responsible for geological analysis, baseline information collection, impact identification and evaluation, suggest appropriate mitigation measures and assist team leader for IEE report preparation.

From March 2014 to May 2014

Consulting Geologist, for IEE study of Phulmati Biring Khola Bridge over Sanischare – Arjunhara – Biring – Bhangbari Road in Jhapa District



From Feb 1, 2014 - 5 Feb, 2014

Consulting Geologist, Kathmandu University, Civil Engineering Dept., Responsible for the detail geological study of Balefi Hydropower (24MW) Sindhupalchok District, Mid-Western Nepal.

From Dec 22, 2013 - 28 Dec, 2013

Consulting Hydro-geologist, Oxfam, Responsible for the detail hydro-geological study of different types of mountain springs in Dailekh and Surkhet District, Mid-Western Nepal.

From Nov 06, 2013 - Nov. 14, 2013

Consulting Geologist, IDRS, Responsible for the detail geological study of **IEE study of Sallisalla-Darma (15km) District Road**, Humla District, Mid-Western Nepal.

From May 05, 2011 - May 20, 2011

Consulting Hydro-geologist, KU, Mechanical/Env. Dept.; Responsible for the detail hydro-geological study of different types of mountain springs and preparation for drilling manual

Client: The Gurkha Welfare Scheme -GWS Rural Water & Sanitation Programme (RWSP) DFIDWorks of Mid-Western Nepal.

From July 20, 2008 - July 25, 2008

Consulting Geologist, IDRS, Responsible for the detail geological study of Kalikasthan-Dhunge-Kamidanda-Banuwa and Dharapani- Rupsepani(15km) Agriculture Road, Rasuwa District, Central Nepal.

From Feb 8, 2008 - Feb 12, 2008

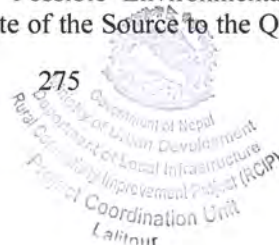
Consulting Geologist, IDRS, Responsible for the **IEE and Feasibility study of the Bhatauli Khola bridge**, Ramechhap District, Central Nepal.

From Jan 20, 2008 - Jan 25, 2008

Consulting Geologist, IDRS, Responsible for the **IEE and feasibility study of the Bhaiwang and Dhuku Khola bridge**, Myagdi District, Western Nepal.

From July 2003 to July 2006

Consulting Geologist, HEET Consult (P) Ltd, Responsible for **EIA study of Nepal Cultural Village, a Multi-National Project**, at its project site Sundarijal- Gokarna area, Kathmandu; Environmental Impact Assessment for the establishment of Herbal Product Industry, Nawalpur Sarlahi; Study of Possible Environmental Impact of Undergoing Construction Activities on the Uphill Site of the Source to the Quality and Quantity of the



Doodh Pokhari Water Source. Matsya Gaun, Kathmandu; IEE of 25 MW wind power project at Kagbeni; Mustang; IEE of 450 kW wind power project at Kagbeni Mustang; IEE of Chokhopani Micro-hydropower Project (240kW) at Chokhopani, Mustang; Bioengineering Training for Engineers, Dhulikhel, Kavre; Bioengineering Training for Engineers and Overseers, Baluwatar, Kathmandu

From March 2001 to June 2003

Manager, Env. and Engineering Section, Dam for Kajima (Japanese)-Daewoo(Korean) JV, Dhauliganga HydroElectric Project (280 MW), Uttaranchal Pradesh INDIA (Lot 1 includes Coffe Dam & Main Dam, Slope excavation and supporting, Silt Flushing Tunnel, Intake Tunnels, Underground Disilting Basins, Construction Adit tunnel and Headrace Tunnel), Client: National Hydro-power Company, undertaken by Government of India. Responsible for Site supervision, Execution of works as per design and planning, Coordination in all sections, New Drawing Study, Planning the working Schedule and making the goals, targets (short term as well as long term) and Progress Monitoring, Progress Report Writing (weekly and monthly) Preparation of Reports and Proposals as per site condition (if out of design or in variation order work) and get approval from client, Monitoring and implementing the specified environmental parameters and insist to consider the environmental issues in execution of construction and get approval from client and consultant.

From Nov. 12, 2000 – Nov. 19, 2000

Team Leader GEOCE, JICA (client), Responsible for Slope Stability Study along the Pokhara-Kathmandu Highway on Dharke to Nagdhunga section (15km)

From Oct. 4, 2000 – Oct. 30, 2000

Bioengineering Trainer, Community Forest User Groups, Responsible for to train to Villagers of Community Forest Users Group of Different villages of Far Western Nepal.

From Aug. 3, 2000 – Aug. 23, 2000

Geologist, HEET Consults (P) Ltd., Nepal Culturer Village Resort (P) Ltd. And China International Corporation, KTM (client) Responsible for Environmental geological and geotechnical assessment of the Nepal Cultural Village, at its project site Sundarijal-Gokarna area, Kathmandu.

From July 3, 2000 – July 13, 2000

Consulting Geologist, NEPECON, Responsible for geological and geotechnical investigation during the Detail study of the Qual - Timbu road (Melamchi Project access road) along with two bridges on the Melamchi River Sindhupalchok District, Central Nepal.

From June 1, 2000 – June 7, 2000

Consulting Geologist, NEPECON, Responsible for the feasibility study of the Dungegadde-Jamunidanda-Todkepani, Agricultural road, Gorkha District, Western Nepal.



From May 25, 2000 – May 30, 2000

Consulting Geologist, NEPECON, Responsible for the feasibility study of the Jigdi Khola bridge, Bhimad, Tanahu District, Western Nepal.

From May 7, 2000 – May 20, 2000

Consulting Geologist, TECHDA PVT. LTD, Responsible for geological and geotechnical investigation during the feasibility study of the Reu Khola bridge and the Mardi Khola bridge, Chitawan, Central Nepal.

From April 1, 2000 – April 15, 2000

Consulting Geologist, NEPECON, Responsible for geological and geotechnical investigation during the feasibility study of the Rapti River bridge, Banke Mid-Western Nepal.

From April 16, 2000 – April 30, 2000

Consulting Geologist, NEPECON, Responsible for geological and geotechnical investigation during the detailed study and design of the Babai Khola bridge, Dang Western Nepal.

From Marc 2, 2000 – March 21, 2000

Consulting Hydro-geologist, Worked for Industrial and Tubewell Construction (P) Ltd., conducted Geophysical (Resistivity) Survey for groundwater exploration in Swayambhu area.(For Carpet Washing Industry)

From July 1997 to November, 1999

Engineering Geologist (Laboratory). For IMPREGILO S.p.A., Italy, Civil Contractor, Kaligandaki 'A' hydroelectric Project (144 MW), Syanja district, western Nepal. Responsible for office management and scheduling for work. Data collection and report preparation that is submitted to head of the department (Engineering)

From April 1996 – May 1997

Geophysicist, Worked for Industrial and Tubewell Construction (P) Ltd., conducted Geophysical (Resistivity) Survey for groundwater exploration in Panchkhal (for Irrigation), Balaju (for YES Mineral Water Industry), Bhaisepati (for Drinking Water of a Secondary Boarding School), Katunje (for Drinking Water of Whole Katunje V.D.C.) and Sallaghari (for Carpet Factory) area.

Geophysicist and Well Designer, Worked for Geophysical Consultancy (P) Ltd. conducted Geophysical (Resistivity and Electrical Logging for well design for installation) Survey of groundwater for Drinking Water Supply, in Lokanthali, area, Bhaktapur district.



CERTIFICATION:

I, the undersigned, certify to the best of my knowledge and belief that

- i. This CV correctly describes my qualifications and experience
- ii. I am not a current employee of the GoN
- iii. In the absence of medical incapacity, I will undertake this assignment for the duration and in terms of the inputs
- iv. I was not part of the team who wrote the terms of reference for this consulting services assignment
- v. I am not currently debarred by a multilateral development bank (In case of DP funded project)
- vi. I certify that I have been informed by the firm that it is including my CV in proposed tasks. I confirm that I will be available to carry out the assignment for which my CV has been submitted in accordance with the implementation arrangements and schedule set out in the Proposal.

I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.



Kumud Raj Kafle



Personal Information	
Bhup Mani Dahal	Language: Nepali and English
Date of Birth: 3 January 1975	E-mail: bhupmani2017@gmail.com
Mobile: 9845057300	Address: Madi Municipality-5, Sankhauwasabha

Skills: Facilitation in Mainstreaming Disaster Risk Management/Climate Risk Management, Community Based Disaster Risk Reduction, Climate Change Adaptation, Vulnerability and Capacity Assessment, Preparation Local Disaster Climate Resilience Plan (LDCRP) and Gender and Child Centered Disaster Risk Management

Affiliated Agency	Position and Timeline of Involvement
School Shelter environment Nepal	Team Leader - Sep 10 2017- 5th June 2018
Plan International Nepal	Project Officer Dec 2015 Dec 2016
Community Development and Environment Conservation Forum	Project Coordinator Jan 2015-Nov-2015
Community Development and Environment Conservation Forum	Program Officer April 2015-June 2015
HUDEP Nepal	Project Associate Dec 2011- March 2013
Community Energy and Ecological Development Forum	Consultant Jan. 2009- Jul 2011



Hetauda School of Management and Social Sciences Makawanpur	Lecturer of Sociology/ Anthropology Jan 2005– Sept 2011
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Summary of Consulting Activities Completed		
Date	Name of activity/ Project/ Funding Agency	Role and Activities undertaken Consultant
24 to 29 December 2019	Emergency Preparedness and Response Plan (EPRP) of Mahila Ekta Samanj Kathmandu	<ul style="list-style-type: none"> • Orientation of office body on EPRP/Conduct office VCA • Prepare EPRP and handed over
04 to 09 September 2019	Training on VCA training process to Change Agent of FORWARD Nepal Siraha funded by WHH Nepal	<ul style="list-style-type: none"> • Content and schedule development • Training facilitation 3 days
25 to 17 August 2019	Training on VCA training process to social mobilizer of Homenet Nepal in Dhulikhel funded by Homenet Nepal	Design content and facilitate training
16 to 27 June 2019	Lead Facilitator for the training on School level VCA process to CSS focal teacher in Saptari, Dhanusha, Sarlahi and Parsa district funded by UNICEF Nepal and organized by Asman Nepal.	Lead Facilitator <ul style="list-style-type: none"> • Design content • Facilitate training
10 to 12 May 2019	Lead Facilitator for the training on Mainstreaming DRR into development planning process in to Chief of local government in Ghorai Dang district funded by Practical Action Nepal and coordinated by NRCS Dang.	Lead Facilitator <ul style="list-style-type: none"> • Design content • Facilitate training
21 April to 3 May 2019	Lead Facilitator for the training on Mainstreaming DRR into development	Lead Facilitator <ul style="list-style-type: none"> • Design content



	planning process in Gaurigunj RM Jhapa, Kalyanpur Municipality Siraha, Kamala Municipality and Janak Nandini RM Dhanusa District funded by Practical Action Nepal.	<ul style="list-style-type: none"> Facilitate training
13 to 20 March 2019	Province level orientation comprehensive school safety and Disaster Risk Reduction in sudur paschim, karnali, gandaki and province no. 5 in coordination with province level ministry of social development, funded with UNICEF and supported by NDRC and SMC federation Nepal.	Consultant Facilitator <ul style="list-style-type: none"> Design content Facilitate training
26 February to 10th March 2019	Comprehensive school safety action plan preparation workshop in 6 schools of Nuwakot, Rasduwa and Bhaktapur district funded with UNICEF and supported by NDRC and SMC federation Nepal.	Consultant Facilitator <ul style="list-style-type: none"> Design content Facilitate training
31 January to 3 February 2019	Consultant to facilitate peer learning on LDCRP to chief of local government of Karnali in Surkhet and province five in Dang.	Consultant Facilitator <ul style="list-style-type: none"> Design content Facilitate training
16 to 17 January 2019	Consultant to facilitate peer learning on LDCRP to chief of Local Government of Province seven in Dadheldhura	Consultant Facilitator <ul style="list-style-type: none"> Design content Facilitate training
10 to 30 December 2018	Preparation of DRRM Act of Godabari Municipality Lalitpur organized by Homenet Nepal and Funded by Action Aid.	Consultant <ul style="list-style-type: none"> Assessment Discussion and facilitate formulation plan
20 August 2018 to 30 January 2019	Preparing Standard Operative Procedure (SOP) of Local Emergency Operation Centre (LEOC) of Bheriganga Municipality-Surkhet, Bansgadhi Municipality - Bardiya	Consultant <ul style="list-style-type: none"> Need assessment Meeting and orientation



	and Bidur Municipality- Nuwakot Funded by GIZ CD-Mun project.	<ul style="list-style-type: none"> • Recommend collection • Field observation
22 to 29 November 2018	Safe school training to local representatives and SMC representatives of in Kurintar and Kakani organized by NDRC and funded with UNICEF.	Consultant Facilitator <ul style="list-style-type: none"> • Design content • Facilitate training
25 to 29 September 2018	Safe school training to local representatives and SMC representatives of earthquake affected 14 district in Godabari organized by NDRC and funded with UNICEF.	Consultant Facilitator <ul style="list-style-type: none"> • Design content • Facilitate training
14 to 21 October 2018	Training on Safe School to local representatives and SMC representatives of Gorkha, Dhading, Nuwakot, Sindhupalchok and Rashuwa district in Kurintar and Kakani, organized by NDRC and funded by UNICEF.	Trainer <ul style="list-style-type: none"> • Design content • Facilitate training
19 to 20 August 2018	Institutional Capacity Analysis Training for effective implementation of DRRM Act 2017 to local elected body of Dudhauri Municipality Sindhuli organized by NRCS Siraha and funded by Practical Action	Trainer <ul style="list-style-type: none"> • Design content • Facilitate training
12 to 13 August 2017	Institutional Capacity Analysis Training for effective implementation of DRRM Act 2017 to local elected body of Siraha District organized by District Disaster Management Committee Siraha and funded by Practical Action	Trainer <ul style="list-style-type: none"> • Design content • Facilitate training
11 to 13 July 2018	Training facilitator For the training on local emergency preparedness and response plan preparation to local elected people representatives of Modi Rural Municipality	Training Facilitator <ul style="list-style-type: none"> • Design content • Facilitate training



	of kaski district organized by urban development training centre (UDTC) and Modi Rural Municipality	
05 to 08 June 2018	Training facilitator For the training on Disaster Risk Reduction to local elected people representatives and chief administrative officers of Yashok Rural Municipality of Pachthar district organized by RDTTC and Yashok Rural Municipality	<ul style="list-style-type: none"> • Designed training module • Developed training materials and facilitate training
29 May to 03 June 2018	Conducted VCA review workshop in six community Based Disaster Risk Management committee of Siraha Municipality siraha district	<ul style="list-style-type: none"> • Prepared and finalized VCA tools • Conducted VCA training
27 and 28 May 2018	Training facilitator For the training on Disaster Risk Reduction to local elected people representatives and chief administrative officers of Siraha municipality in Siraha district organized by NRCS Siraha and funded by Practical action	<ul style="list-style-type: none"> • Designed training module and curriculum • developed training materials and delivered training
6 April to 9 April 2018	Training facilitator For the training on mainstreaming DRR into development planning process in Siraha organized by NRCS Siraha and funded by Practical action	<ul style="list-style-type: none"> • , Design content • Facilitate training
10 to 13 April 2018	Training facilitator For the training on institutional management training to community disaster management committee in siraha organized by NRCS Siraha and funded by Practical action	Design training module and curriculum; plan appropriate course; prepare strategy , developed training materials and delivered training
18 to 21 April 2018	Training facilitator For the training on mainstreaming DRR into development planning process in Sindhuli organized by	Design training module and curriculum; plan appropriate course; prepare strategy , developed training



	NRCS Sindhuli and funded by Practical action	materials and delivered training
22 to 25 April 2018	Training facilitator For the training on institutional management training to community disaster management committee in Siraha organized by NRCS Siraha and funded by Practical action	Design training module and curriculum; plan appropriate course; prepare strategy, developed training materials and delivered training
14 to 17 February 2018	Local Disaster and Climate Resilience Plan of Godabari Municipality of Lalitpur District	Development of LDCRP of Godavari Municipality
1st Nov to 8th Nov 2017	Training facilitator for peer educator training on DRR organized by FORWARD Nepal	Design content Facilitate training
9th August to 17th August 2017	Training facilitator for contingency plan preparation training organized by NDRC	As a Resource person for Urban DRR, Design training module and curriculum; plan appropriate course; prepare strategy, developed training materials and delivered training.
4th to 5th July 2017	As a consultant Conducted School Based DRR training in 18 schools of Dhading district from RPN GIZ.	As a Resource person for SBDRR Training , Design training module and curriculum; plan appropriate course; prepare strategy, developed training materials and delivered training.
6th to 8th June 2017	As a consultant Conducted Early Warning System training LDMC representatives of and related stakeholder of Makawanpur district from SABAL program care Nepal.	As a Resource person for EWS Training , Design training module and curriculum; plan appropriate course; prepare strategy, developed training materials and delivered 3 days training.
25 February to 20 March 2017	LDRMP preparation workshop in six VDCs such as Ramche, Maneshwara, Karthali, Ghorthali, Ghumthang and Hagam VDC of	As a project Consultant conducted each 3 days LDRMP preparation workshop ,

	Sindhupalchok district organized by Community Development and Environment Conservation Forum and funded with Mercy Corps International	And submitted prepared LDRMP to CDECF Sindhupalchok.
6th to 18th January 2017	“Resource person for the training on Child protection in emergency in six VDCs of Morang and sunsari district under Child Centered Climate Change Adaptation (4CA)” project for Students , Teachers and DMC of Sunsari and Morang District organized by FORWARD and funded with plan Nepal	As a Resource person for CCDRR Training Design training module and curriculum; plan appropriate course; prepare strategy for training need assessment, develop training materials, impart training and impact evaluation of training
22 to 28 December 2016	Resource person for the Training on Mainstreaming School disaster risk management plan into local development planning process organized by CDECF and funded with Caritas Switzerland.	As a Resource Person Conducted 2 events Training in Melamchi Sindhupalchok for SMC,PTA, Head teachers/teachers and students. And Design training module and curriculum; plan appropriate course; prepare strategy for training.
13 to 16 Dec. 2014	Child Centered Disaster Risk Reduction training for school teachers, School Management committee and Resource persons of District Education Office in Morang district from Forward Nepal funded with plan Nepal	Resource person for CCDRR Training Design training module and curriculum; plan appropriate course; prepare strategy for training need assessment, develop training materials, impart training and impact evaluation of training
25 to 29 September 2014	Community Base Disaster Risk Management Project	Resource person for training on 4CA for School teacher in Sunsari.
05 to 07 September 2014	Service Oriented Training for VDC Secretary funded with Women Development Centre LDTA	Resource person for CRM/DRM Training Design training module and curriculum; plan appropriate course; prepare



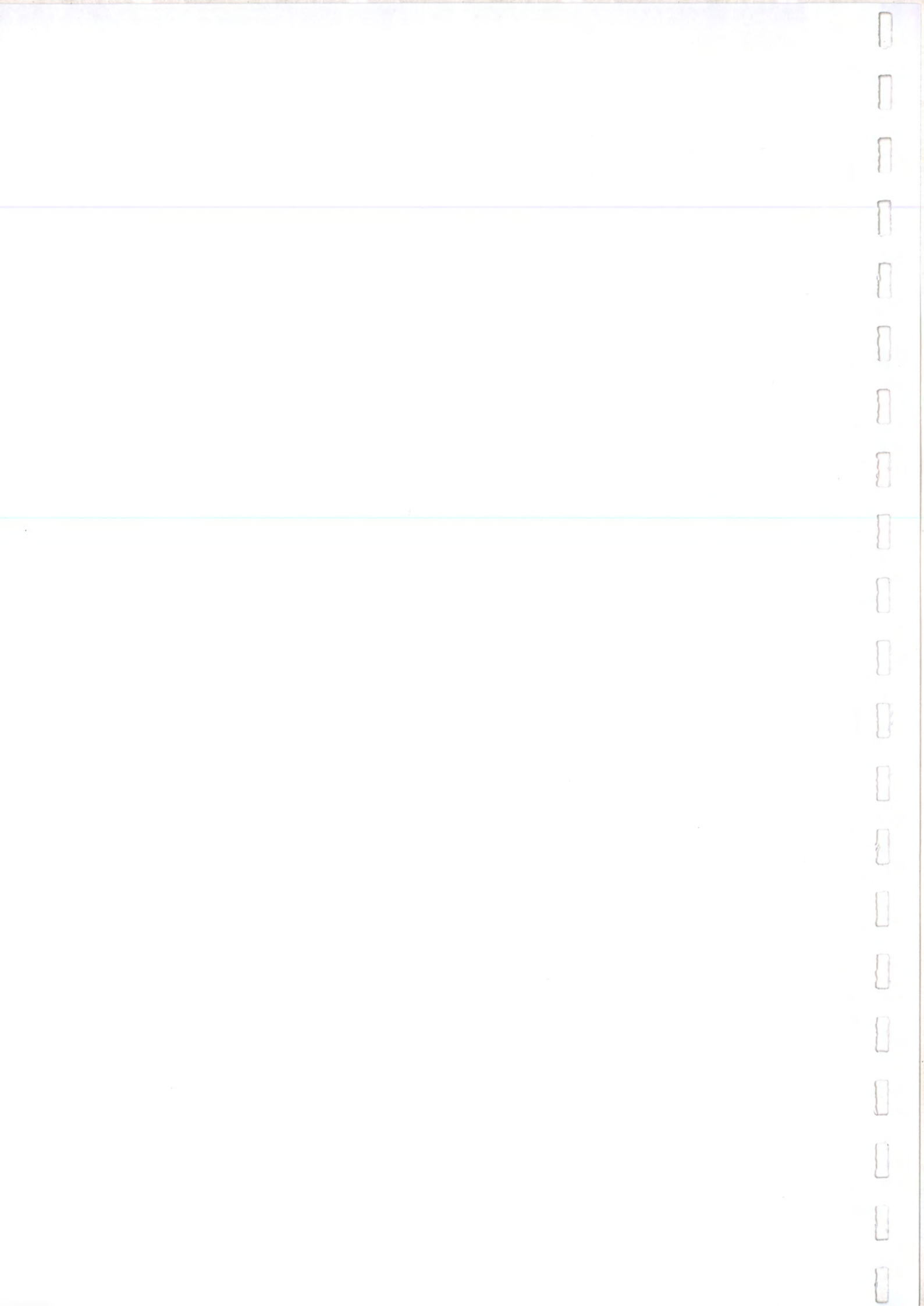
		strategy for training need assessment, develop training materials, impart training and impact evaluation of training
18 May to 1 June 2014	“Training of Trainers on Child Centered Climate Change Adaptation (4CA)” for Students , Teachers and DMC of Sunsari and Morang District organized by FORWARD and funded with plan Nepal	As a Resource Person Conducted 20 days TOT for each separate group. Design training module and curriculum; plan appropriate course; prepare strategy for training need assessment, develop training materials and facilitate training
April 17 to 21 2014	Training on Mainstreaming Disaster and Climate Risk Management into Development Process organized by LDTA /DDC of Gorkha District and funded with UNDP	As a Resource Person Conducted 4 days Training for Government officers of concerned district.
Jan 24 to March 24 2014	Conducted Child Centered Disaster Risk Management Initiatives in Banke District organized by RCDC and funded with plan Nepal Banke.	As a Project Consultant Conducted various school and community related activities.Preparation LDRMP of 4 VDCs, Coordination with concern VDCs and schools.
from 8-24 poush 2070	Training on Mainstreaming Disaster and Climate Risk Management into Development Process organized by LDTA /DDC of Kavre , Sindhupalchowk and Dolakha District and funded with UNDP	As a Resource Person Conducted 4 days Training in each district for Government officers of concerned district. .
November 16 to Dec. 24, 2013	LDRMP preparation workshop in seven VDCs such as Hemja, Sardikhola, Machchhapuchhre, Lamachour, Puranchour, Lahachowk and Ghachowk organized by Siddhartha Club Kaski and funded with	As a project Consultant conducted LDRMP preparation workshop ,3 days orientation in each VDCs , LDRMP preparation and handed over to Partner organization.



BDRC (Building Disaster Resilient Community)	
Involvement in Environmental Assessment Study	
<ul style="list-style-type: none"> • IEE for Establishment of Herbs Processing Distillation Unit in Jajarkot, HPPCL-Jadibuti • IEE for Establishment of Industrial Village at Tarakhola Rural Municipality, Baglung • IEE Study of Balkot-Godawori Khola-Mahendra Shanti-Chitrapur-Daddhikot chok-Sikaritar-Krishna Mandir-Tarkhal-Antalingeshwor Mandir- Khadka gau Kalika danda-Dhobi khola -Ranikot Road (12.388 km), Bhaktapur, Province 3 • IEE Study of Babiya-Birta Road Upgrading (9.3 km), Morang, Province 1 • Initial Environmental Examination (IEE) of Upgrading of Puspupal Chowk-Gachhiya Road (23.7km); Morang, Province 1 	
Details of References	
Name Dr. Dhruva Gautam Executive Director National Disaster Risk Reduction Centre Nepal Ph no: 9851095808 Email: drrgautam@gmail.com Mobile: +977-9851105613	Dr. Ramesh Kumar Dhungel Socio-cultural expert rkdchabahil@hotmail.com Mobile:- 9851107965

Dhruva





Praresh Chalise

Godavari, Lalitpur, Nepal

Mobile No.: +977-9843074771, 9817137100

E-mail: -praheshchalise32@gmail.com

Career Objective: An experienced individual with a degree in Environmental Science and decent knowledge of environment concerns, is willing to take research challenges as a PhD candidate.

Summary of Skills:

- Comprehensive knowledge of theories and principles of environmental conservation, climate change and ecology
- Familiar with the research writing and report writing
- Sound knowledge on GIS and remote sensing as well as technical research software for data processing and analysis
- Possess well-organized, management and communication skills

Professional Experience:

Thrive Engineering Consultancy Pvt. Ltd

Environment Consultant (April, 2021 – Ongoing)

- Worked as environmentalist in different DPR, IEE and EIA project related to road, infrastructure.
- Review project document, actively engaged in data analysis, consultation with local government bodies, public consultation and report preparation.

ITECO Nepal (On going)

Environment Consultant

- Worked as environmentalist in different DPR, IEE and EIA project related to road, infrastructure.
- Review project document, actively engaged in data analysis, consultation with local government bodies, public consultation and report preparation.

Projects Abroad UK

Conservation Field Coordinator (March 1, 2019 – September 30, 2020)

- Assisted the volunteer's and student's integration into the conservation project.
- Frontline liaison with volunteers, helping the volunteers to learn correct procedures for observing and participating in the conservation projects and to write research reports based on the data collected.



- Ensuring that the volunteers are familiar with and understand all conservation projects and methods.
- Devising and Conducting experiments, actual field work in research on animals and plants.
- Presenting ongoing work and findings to relevant parties via Annapurna Conservation Area and Projects Abroad itself.
- Devising to draw up new research proposals.
- Developing and implementing new projects for volunteers.
- Manage timely execution of monitoring and evaluation of projects to ensure program quality and satisfaction.
- Weekly meetings.
- Providing brief survey reports on all conservation projects and forwarding on to Regional Coordinator and Deputy Director.
- Conducting main ongoing PROJECTS:
 1. Bird watching and monitoring
 2. Reptiles and Amphibians survey
 3. Rhododendron regeneration survey
 4. Raising Awareness of the importance of protecting the environment
 5. Setup and monitor trail camera footage
 6. Butterflies survey
 7. Water Quality Assessment

EFLGP, Ministry of Federal Affairs and Local Development (MoFALD)

Monitoring and Evaluation Officer, Environmentalist (2073 Mangsir to 2074 Shrawan).

- Provided technical and administrative support for program implementation.
- Prepared local level strategic plan for environment and climate change adaptation.
- Coordinated and facilitated for smooth implementation of EFLGP.
- Carried out researches related to environment conservation and CC adaptation.
- Preparation of funding matrix.
- Conducted trainings and different workshops.
- Worked for children and women rights.
- Awareness programs for reducing child labor and as well as women empowerment.

Avani Advertising Pvt. Ltd.

Photographer (2015 to 2016 A.D.)

- Led and participated in campaigns related wildlife photography.
- Teamed up with numerous social clienteles on marketing and advertising sector.

Habitat Constructions Engineers Pvt. Ltd

Environment surveyor and consultant (2012 February to 2013 November)



- Worked for cement factory of Janakpur.
- Prepared proposals regarding the environment conservation and community development and carried out field surveys, trainings and workshops as necessary.
- Prepared reports on impacts of the cement factory on the environment for mitigation of the effects.

Other Experience

EIA and IEE of different hydro projects in Sindhupalchowk district. Recently worked with NESS (Nepal Environmental and Scientific Services Pvt. Ltd.), Maitighar, Kathmandu as Team Leader environmental survey of transmission line in Dhading to Makwanpur, Butwal To Sayngja and Damauli belt.

Educational Experience

- **Master's Degree in Environmental Science**
Central Department Environmental Science, Tribhuvan University, Kathmandu, Nepal
2016
Dissertation: POLLINATION ECOLOGY: A Study on Bumblebee distribution in different landuse in northern Lalitpur, Nepal
- **Bachelor's Degree in Environmental Science**
Golden Gate International College, Tribhuvan University, Battisputali, Kathmandu, Nepal
2012

Other Information

Languages: English: Excellent

Nepali: Excellent

IT Knowledge: Software: R Studio, GIS, SPSS, MS Office

PUBLICATIONS

Rai, V., Thapa S., Chalise, P. & Shah, K. (2021). Record of bats and their echolocation calls from southern Dolakha, central Nepal. *Mammalia*, 85(6), 557-567.

<https://doi.org/10.1515/mammalia-2020-0141>



References

Prof. Dr. Kedar Prasad Rijal

Former Head of the Department,

Central Department of Environmental Science, Tribhuvan University (TU)

kedarenv@yahoo.com, 9841372943

Prof. Dr. Madan Koirala

Central Department of Environmental Science, Tribhuvan University (TU)

mkoirala@cdes.edu.np, madankoirala@gmail.com, 9841259938

Dr. Dinesh Raj Bhujii

Climate change and ecosystem resilience expert

Resources Himalaya

drbhujii@cdes.edu.np, 9841992216

Mr. Guru Prasad Subedi

Programme Manager, EFLGP

Under- Secretary, Ministry of Federal Affairs and Local Development (MoFALD)

guru.subedi@hotmail.com, 9851063605

Mr. Pabitra Dahal

Environmental Officer

Upper Tamakoshi, Dolakha

9841865173

Harry Kent

Deputy Operations Director

Tel: +44 (0) 1903708300

Handwritten signature



Name : **Bhawani Bhandari**
Address : Phidim municipality-5, Panchthar.
Sex : Male
Status : Single
Date of Birth : 2046/10/21 (3 Feb 1990)
Languages : Nepali, English, Hindi, and Limbu (known)

Carrier Objective

To pursue a challenging career in the Educational field and associate with an organization that offers opportunity to grow and work in the field of nature conservation.

Summary of Skills and Experience:

I have excellent interpersonal communication, pleasant personality, and ability in coordination for events, meeting, workshops, etc. I have thematic knowledge in protection, sustainable development and good governance. I have skills to produce quality report and documentation.

Educational Qualifications:

2013-2015 Master in Botany, Central Department of Botany, Tribhuvan University, Kathmandu, Nepal

M. Sc. Degree: Passed with First division (GPA 3.35)

(Plant Biodiversity and conservation, Agriculture and Forest Pathology, Seed and food security, Plant Biotechnology and Biochemistry, Plant Physiology, Cytology and Genetics, applied Mycology, Microbes and Human Welfare, Biostatistics and research Methodology and ethics)

2012-2009 Tribhuvan University, Amrit Science Campus, Kathmandu, Nepal

Bachelor Degree: Passed with Second division (59.14%)

(Specialization: Botany, Environmental Science, Earth hazard Control and management, Chemistry, and Research Methodology)

2008-2005 Tribhuvan University, Amrit Science Campus, Kathmandu, Nepal

Intermediate: Passed with Second division (56%).

(Specialization: Biology, Chemistry, Physics, Mathematics)



2005 Ministry of Education, Government of Nepal
School Leaving Certificate (SLC) with First division (72.25%)

Professional Experiences

- Science Teacher (Lower Secondary), Shukrataru English School Phidim, Panchthar 2007-2009.
- Science teacher (Secondary, Part-time), SAIPAL academy School, Sukedhara Kathmandu.2010-2012.
- Member of advisory board, botanical student society (BOSS) 2014-2016.
- Botany Teacher at Himal Dental Hospital and Research Centre, 2016 - Now
- Botany Teacher, SAIPAL Academy, Dhumbarahi Kathmandu, 2016- Now.
- Botany Teacher, St Lawrence College, Chabahil, Kathmandu 2016- 2017 .
- Botany Teacher, Nepal Mega College, Babarmahal, Kathmandu since 2018.
- Participated on the workshop on “Classroom Management” by Partner school network, British Council Nepal.

Research Experience

- Worked as researcher in Research project funded by NAST/ADB and implemented by Central Department of Botany on titled “Assessment of the Effects of Climate Change on Distribution of Invasive Alien Plant species in Nepal” under Prof. Dr. Mohan Siwakoti and Asso. Prof. Dr. Bharat Babu Shrestha, 2016
- Three days educational visit to Champadevi- Chandragiri-Chitlang to understand forest pathology 2016
- Four days educational visit to, Hetauda, Makawanpur, Nepal to understand technique of identification and collection of the plants and study of bio-diversity in the year 2014 A.D
- Five days educational visit for lower plant collection and to study bio-diversity in fields of Lamjung district of Gandaki Zones of Nepal in the year 2013A.D.
- Academic mini project “Isolation and Characterization of probiotic bacteria from JUJU DHAU (local made yogurt) from Bhaktapur, Kathmandu.
- Visited more than 40 districts of Nepal during different field visit, excursion and botanical tour
- Worked as an active member of Good Earth Nepal Research unit.



- Participated on one day Workshop on Dendrochronology.

Operating Systems Known:

Microsoft window (MS office, email and Internet)

Publications

Comparative study of macrofungi in different forest types of Boshan Community Forest, Kathmandu Central Nepal. (Botanica Orientalis 2018/09/07), Central Department of Botany , Tribhuvan University ,Kathmandu, Nepal)

References

1. Prof. Dr. Mohan Siwakoti

H.O.D, Central Department of Botany

Tribhuvan University, Kirtipur Kathmandu

+977-1-4331322

Mr. Ganesh Prasad Bhandari

Executive Director,

SAIPAL Academy, Kathmandu, Nepal

+977-01-4009055

Dr. Sanjay kumar Jha

Co-ordinator, Plant Pathology Unit,

Central department of Botany

Tribhuvan University, Kirtipur Kathmandu

+977-9843051710

I hereby declare that information contained in this resume is true to the best of my knowledge.



Name	Bijaya Rai
Address	Permanent: Dhankuta-4, Dhankuta Temporary: Kadhagari , Kathmandu
Mobile/Email	+977-9825371330 / bijaya.rai2047@gmail.com
Date of Birth	3 rd October 1990
Nationality	Nepali
Profession	Researcher / Field Enumerator
Working Experience	5 years
Performance Expertise	Field Facilitation & Team Coordination,
Hobby and Interest	Travel, trekking and photography

Education

Institution	Degree(s) obtained:
College of Applied Science, Tribhuvan University (073/74)	MSc Environmental Science
Amrit Science College, Tribhuvan University (2009-2012)	BSc Environmental Science

Research activities

1. A Case Study on Tree Species of Jitpur-Leguwa Road Section, Dhankuta.
2. A Case Study on Effectiveness of Bio-Engineering Practices Along the Dharan-Bhedetar Road Section.

Professional Experience:

Date : February 2019 to April 2019
Employer : Malla and Group Engineering Associates Pvt. Ltd
Position held : Assistant Environment Expert



Assignment Title :

- IEE of Administrative Building of Bhimdatta Municipality
- EIA of major road section of Bhimdatta municipality
- Initial Environmental Examination (IEE) of Kimdanda Co-Financing Water Supply and Sanitation Project, Province no. 5, Arghakhanchi
- Initial Environmental Examination (IEE) of Mulpani-Sankhadevi Co-Financing Water Supply and Sanitation Project, Province no. 3, Lalitpur
- Initial Environmental Examination (IEE) of Punarbas IBRD Sewerage Management Project, Sudurpaschim Province, Kanchanpur
- Initial Environmental Examination (IEE) of Punarbas Townbajar Sewerage Management Project, Sudurpaschim Province, Kanchanpur
- Initial Environmental Examination (IEE) of Waste Water Management Project, Belauri Sudurpaschim Province, Kanchanpur

Client : GoN, Ministry of Water Supply and Sanitation, Department of Water Supply and Sewerage Management

Activities performed:

- Field Visit (Site inspection, FGD at Zone of Influence (ZOI), and overall environmental assessment.

Date : February 2018 to April 2020

Employer : New Planet Engineering consultant

Position held : Field Officer/Environment Expert

Assignment Title :

- Initial Environment Examination (IEE) Study for sustainable extraction and collection of sand, gravel, stone from bank of Sunkoshi River, Tamakoshi river, Bhatauli Khola of Khadadevi Rural Municipality
- Detail Engineering Survey and Design of Sidhuwa-Jitpur Road with Resettlement Plan (RP) & Initial Environment Examination (IEE)-CLPIU-NRA
- Initial Environment Examination (IEE) Study for sustainable extraction and collection of sand, gravel, stone from bank of Luvu Khola Sunkoshi Kinar To Bharyantar-Sunapati Rural Municipality



- Initial Environment Examination (IEE) for sustainable extraction of sand, gravel and stone from the bank of Tadi River along Tadi Rural Municipality that flows from Ward 2 to 6.
- IEE of sand, gravel and boulders extraction from different rivers of different rivers from several RM of Ramechaap, Makwanpur, Panchthar, Nuwakot, Sindhupalchowk Districts
- IEE for extraction of Sand, Gravel & Stone from Hewa, Muwa & Kheutham bank of river along Phalelung Rural Municipality-Panchthar
- Initial Environment Examination (IEE) Study for sustainable extraction of Sand, Gravel, Stone from Hilihang Rural Municipality
- IEE of Lapan Khola Bridge of Dhading District, CLPIU-NRA
- Environmental Assessment of Sidhuwa-Jitpur-Leguwa Road (10 KM) of Dhankuta District

Client : Rural Municipality, CLPIU-GMaLI/NRA

Activities performed:

- Field Visit (Site inspection, FGD at Zone of Influence (ZOI), Questionnaire survey, Key Informant Interview (KII), etc.), and overall environmental assessment.

Date : **March 2018 to August 2018**

Employer : Good Earth Consultancy and Research Center

Position held : Field Officer

Assignment Title : EIA study of Gorkha Polytechnic College and Research Center, Kohalpur Banke District

Location of Assignment : Kohalpur

Client : Gorkha United Public School (Pvt. Ltd)

Activities performed:

- Field Visit (Site inspection, FGD at Zone of Influence (ZOI), Questionnaire survey, Key Informant Interview (KII))



Date : **December 2017**
Employer : Multi-Inclusive Consultant JV
Position held : Water quality expert
Assignment Title : Study management of pollution of big river and their tributaries passing through urban areas
Location of Assignment : Sunsari , Udyapur
Client : Ministry of Water Supply and Sanitation
Activities performed : Sampling of river water passing through urban areas

Date : **July 2017**
Employer : Nepal Environmental and Scientific Service
Position held : Water Quality Expert
Assignment Title : Water quality test and analysis for development phase
Location of Assignment : Janakpur
Client : NESS/ FUND BOARD
Activities performed : Sampling of drinking water of tube well, bore well

Date : **November 2016 to December 2016**
Position held : Research Associate
Assignment Title : Conflict of Human in Central Eastern Elephant Corridor Nepal
Location of Assignment : Sarlahi, Sindhuli, Udaypur, Saptari, Sunsari
Client : Nepal Biodiversity Research and Saving Center
Activities performed : Field Visit (Site inspection, FGD in awareness programmed)

Date : **December 2015 to May 2016**
Employer : ENPHO



RCIP

Position held : Field officer
 Location of Assignment : Kathmandu, Lalitpur
 Major donors : SPLASH
 Activities performed : Drinking water quality test in government school of Kathmandu valley

Languages

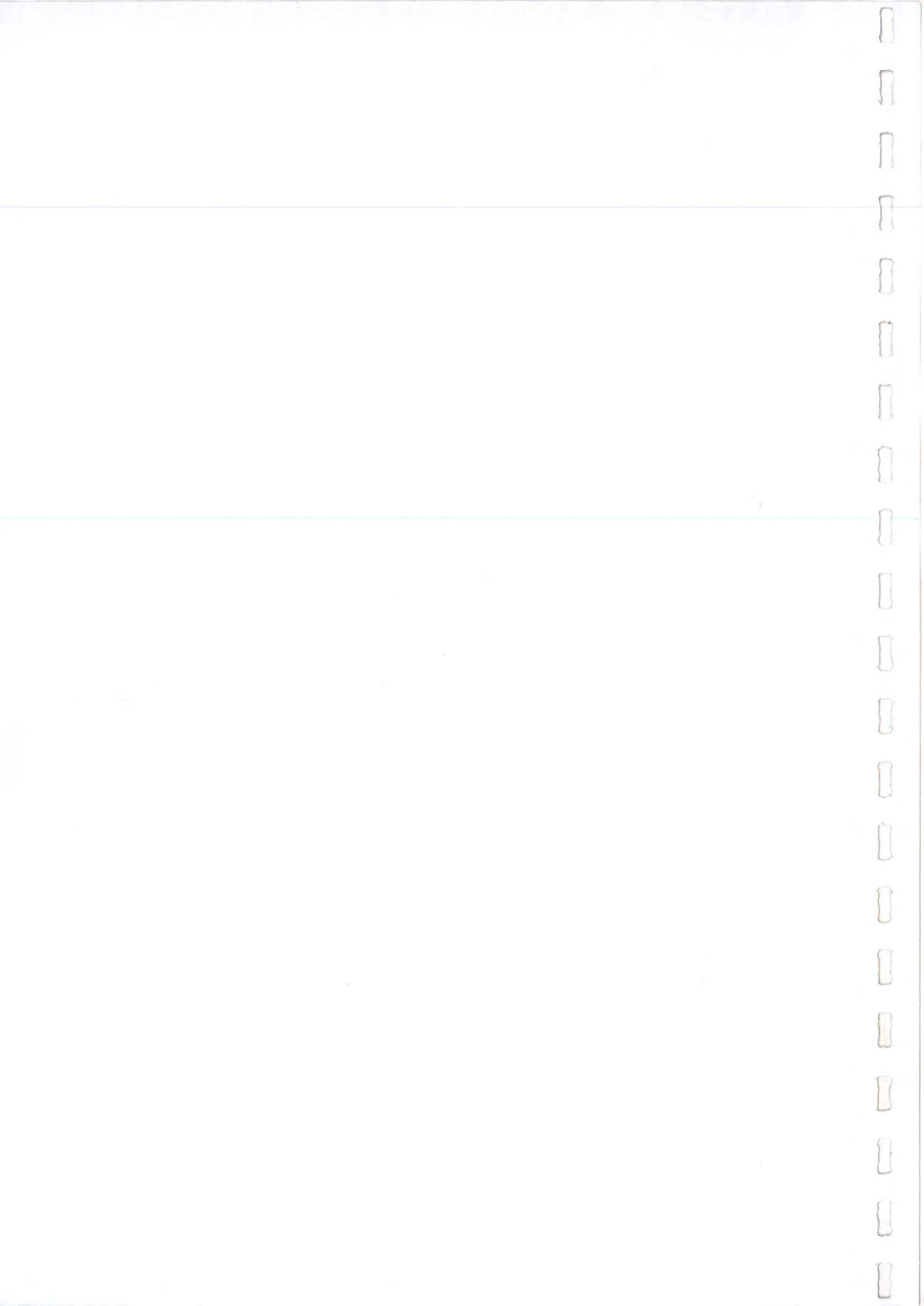
Mother tongue(s)	Nepali				
Foreign language(s)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	Excellent	Excellent	Excellent	Excellent	Excellent

Certification:



I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience





Curriculum Vitae

Name **Annan Shrestha**

Address Permanent: Myanglung-1-Tehrathum
Temporary: Nayabazar-17-Kathmandu

Email shresthaannan@gmail.com

Date of Birth 25th August 1995

Nationality Nepali

Profession GIS Analyst/Researcher

Working Experience 2 Years

Education

Institution Degree Obtained

School of Environment Science and Management Bachelor's Degree in Environment Science and Management

Professional Experience

1. Environment and Engineering Research Center (EERC) GIS Analyst for

- Sand Gravel Extraction of Haldibaari Rural Municipality-Halidibaari
- Sand Gravel Extraction of Madi Rural Municipality
- Malta-Bhadaure-Chautara-Puranogabisa Bhawan-Dovan Road Section-Dolakha
- Rani Nimuha-Koshi Nahar Road Section-Morang
- Sagarmatha-Halibaari- Goldhap-Rajgadh Road Section-Jhapa
- Salleni-Dadhipur Road Section-Bhojpur
- Danchi-Kageswori-Manohara Road Section-Bhaktapur
- Munghi-Khangsar Road Section, Mustang
- Construction of Buddha Pratima- Konjyosom, Lalitpur
- Construction of View Tower- Konjyosom, Lalitpur
- Construction of Water Supply line- Konjyosom, Lalitpur
- Coffee Development Center, Musikot Municipality
- Resource Mapping of Rajapur Municipality, Bardiya



- Construction of Sewer Line of Punarwas and Belauri Rural Municipality

Researcher

- River Bank Agriculture, HELVETAS Nepal, Janakpur
- IEE on sand Gravel Extraction of Haldibaari Municipality, Jhapa
- IEE on sand Gravel Extraction of Bakaiya Rural Municipality, Hetauda
- IEE on sand Gravel Extraction of Gokulganga Rural Municipality, Ramechhap

Trainings

- Training on Hec-RAS Flood Modelling System
- Training on GIS Software's like ARC-GIS and QGIS

Languages

Language	Speaking	Reading	Writing
Nepali	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Hindi	Good	Good	Good

Refree

Ajaya Shrestha
Managing Director EERC
eerc2016@gmail.com

Rabin Raj Niraula
Hiefer Nepal
robin.niraula@gmail.com



DEEPAK TAMANG

Address: Tarkeswor-4, Kathmandu, Nepal (Temporary)

Suryagadhi-4, Nuwakot, Nepal (Permanent)

Mobile: +977 9843713962

Email: Dtamang590@gmail.com

Professional Profile

A committed and driven BSc Environmental Science Graduate with a sound understanding of Environment, utilizes sound organization and planning skills to deliver assignments within set timeframes and to a high-quality standard.

Education and Qualifications

MSc Environmental Science (College of Applied Sciences, Nepal) Thesis pending

BSc Environmental Science (Amrit Campus) 2018

Experiences

Field Enumerator Environment and Engineering Research Center (2019/04/30-Present)

- EIA of Coffee Development Center-Aapchaur-Gulmi-Coffee Development Center-GoN, MoAD
- IEE of Construction of Road Infrastructure-8 roads at Tulsipur Sub-Metropolitan City
- IEE for Establishment of Buddha Pratima and View Tower of Konjyosom RM, Lalitpur
- IEE of Drinking Water Supply of Konjyosom RM-Lalitpur
- IEE of Dachhi-Bhardabas-Alapot-Chisapani Road (18km), Kathmandu RCIP PIU-2, Lalitpur
- IEE of Roshi River Sankhu Balthali Bridge, Panauti Municipality ward No. 11 and 12, Kavrepalanchowk
- IEE of 25 Kilo Charangphedi Pakki Bridge Construction, Namobuddha-6, Kavrepalanchowk
- BES of Bhiman Highway Check Post and Toll Booth Construction, Kamalamai, Sindhuli

Personal Skills, Training & Participation:

- Microsoft Word, Excel and PowerPoint.
- RStudio
- ArcGIS
- Ability to work in teams
- Problem-solving capacity



Deepak

I hereby state that all the above statement data are true.

Deepak Tamang



ALINA SHRESTHA

Date of Birth:	23 rd April, 1996	Permanent Address:	Khandbari Municipality, Ward No. 01, Sankhuasabha, Province 1, Nepal
Citizenship:	Nepalese	Mobile No.:	+ 977 9843764615
Languages:	Nepali – native English – fluent	E-mail:	alinashrestha225@gmail.com

EDUCATIONAL BACKGROUND

Degree	University/Institution	Discipline
M.SC. (Thesis Submitted)	Central Department of Environmental Science (CDES), Tribhuvan University, Nepal	Environmental Science
B.Sc. (2018)	Amrit Campus, Tribhuvan University, Kathmandu, Nepal	Environmental Science

KEY QUALIFICATIONS

Field of Expertise	<ul style="list-style-type: none"> ➤ Water Quality Analysis ➤ Pollution Control ➤ Disaster Risk Reduction (DRR)
Software Knowledge	<ul style="list-style-type: none"> ➤ ArcGIS, R Studio, IBM SPSS, Diagramme, DIPS, Origin, and MS Office

EXPERIENCE
1. Data Researcher in Crazy Media Design.
2. Program coordinator of Guinness World Record Setting event “A Dead Sea Map” at STEM.
3. Thesis/ Project Intern at Water Resources Research and Development Center (WRRDC). <ul style="list-style-type: none"> ➤ Field work (Spring mapping & Sampling) ➤ Laboratory analysis of spring water ➤ Data analysis ➤ Report writing



4. IEE of Dachhi – Bhardabas – Alapot – Chisapani Road (18 km), Kathmandu RCIP PIU - 2, Lalitpur
5. IEE of Bokhim – Piple Road (10.5km), Bhojpur, RCIP PIU -1, Jhapa
6. IEE of Khandbari – Malta – Bhadaure – Chautara – Dovan Road (9.940km), Sankhuwasabha
7. IEE of Rani Nimuha Canal Service Road (22.263km), Morang, RCIP PIU-1, Jhapa

CONFERENCE AND WORKSHOP PRESENTATION

1. Two days Seminar on The Technology of Study, Communication, Assist for Illness and Injuries and First Aid Basic Courses, January, 20-21, 2016.
2. Proposal Writing and Poster Preparation, March 3, 2018.
3. Contribution as Volunteer in Nepal Environment Week 2018, May 30- June 5, 2018.
4. A conference on Environmental problems and Role of Education in its Solution, November 29-30, 2018 Lalitpur, Nepal.
5. Youth for smart solutions 3 Looking at Sustainability Post COVID-19, December, 20-22, 2020.
6. Training on Electrical Resistivity Tomography (ERT) and Vertical Electrical Sounding (VES), June, 5-10, 2022.
7. Empowering Women in GIT, ICIMOD, August, 16-19,2022.

AWARDS

Third position in poster presentation, 2018. A conference on Environmental problems and Role of Education in its Solution, November 29-30, Lalitpur, Nepal.

RESEARCH PUBLICATIONS

- Chauhan, R., Shrestha, A., & Khanal, D. (2021). Noise pollution and effectiveness of policy interventions for its control in Kathmandu, Nepal. Environmental Science and Pollution Research, 1-12.
- Pradhan, A.M.S., & Shrestha, A. (2022). Delineation of groundwater potential zones in a slope unit-scale by means of naïve Bayes classifier. Water Resources Research and Development Centre. DOI: [10.13140/RG.2.2.31484.41605](https://doi.org/10.13140/RG.2.2.31484.41605)

WEBINAR

1. International web-conference on 1st international web conference on Policy Dialogues- 2020, September 5 & 6, 2020.
2. Technical webinar on Role of Road Safety Audits In Improving Traffic Safety, November 8-10, 2020.

PROFESSIONAL ORGANIZATIONS

1. Land Our Future (Core Team Member)
2. WRRDC (Intern)
3. EERC (Environmental Officer)

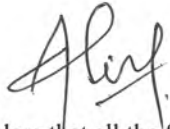
Project/ Thesis Title



1. Assessment of Policy Intervention for Noise Pollution Control: A Case Study of No Horn Declaration in Kathmandu Valley
2. Assessment of Spring Water Quality of Khandbari Municipality in Sankhuwasabha District, Eastern Nepal

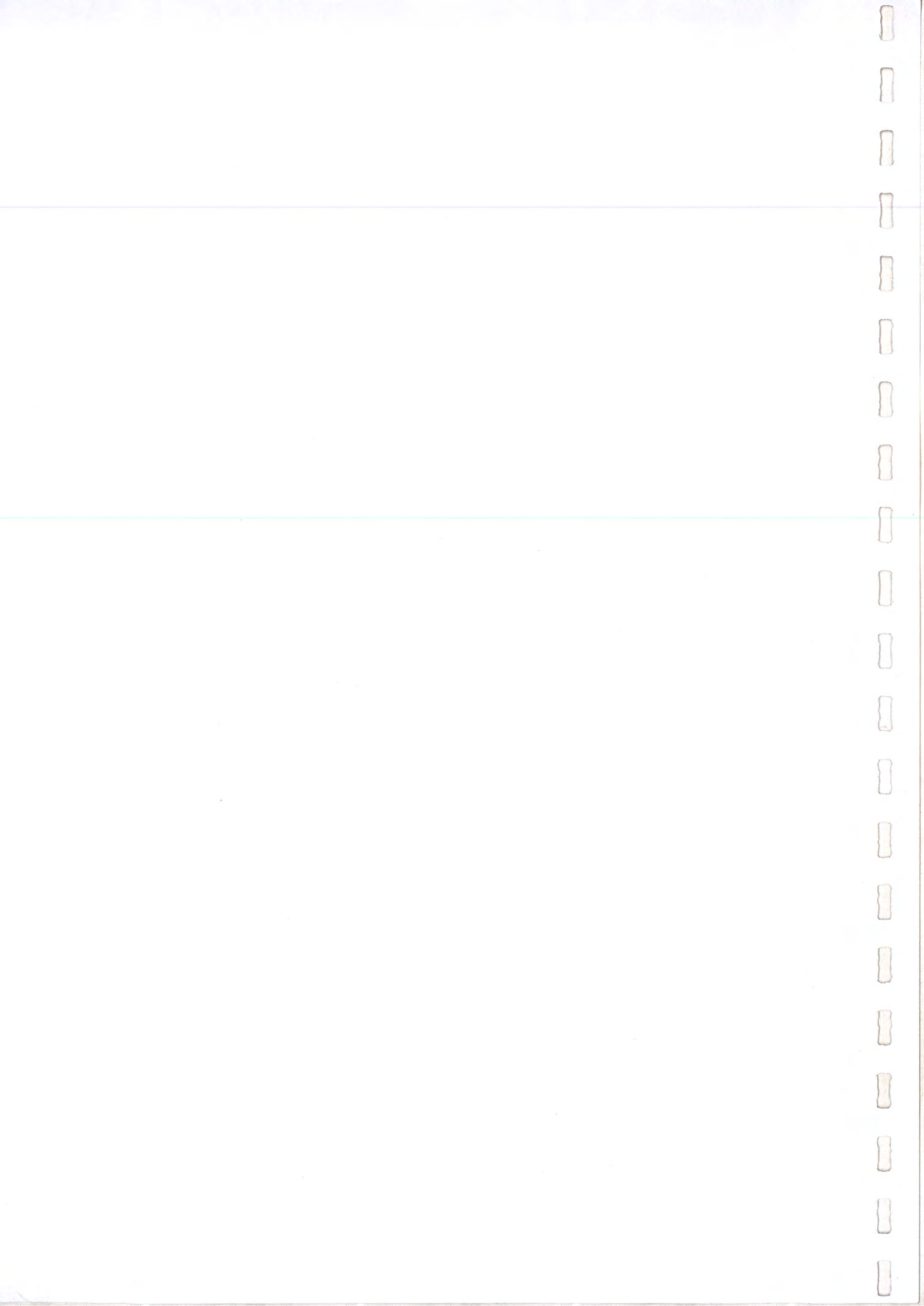
References:

Name	Organization	Position	Contact	E-mail Address
Govinda Rai	Floyd Consultancy	CEO	9801700000	govind@floydconsultancy.com
Surgeon BC	STEM Foundation	Co-Founder	9851136281	surgeonbc@gmail.com
Dr. Ananta Man Singh Pradhan	WRRDC	SDiv. Eng. Geologist	9841258698	anantageo@hotmail.com
Ajaya Shrestha	EERC	Managing Director	9841525256	eerc2016@gmail.com



I hereby declare that all the facts given are true. You can take the given references to verify. Thank you!





ANNEX 15: Declaration from IEE Study Team

Name/Address of the Project Proponent: Department of Local Infrastructures, Rural Connectivity Improvement Project (RCIP), Shree Mahal, Pulchowk, Lalitpur

I declare the following:

- (i) I have read and checked the content of this IEE report;
- (ii) My study team members have conducted the study professionally using acceptable methodologies;
- (iii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iv) Myself and my team shall be accountable for any misleading information in any part of this report

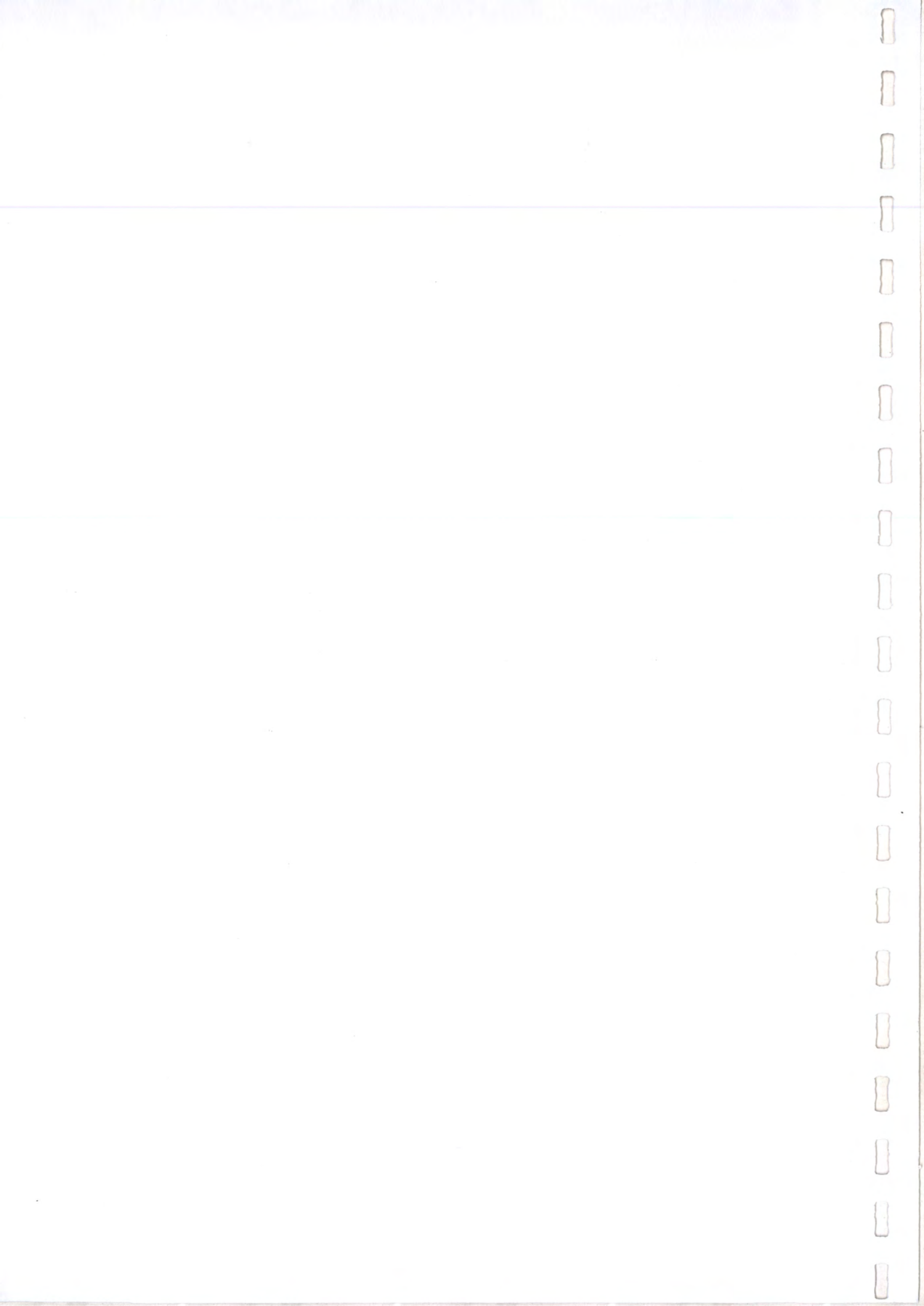


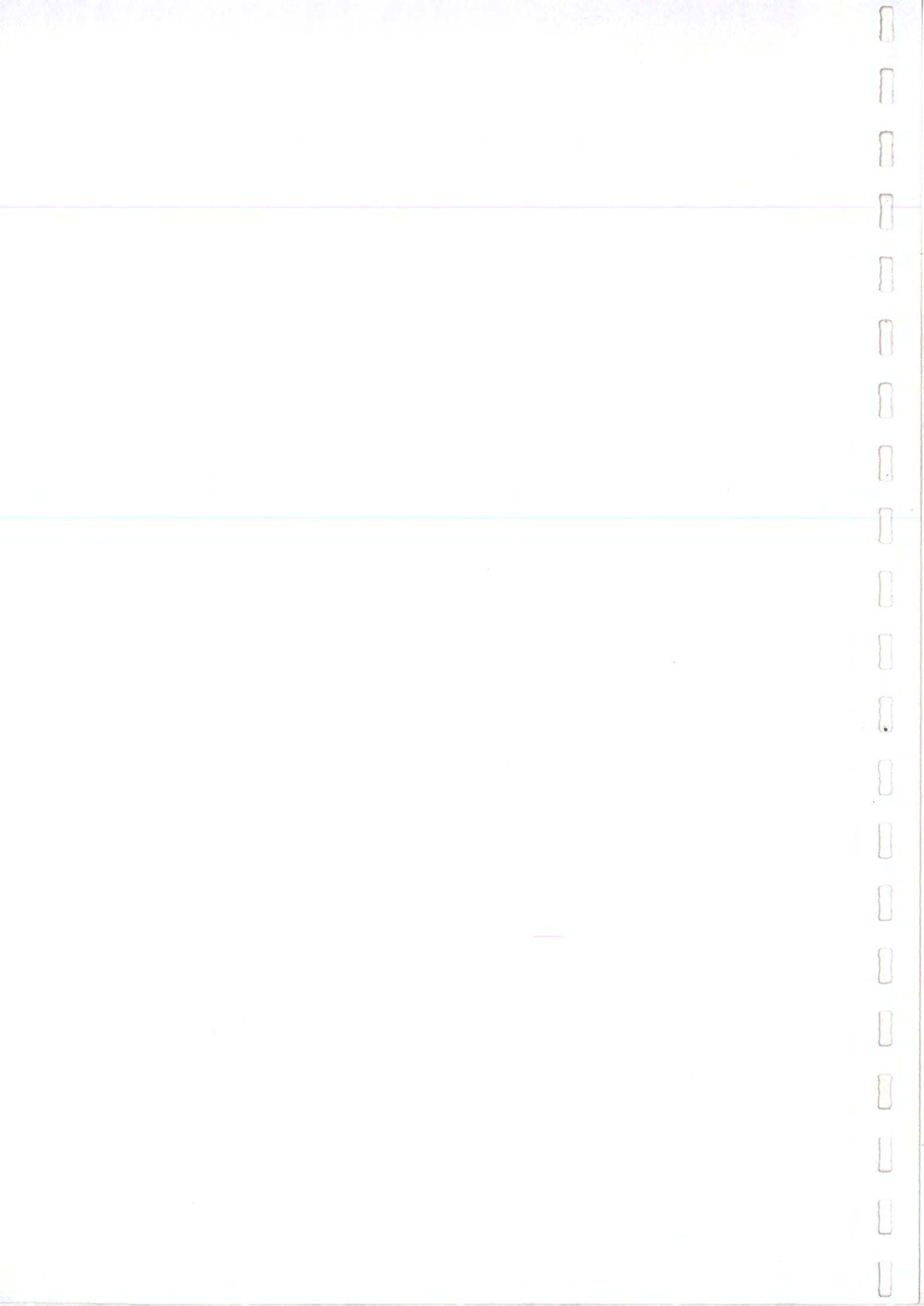
Signature:

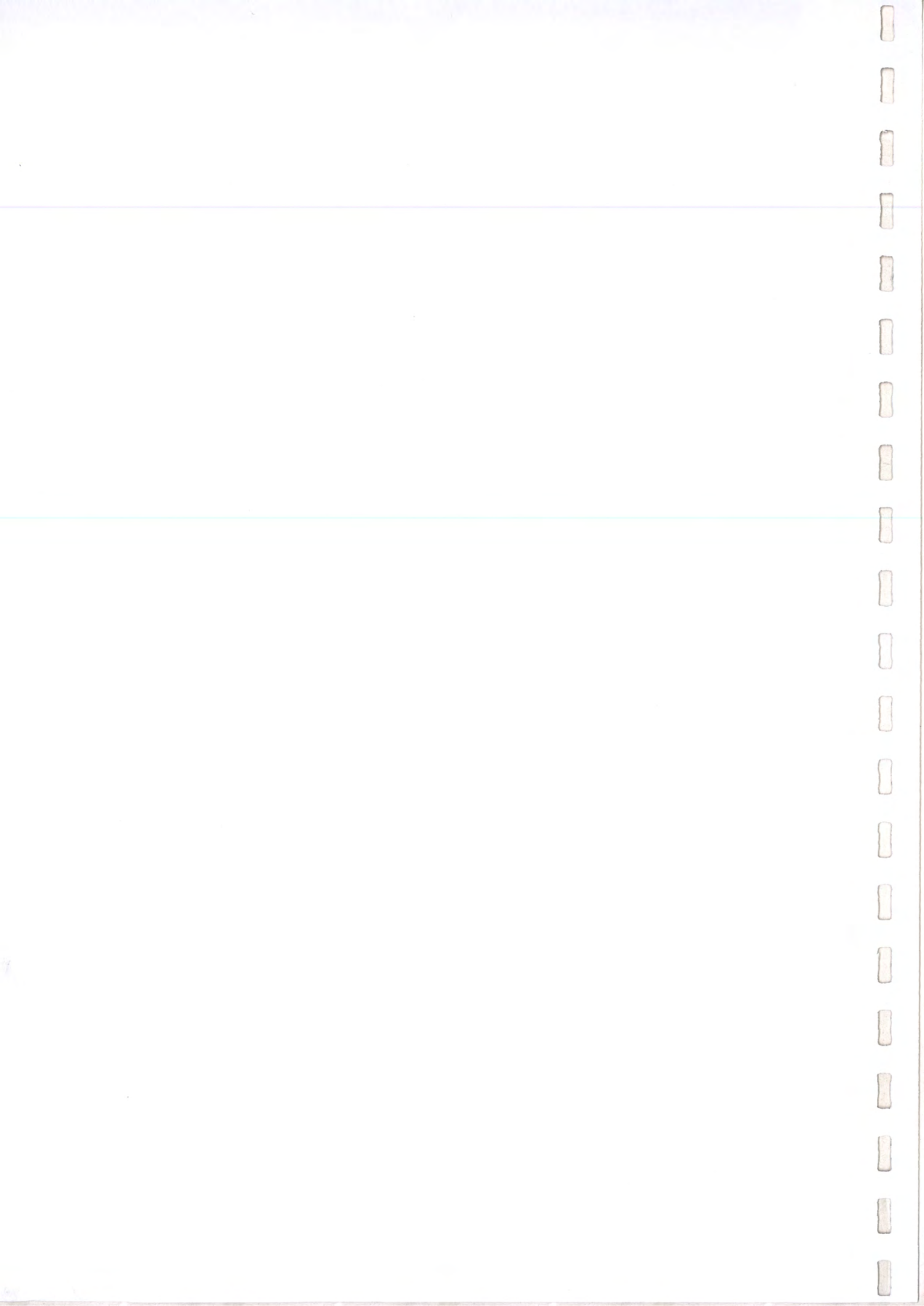
Name: Navaraj Pokharel

Date:









Comments on IEE of Bhagwanpur – Dhakdhai – Khaireni Road

Sn	Comment	Remarks	Page No.
1	प्रस्तावित आयोजना प्रस्तावको औचित्यमा वन क्षेत्र पर्ने/नपर्ने यकिन नभएको हुँदा सो विषय स्पष्ट पार्ने	Made clear in section 2.4	5



Government of Nepal
Ministry of Development
Planning and Infrastructure
Rural Infrastructure Development
Project (RIDP)
Implementation Unit



नेपाल सरकार
विकास, योजना तथा
संरचना विभाग

