



नेपाल सरकार  
सङ्घीय मामिला तथा सामान्य प्रशासन मन्त्रालय

(वातावरण तथा विपद व्यवस्थापन शाखा)

पत्र संख्या : ०७९/०८०

चलानी नं. : १६४



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 वामीटक्सार (ईन्द्रगौडा)-आपचौर-शान्तिपुर सडक, गुल्मी 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 छ:

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, विधि र व्यवस्थापन EMP मा स्पष्ट गर्ने ।
६. अनुगमन समिति गठन गर्दा स्थानीय तहको समेत प्रतिनिधित्व हुने गरी गर्नुपर्ने ।

(सन्तोष कुमार खत्री)  
शाखा अधिकृत



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

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Government of Nepal  
Ministry of Federal Affairs and General Administration  
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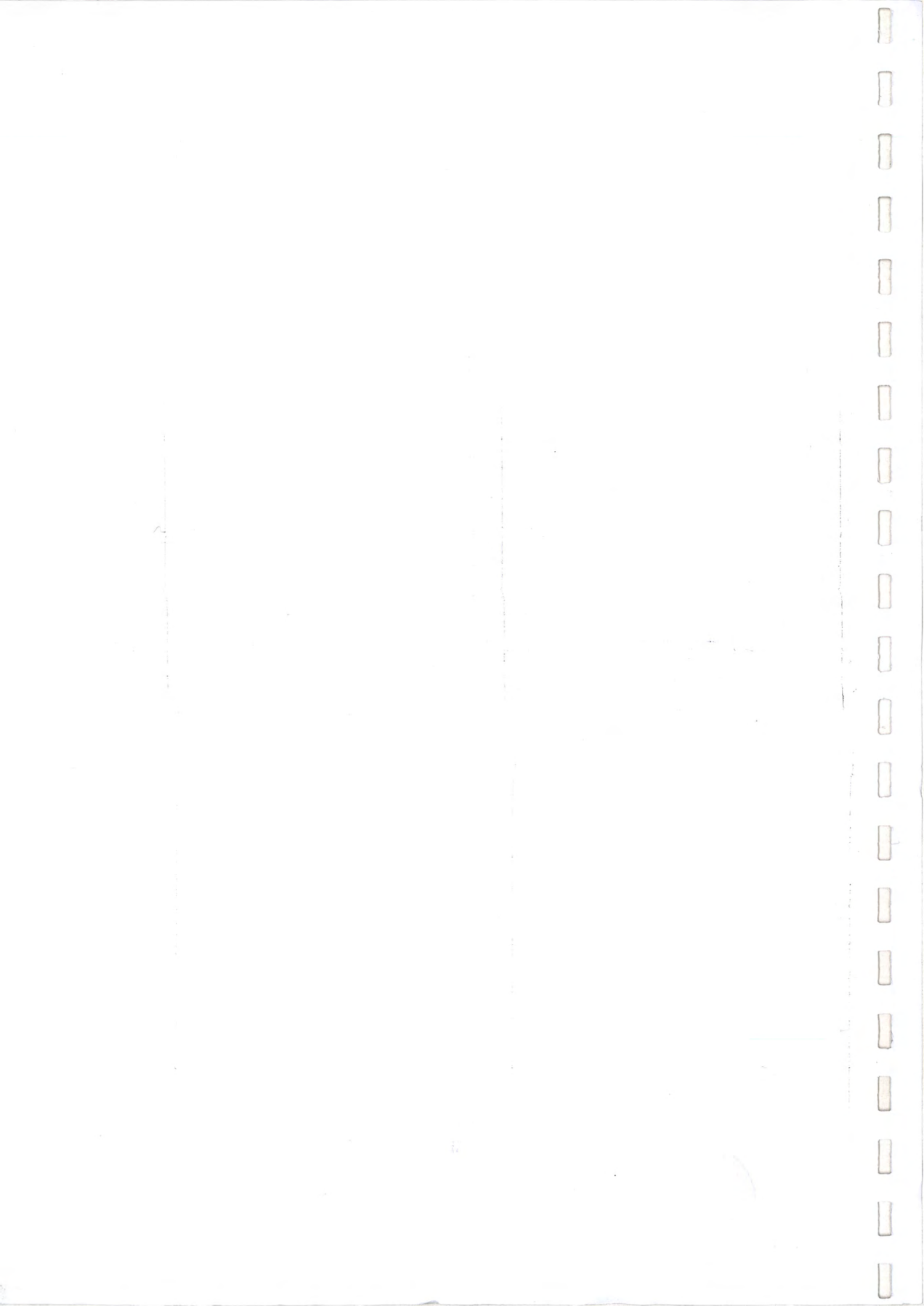
Initial Environment Examination (IEE) Report  
OF  
Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (22+300 Km)  
Gulmi, Lumbini Province



<b>Submitted to</b> Ministry of Federal Affairs and General Administration Singhadurbar, Kathmandu Phone: 01-4200318 Email: <a href="mailto:info@mofaga.gov.np">info@mofaga.gov.np</a>	
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## कार्यकारी सारांश

### पृष्ठभूमि:

ग्रामीण सडक सञ्जाल सुधार आयोजनाले हाल १६ जिल्लाहरू अन्तर्गत रहेका करिब ३८८ किलोमिटर ग्रामीण सडकहरूलाई कालो पत्रे स्तरमा स्तरोन्नति गर्ने कार्य भइहेको छ । ग्रामीण क्षेत्रको दिगो विकासका लागि आयोजनाले ग्रामीण सडक सञ्जालको यातायात दक्षता सुधार, आर्थिक अवसरहरूको विस्तार र गरिबी न्यूनीकरणमा योगदान पुऱ्याउने छ । यस आयोजनाले ग्रामीण सडक सञ्जालको यातायात दक्षता सुधार गर्ने लक्ष्य राखेको छ । यसले आर्थिक अवसरको विस्तार र गरिबी न्यूनीकरणमा योगदान पुऱ्याउने छ । 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 । आयोजनाले सामाजिक सेवा र बजारको पहुँच सुधार गरिनेछ, इन्धनको क्षमता वृद्धि, आर्थिक केन्द्रहरूको उन्नत पहुँच र आयोजनाले जिल्लाहरूमा औद्योगिक गतिविधि बढाउने, यात्रा समयमा कमी; दुर्घटनामा कमी र कृषिबाहेक रोजगारका उत्तम अवसरहरू सिर्जना गर्ने । यस आयोजनालाई एसियाली विकास बैंक (एडीबी) द्वारा आर्थिक सहयोग गरिएको छ ।

### उप-आयोजनाको विवरण:

प्रस्तावित सडक रेखाङ्कन लुम्बिनी प्रदेशको गुल्मी जिल्लामा पर्दछ । “वामीटक्सार (इन्द्रेगौडा)-आपचौर-शान्तिपुर (चेनेज ०+०००-२२+३००) सडक” मुसिकोट नगरपालिका वडा नं. ५ इन्द्रेगौडाबाट शुरु भई चन्द्रकोट गाउँपालिका वडा नं. ४ शान्तिपुरमा अन्त्य हुन्छ । प्रस्तावित सडक रेखाङ्कनमा गुल्मी जिल्लाका ४ वटा वडाहरू जसमा मुसिकोट नगरपालिका वडा नं. ५ र चन्द्रकोट गाउँपालिका वडा नं. १, २, ३ र ४ समेटिएको छ । विद्यमान सडकको कुल लम्बाइ २२.३०० किमी र कच्ची सतह भएको ३ मि. देखि ५ मिटर चौडाईमा रहेको छ । यो सडक गुल्मी जिल्लाको DTMP, २०१६ अनुसार जिल्ला सडकको श्रेणीमा पर्दछ र अहिले लुम्बिनी प्रदेशको प्रादेशिक सडकको रूपमा पर्दछ । सडक रेखाङ्कन समतल भू-भाग, खेतीयोग्य जमिन, जंगल र बस्ती भएर जान्छ। यो सडक उपआयोजना गुल्मी जिल्लाको इन्द्रेगौडाबाट शुरु हुन्छ जुन २८°०७’३५.७१” उत्तरी अक्षांश र ८३°१९’८.४७” पूर्वी देशान्तर रहेको छ र अन्त्य सोहि जिल्लाको शान्तिपुरमा हुन्छ जुन २८°०६’३७.२९” उत्तरी अक्षांश र ८३°२४’५०.१” पूर्वी देशान्तर रहेको छ । यस उपआयोजना निर्माणको कुल लागत रु. ८४०,६१३,६४६.८५ रहेको छ भने प्रति कि. मी. ने. रु ३२,१९१,१२८.४७ रहेको छ ।



**प्रस्तावकः**

प्रस्तावित “वामीटक्सार (इन्द्रेगौडा)-आपचौर-शान्तिपुर (चेनेज ०+०००-२२+३००) सडक” स्तरोन्नति गर्ने कार्यको प्रस्तावक स्थानीय पूर्वाधार विभाग अन्तर्गतको ग्रामीण सडक सञ्जाल सुधार आयोजना, श्रीमहल, पुल्चोक, ललितपुर, नेपाल हो। त्यसैले ग्रामीण सडक सञ्जाल सुधार आयोजनाको जिम्मेवारी प्रस्तावित आयोजनाको प्रारम्भिक वातावरणीय परिक्षण (प्रा.वा.प) गर्नु हो। यस प्रा.वा.प प्रतिवेदन ग्रामीण सडक सञ्जाल सुधार आयोजना मार्फत सङ्घीय मामिला तथा सामान्य प्रशासन मन्त्रालय, सिंहदरबारमा पेश भई स्वीकृति लिनुपर्ने प्रावधान रहेको छ।

**प्रस्तावकको ठेगानाः**

प्रस्तावकको पूरा नाम र ठेगाना निम्नानुसार रहेको छः

ग्रामीण सडक सञ्जाल सुधार आयोजना

श्रीमहल, पुल्चोक, ललितपुर

फोनः ०१-५५३८३०६

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**प्रस्तावको औचित्यः**

वातावरण संरक्षण नियमावली, २०७७ को नियम ३ सँग सम्बन्धित अनुसूची २(ड) (८) ले आकृष्ट गरे बमोजिम यातायात क्षेत्र अन्तर्गत “१० किलोमिटर भन्दा बढी ५० किलोमिटरसम्म लम्बाइको 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 “वामीटक्सार (इन्द्रेगौडा)-आपचौर-शान्तिपुर” सडकको लम्बाई २२.३०० 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 ग्रामीण 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 एसियाली बिकास बैंकको आर्थिक सहयोगमा तयार गरिएकोले यस प्रतिवेदन अंग्रेजी माध्यममा तयार गरिएको हो।

**प्रस्तावको सान्दर्भिकताः**

मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिका विभिन्न वडाहरू र मुख्य वस्तिहरू भएर रेखाङकित “वामीटक्सार (इन्द्रेगौडा)-आपचौर-शान्तिपुर ” सडक खण्डमा हाल आवत जावत गर्न यस भेगका जनतालाई असजिलो भएको छ। सडक निर्माण कार्यले आयोजना क्षेत्रलाई मुख्य राजमार्गसँगको पहुँच बिस्तार गरि जिल्लाका मुख्य सहर





साथै देशको विभिन्न स्थानको पहुँच अभिवृद्धि गराउनेछ । ढिलो, खर्चिलो, असुरक्षित र अभरपदो विद्यमान यातायात सुविधा वर्षाको समयमा झनै भयाभह हुन्छ । प्रस्तावित आयोजनाले स्थानीय समुदायको आर्थिक तथा सामाजिक अवस्थामा सुधार ल्याउने छ । सडक स्तरोन्नति कार्यले छिटो, छरितो, सुरक्षित यात्रा, सेवाकेन्द्रहरूमा सहज पहुँच र कृषि उत्पादन, औषधि, ढुवानीलाई सहजता प्रदान गर्ने छ । यसबाट : स्थानीय स्तरमा उत्पादन हुने तरकारी, दुध, र अन्य उत्पादन बजारसँग जोडि स्थानीय आय आर्जनमा बृद्धि गर्नेछ । सडक स्तरोन्नति ले प्रभावित स्थानीय तहका स्थानियवासीहरूको आवत जावतलाई प्रत्यक्ष रूपमा सहज बनाउने छ ।

### प्रा.वा.प का उद्देश्यहरू:

यस प्रा.वा.प को मुख्य उद्देश्य प्रस्तावित प्रस्तावको कार्यान्वयनबाट उपआयोजना 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 उपआयोजना 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 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 २०७८/०१/१२ 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 समुदायर सरोकारवालाहरू सँग समुहगत छलफल,परामर्श गर्ने कार्य गरियो । स्थलगत अध्ययन अर्थात सरोकारवालाहरूको जानकारीको लागि “बुटवल दैनिकमा” 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 २८ गते सार्वजनिक सुनुवाई गरियो । साथै मिति २०७९ बैशाख १० गते को “मध्यान्ह दैनिक” मा ७ (सात) दिने सार्वजनिक सुचना प्रकाशित गरि सुझावहरू मागिएको थियो । साथै एशियाली विकास बैकको इन्भाईरोमेन्टल एसिसमेन्ट गाइडलाइन सन २००३ र सुरक्षण नीति सन २००९ को समेतको अनुसरण यस अध्ययनमा गरिएको छ ।



**विध्यमान वातावरणिय अवस्था:**

प्रस्तावित सडक उपआयोजना क्षेत्र भौगोलिक हिसाबले पहाडि क्षेत्रमा पर्दछ । प्रस्तावित उपआयोजना sub-tropical/tropical र temperate क्षेत्रमा पर्दछ । सामान्यतया यस उपआयोजना क्षेत्रमा मनसुन असार महिनामा सुरु भएर भदौ महिनामा अन्त्य हुन्छ । यस क्षेत्रको तापक्रम अधिकतम २७ डिग्री सेल्सियस र न्युनतम तापक्रम १० डिग्री सेल्सियस रहेको छ । यस उप-आयोजनाको नजिक बडीगाड खोला पर्दछ । आयोजना क्षेत्रमा सरदर वार्षिक १५४८ मिमि वर्षा हुने गरेको छ ।

प्रस्तावित सडक उपआयोजना क्षेत्रमा अजम्बरा, दिब्रुन, मुलाबारि, चिसापाखा सामुदायिक वन र केहि निजि वनहरु परेको छ । यस उपआयोजना क्षेत्र आसपास पाइने विभिन्न प्रजातिका रुखहरुमा साल, चिलौने, कटुस, काफल, गुँरास, उत्तिस आदि रहेका छन् । त्यसै गरि यस क्षेत्रमा स्तनधारी वन्यजन्तुमा मृग, चितुवा, खरायो, न्याउरी मुसा स्याल, बँदेल, पाइन्छन् साथै गोमन सर्प, धामन सर्प, गोहोरो जस्तासरिसृप पनि यहाँ पाइन्छन् । यस प्रस्तावित सडकको चेनेज (१+३३५) खरबांग खोला, चेनेज (६+८६५) ग्यादी खोला, चेनेज (१६+२३०) खहरे खोला, चेनेज (१९+१५५) क्यु खोला पर्दछ र यस खोलामा हिले, बाम जातका माछाहरु पाइन्छन् ।

यस सडक खण्डमा मुख्य पर्ने वस्तीहरु इन्द्रेगौडा, आपचौर र शान्तिपुर रहेको छ । यस क्षेत्रमा बसोबास गर्ने मुख्यजातिहरुमा ब्राह्मण/ क्षेत्रि, दलित र रहेका छन् । यस क्षेत्रका बासिन्दाको मुख्य आमदानीको श्रोत कृषि, व्यवसाय, श्रमिक, सरकारी/गैर सरकारी संस्था र यस क्षेत्रको ठुलो जनशक्ति, कामको खोजीमा अस्थायी रुपमा भारत, कतार, मलेसिया तथा अरबका अन्य मुलुकहरुमा जाने गरेको छलफलको क्रममा पाइएको छ । यसक्षेत्रमा मुख्य गरि दशैं, छठ, तिहार, नाग पंचमी, कृष्णा जन्माष्टमी, होलि आदि चाडपर्व मनाउने गरिएको छ ।

**प्रमुख वातावरणीय प्रभावहरु:**

**लाभदायक प्रभावहरु:**

यस आयोजनाबाट तत्कालै हुने लाभमा स्थानीय स्तरमा सिर्जना हुने रोजगारी हो । आयोजना निर्माण को लागि करिब २००,६०० मानव दिन बराबर अदक्ष जनशक्ति र ६०,४६० मानव दिन बराबर दक्ष जनशक्ति आवश्यक पर्नेछ । आयोजनासँग सम्बन्धित कार्यमा गरिब तथा आयोजनाबाट प्रत्यक्ष प्रभावित जनतालाई प्राथमिकता दिईनेछ । यस चरणमा हुने अन्य लाभहरुमा 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 जग्गाधनीहरुलाई 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 आयोजनाको लागि थप २.२३ हेक्टर निजी र सरकारी स्वामित्वमा रहेको जमिन आवश्यक पर्ने देखिन्छ । बडीगाड खोलाबाट आवश्यक निर्माण सामग्री ल्याउने प्रस्ताव गरिएकोले त्यसकारण सम्भावित असर पर्न सक्ने देखिन्छ । क्याम्प निर्माण गर्दा हुन सक्ने क्षति, निर्माण सामग्री को भण्डारण गर्दा हुन सक्ने क्षति तथा ४० वटा बिद्युतका खम्बा, ६ वटा ह्युम पाइप, २३ स्ल्याब कल्बर्ट, १ वटा बक्समा प्रभाव पर्ने देखिन्छ । यस आयोजना निर्माण गर्दा व्यक्तिको हकमा रहेका ९ वटा घरमा आंशिक क्षति पुग्ने देखिन्छ भने १३५ घरधुरीको १.३६ हे. क्षेत्रफल जमिन सडकको आवश्यक चौडाई कायम गर्न अधिग्रहण गर्नुपर्ने देखिन्छ । यसका साथै यस क्षेत्रमा आवत जावतमा 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 बढावागर्न 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 निजी संरचनाको पुनर्निर्माण र अधिग्रहण गर्नुपर्ने जमिनको क्षतिपुर्तिको निम्ति उपआयोजनाको लागि भिन्दै तयार गरिने सामुदायिक सहभागिता योजना कार्यान्वयन मार्फत जग्गाधनिहरूको स्वच्छित दानबाट सडक भोगाधीकारमा परिवर्तन गरिने छ । उप-आयोजनाबाट प्रत्यक्ष प्रभावित परिवारलाई रोजगारी तथा शिपमुलक तालिममा प्राथमिकता दिईनेछ । निर्माण स्थलमा प्राथमिक उपचार सामग्रीको व्यवस्था गरिनेछ, साथै अन्य सुरक्षा सामग्रीहरू जस्तै हेल्मेट, माक्स, बुट, पन्जा आदिकामको 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 प्रभावन्यूनीकरण 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, आर्थिकतथा साँस्कृतिक वातावरणका विभिन्न अनुगमन सुचांकहरूको पनि पहिचान गरिएको छ । वातावरण व्यवस्थापनका लागि रु ८,४३१,९१६.०५ प्रस्ताव गरिएको छ।





### जलवायु परिवर्तन:

जलवायु परिवर्तनको सम्भावित प्रभावहरू ग्रामीण सडकहरूमा विशेष रूपमा पर्ने हुन सक्छन । वर्षा र वर्षाको तीव्रतामा भएको वृद्धिले क्रस ड्रेनहरू लाई असर पार्न सक्छन, जसले बाढी, सडक तटबन्ध ढलान, ट्राफिक अवरोध, र सडक खण्डहरू बगाउने जस्ता प्रभाव हुनसक्छ । जलवायु परिवर्तनको संवेदनशीलता र यसको प्रभावभबाट पर्ने जोखिमलाई सम्बोधन गर्न र सम्भावित जोखिम न्यूनीकरणको निमित्त सडक उपआयोजना अन्तर्गतको नाली, पुल लगाएत संरचनाहरूको डिजाइनमा उक्त विषय समावेश गरिएको छ । यसका लागि डिजाइनमा वार्षिक औसत वर्षा, बाढी आदिको तथ्याङक 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 उपआयोजना क्षेत्रको भौतिक, जैविक, सामाजिक, आर्थिकतथा साँस्कृतिक वातावरणमा धेरै प्रभाव नपर्ने देखिन्छ । यस प्रारम्भिक वातावरणीय अध्ययनको आधारमा यस प्रतिवेदनमा उल्लेख गरिएको वातावरणीय व्यवस्थापन योजनालाई पूर्ण रूपमा लागु गरी प्रस्तावित उपआयोजना 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 Northern part of Gulmi district in Lumbini Province. The alignment Wamitaksar (Indregauda) - Aapchaur - Shantipur (Ch:0+000 - 22+300) Road starts from Musikot Municipality ward no. 5, Indregauda bazaar (Burtibang Marga) and ends in Shantipur bazaar of Chandrakot Rural Municipality ward no. 4. All most of the existing road alignments is in earthen condition. It covers Musikot municipality ward no 5, Chandrakot Rural Municipality 1, 2, 3 and 4 of Gulmi district. The total length of the main road alignment is 20.30 Km. This road alignment passes through cultivated lands, barren land, forest and settlements Annex 10: Change in Land use. The major settlements along the road alignment are Indregauda, Aapchaur and Shantipur. The Overall Total Cost of this sub-project including VAT is NRs. 840,613,646.85 and Cost Per Kms NRs. 32,191,128.47.

### The Proponent:

The proponent of the proposed road alignment Wamitaksar (Indregauda)–Aapchaur–Shantipur (Ch:0+000–22+300) 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)  
Shremahal, Pulchowk, Lalitpur  
Phone: 01-5538306  
Email: [rcippcu@gmail.com](mailto:rcippcu@gmail.com)

**The rationality of the Proposal:**

As per the mandate of the EPR, 2020 Schedule (2) rule, 3 (अनुसूचीर, नियम ३ सँग सम्बन्धित, ड (यातायातक्षेत्र) को ८) Transportation 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 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.

**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 ward number 5 of Musikot Municipality and ward number 1, 2, 3, 4 of Chandrakot Rural Municipality of Gulmi district in Lumbini province have created pressure on the existing road. This is because this road connects the rural area of the project affected local level. 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. The Upgrading of the Wamitaksar-Aapchaur-Shantipur





Road to single lane standards, the geometric design standards for mountainous terrain have been adopted for Class IV type road as per NRS 2070.

**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 14<sup>th</sup> Poush 2078 in Butwal daily and Public hearing was conducted on 28<sup>th</sup> Poush 2078. Public notice was published on 10<sup>th</sup> of Baisakh 2079 in Madhyanha national daily to collect the suggestions and comments from concern stockholder. 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 whole alignment of the road lies in Hilly region of Nepal. It is located between latitude 28°7' 35.71" N, longitude 83° 19' 8.47" E and latitude: 28° 6' 37.29" N longitude 83° 24' 50.1" E and the elevation varies from 687 m to 1679 m from the sea level. The climate of the subproject area is sub-tropical/tropical and temperate with average precipitation of 1548 mm. The mean maximum and minimum temperature of the project area is 27 °C and 10 °C.

The road alignment passes through community forest like Shree Ajamara CF, Dibrung Arjewa CF, Mulabari CF, Chisapakha CF and private forest. The forests around the project road harbors immense vegetation diversity. Vegetation around the project area includes Chilaune (*Schima wallichii*), Sal (*Shorea robusta*), Kafal (*Hyricea esculanta*), Mauwa (*Engelhardia spicata*), Chiuri (*Bassia butyracea*) and Uttis (*Alnus nepalensis*). Major species of mammals found around the project area are Golden jackal (*Canis aureus*), Wild cat (*Felis Chaus*), Common leopard (*Panthera pardus*) and Dumsi (*Hystrix spp.*), Rato Baandar (*Macacca mulata*). Similarly, Crow (*Pyrrhocorax graculus*), Eye-browed thrush (*Turdus obscurus*), Peacock (*Hubaropsis Bengalensis*), Hutityau (*Tringa hypoleucos*), Koili (*Cuculus Sp*), Chil (*Aquila heliacal*), Kalij (*Lophura leucomelanous*) and Dove (*Streptopelia spp.*) are commonly observed bird species around the proposed area. The alignment starts nearby Badigad Khola and





passes through small streams Kharbang Khola (Ch 1+335), Gyadi Khola (Ch 6+865), Khahare Khola (Ch 16+230), Kyu Khola (Ch 19+155) are Rahu, Mungri, Singi, Nal, Garai, Hile and Bam.

The major caste of the zone of influence is Brahman, Kshetri, Janajati, Dalit. It will serve more than 3,257 households as well as the 14,089 population (Male: 6,087 and Female:8,002) of the proposed project-affected wards. People in the project area are found involved in various business and agricultural activities. The major occupations of the inhabitants of the project influence areas are agriculture, labor, trade & business and service and the majority 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 200,600 person-days of unskilled manpower and 60,460 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 40 Electric poles, 6 Hume pipe culverts, 23 slab culverts, and 1 box and 9 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 such biological impacts as the proposed road alignment passes through the forest area. Likewise, the 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 environmentally 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 personnel protective equipment are the potential mitigation measures of the impacts. At construction sites, the workers will be provided first aid facilities and safety equipment 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 potentials 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. 8,431,916.05.

**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, traffic disruption, 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 the pavement design, road improvement ore focused on pavement, and the tendency to simply maintain existing structures like the number, locations and sizes of culverts highlights the





sensitivity of the rural roads with the prospect of different climatic conditions. The lack of collector side drains, inadequate retaining walls, particularly in flood-prone areas, and inadequate collector side drains were identified during the engineering design stage. In sizing minor hydraulic structures like drainage works, bridges, and culverts, design engineers rely on different charts of the highest daily rainfall for different return periods. These charts were derived based on the highest recorded daily rainfall.

The projected climate change which will bring an increase in temperature and rainfall and its temporal variation is expected to expose the rural roads to risk that can hinder the realization of the planned economic and social benefits. The potential impacts of climate change go beyond the increase in maintenance and emergency repair of rural roads due to premature deterioration from exposure to higher temperatures or submergence to flood waters. The disruption of access also brings a string of other indirect costs including an increase in travel time, fuel, and vehicle operation due to bad roads, the social costs due to poor access of communities to vital health and government services, and missed work and revenue loss. These climate risks can be minimized through structural interventions and capacity building of the RCIP Road.

**Conclusion:**

The identified environmental impacts will be seen in limited small areas and mainly during the construction period. The implementation of proposed mitigation measures for identified adverse impacts will minimize as well as mitigate the adverse impacts on the environment. The implementation of the measures as described in the Environmental Management Action Plan (EMAP) will mitigate the negative impacts on the physical, biological, socio-economic, and cultural environment. Therefore, this IEE is sufficient for approval of the proposed project and recommended for implementation with the incorporation of mitigation measures and environmental monitoring plan.



## List of Abbreviations and Acronyms

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





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



Inclusive Consultants Pvt. Ltd.



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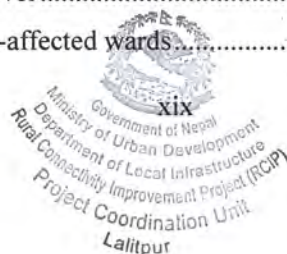
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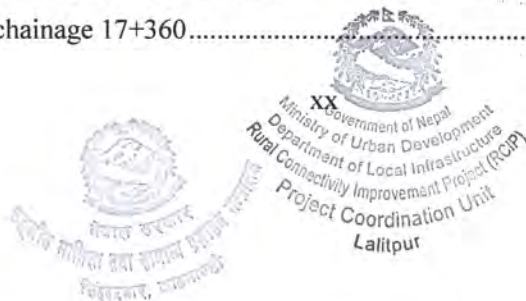


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## 1. NAME AND ADDRESS OF THE PROPONENT WITH THE ORGANIZATION RESPONSIBLE FOR CONDUCTING IEE

### 1.1 The Proponent

The proponent of the proposed “Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (22+300 Km)” 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](mailto:rcippcu@gmail.com)

### 1.2 The Consultant

ITECO Nepal and Inclusive JV have undertaken the IEE study of “Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (22+300 Km)” 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](mailto:iteco.inclusive@gmail.com)

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

TABLE 1: IEE STUDY TEAM

SN	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	Bachelor in 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.

#### 2.1.1 Information about the Proposal

Hence, the proposed project will play a catalytic role in the sustainable development of rural areas. “Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (22+300 Km)” is one of the sub-projects among the roads considered for DPR preparation in Lumbini Province. The main objective of the assigned project is to upgrade the existing Earthen Road to a standard black top (Feeder Road Standard). The road alignment traverses through ward number 5 of Musikot



Municipality and ward number 1, 2, 3 and 4 of Chandrakot Rural Municipality of Gulmi district in Lumbini province. The road will make an easy access from Indregauda to Shantipur. The proposed road starts at Indregauda (Musikot Municipality ward no. 5) at elevation 687 m, 28°07'35.71" N, 83°19'8.47" E which traverses via Indregauda) – Aapchaur – Shantipur and finally ends at Shantipur at elevation 1679 m, 28°06'37.29" N, 83°24'50.1" E. The total length of the road is 22.30 Km. The road track was opened from VDCs and DDCs. The existing road is earthen having 2.5 m to 6 m width. The road alignment follows the hilly terrain. This road alignment passes through cultivated lands, settlements and community forests.

## 2.2 Objective of IEE

The main objective of this study is to carry out an IEE Study of the “Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (22+300 Km)” 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.

## 2.3 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 बृद्धि 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 20.30 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 National Parks, Hunting Reserves and Animal reserves but passes through the forest area. During upgradation of the road, 0.647 ha forest land need to be acquired. As per EPR, 2077 Schedule 1 (A) forest area-8, it has been mentioned that it is necessary to conduct environmental study.**

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.

#### **2.4 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 ward number 5 of Musikot Municipality and ward number 1, 2, 3, 4 of Chandrakot Rural Municipality of Gulmi district in Lumbini province have created pressure on the existing road. This is because this road connects the rural area of the project affected local level. 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. The Upgrading of the Wamitaksar (Indregauda)-Aapchaur-Shantipur Road to single lane standards, the geometric design standards for mountainous terrain have been adopted for Class IV type road as per NRS 2070.

#### **2.5 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.

### 2.5.1 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 2.23 Ha of land (From Barren Land, Cultivated Land, Khola, Forest and land from Settlement area) will be converted into a Road area. An additional area of around 1.1 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 detailed 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		Forest		Settlement Area	Barren Land		Khola	
		Govt.	Pvt.	Govt.	Pvt.		Govt.	Pvt.		
<b>1</b>	<b>Permanent Land-use Change</b>									
1.1	Formation Width		0.181	0.647	0.261	0.803	0.134	0.115	0.090	<b>2.23</b>
<b>2</b>	<b>Temporary Land-use Change</b>									
2.1	Camp Site, Parking lots, Material storage yard						0.6	0.5		<b>1.1</b>
	<b>Total</b>									<b>3.33</b>

### 2.5.2 Impacts on Local Infrastructures

The proposed project will have an impact on the local infrastructure. The public utilities like 40 electric poles, 6 Hume pipes, 23 slab culverts, 1 box culvert, and 9 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 14,089 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.

## 2.6 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 200,600 person-days of unskilled manpower and 60,460 person-days of skilled manpower is required for the project. Once the operation of the road, it will be easy access to local people. 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 14,089 population who lives within the project impact area.

## 2.7 Adverse Impacts

### 2.7.1 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.

### 2.7.2 Biological Impacts

#### Construction Phase:

There are some community forest and private forest in the proposed road alignment. For the construction and upgradation of road, no any trees along the road alignment will be cut down.



**2.7.3 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.

**2.7.4 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 14,089 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 Northern part of Gulmi district in Lumbini Province. The alignment Wamitaksar (Indregauda) - Aapchaur - Shantipur (Ch:0+000 - 22+300) Road starts from Musikot Municipality ward no. 5, Indregauda bazaar (Burtibang Marga) and ends in Shantipur bazaar of Chandrakot Rural Municipality ward no. 4. All most of the existing road alignments is in earthen condition. It covers Musikot municipality ward no 5, Chandrakot Rural Municipality 1, 2, 3 and 4 of Gulmi district. The total length of the main road alignment is 20.30 Km. There is additional link road alignment of length 2.014 km, starting from chainage 7+755 and ending at chainage 9+657 of the main alignment adjoining a part of Arjewa of Chandrakot-1.

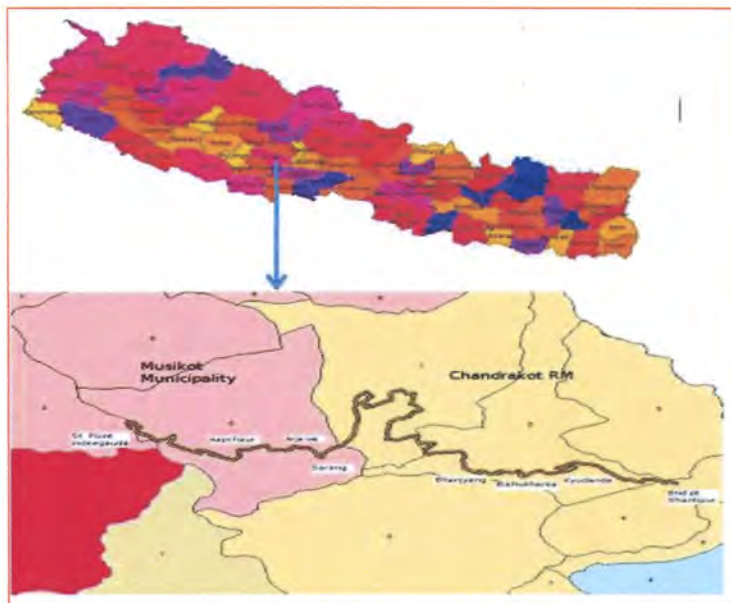


FIGURE 1 LOCATION MAP OF PROJECT



The additional link road is proposed for upgrading to provide the access of the densely populated Arjewa settlement and agricultural /tourism potential area (Shiva/Krishna Mandir) to the main road alignment. The existing road width varies from 2.5 m to 6 m with earthen surface. The distance from road starting point Indregauda on Burtibang Marga to Puspahal Mid-hill highway (Kharbang) is about 11.3 km. The proposed existing road was constructed by the Department of Road. This road falls on the category of Village Road as per DTMP, 2016 of Gulmi district. The road alignment follows mountainous terrain. This road section also passes through cultivated lands and settlements Annex 10: Change in Land use.





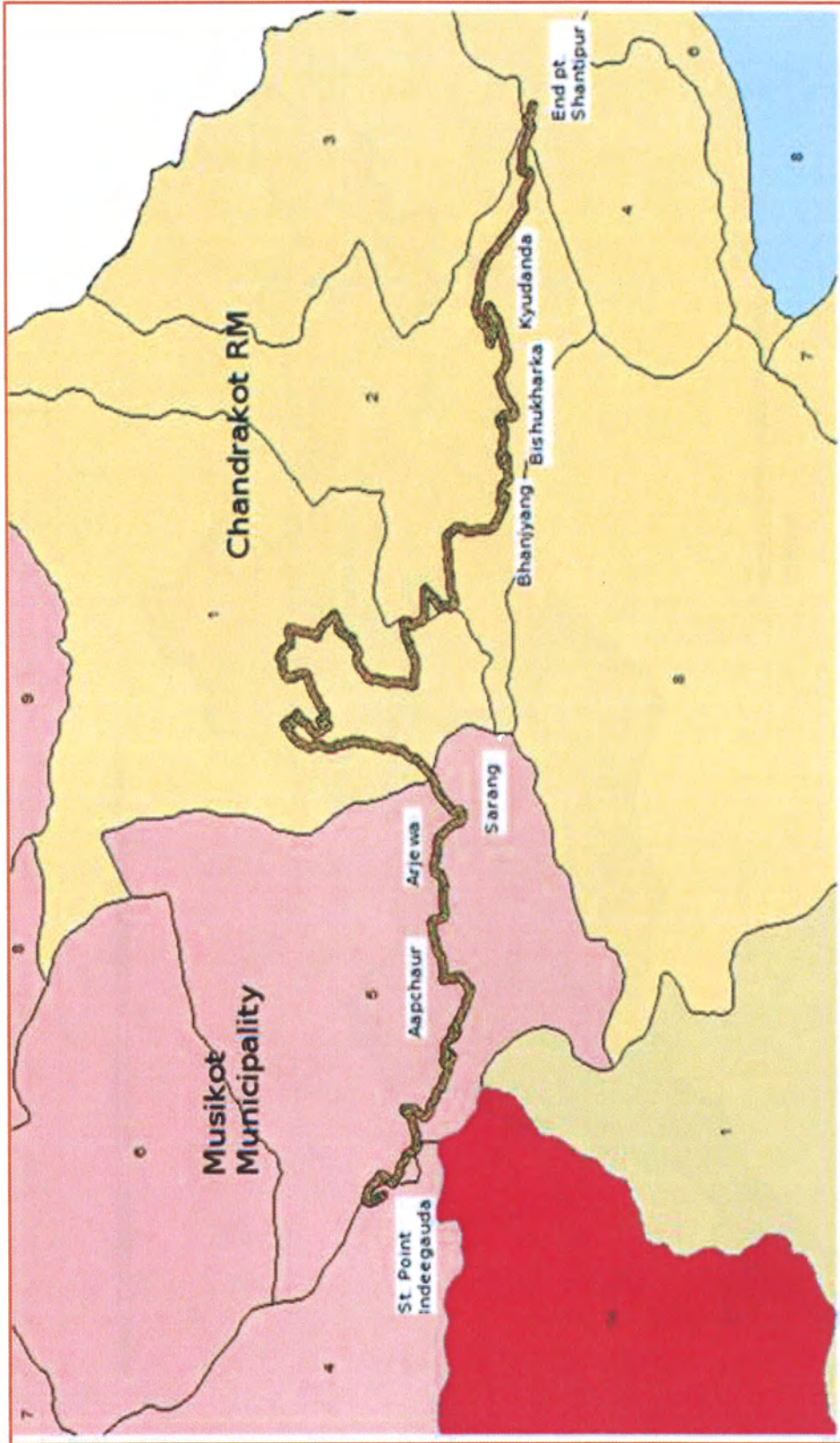


FIGURE 2 MAP SHOWING LOCAL LEVEL ALONG THE ROAD

(SOURCE: DEPARTMENT OF THE SURVEY, GON)



### Map showing Project Road and Local Level along the alignment

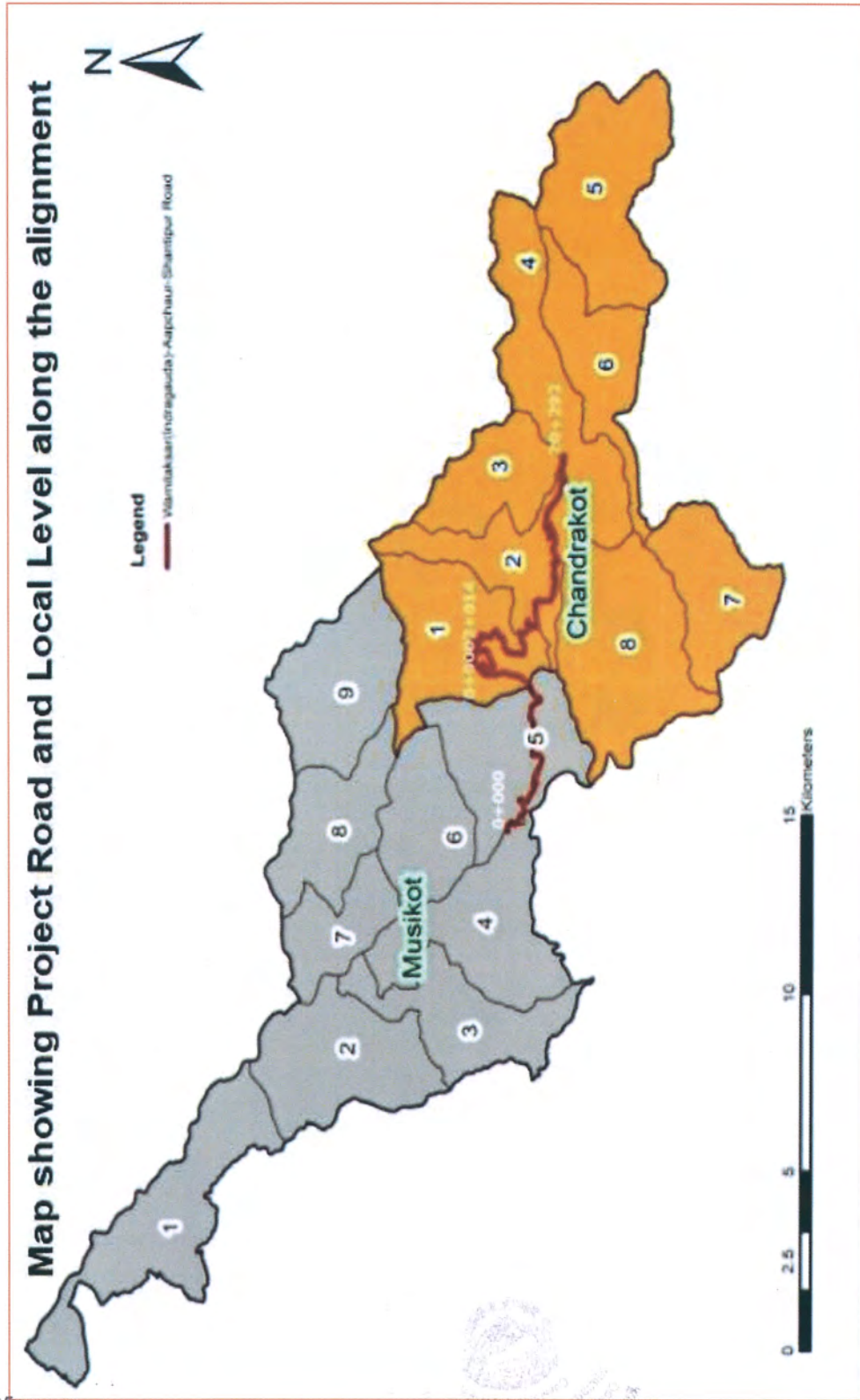






FIGURE 3 MAP SHOWING ROAD ALIGNMENT AND MAJOR SETTLEMENT



Ministry of Local Infrastructure  
 Community Improvement Project (RCIP)  
 Project Coordination Unit  
 Lalitpur







FIGURE 4 ROAD ALIGNMENT ON GOOGLE EARTH MAP





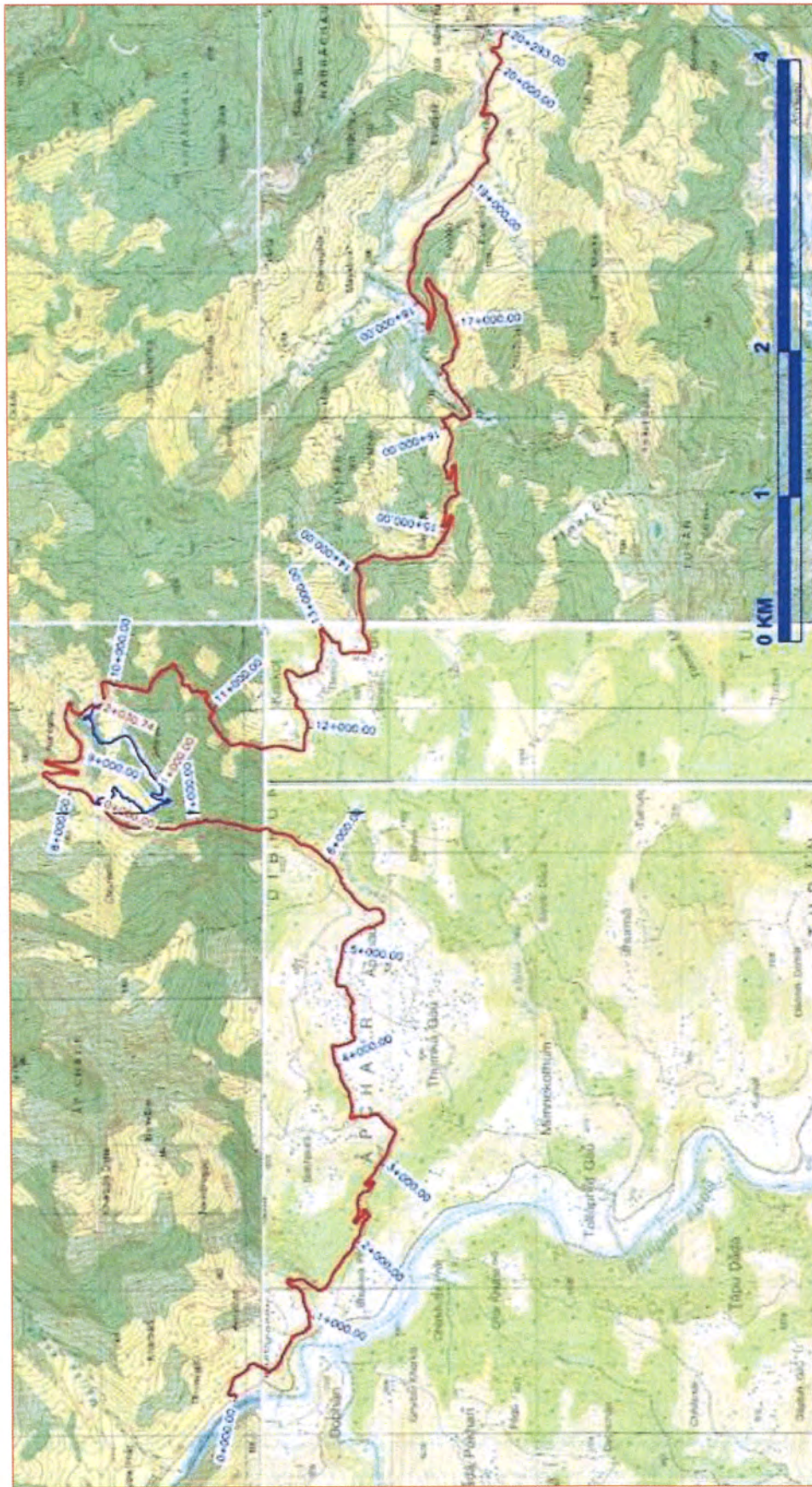


FIGURE 5 ROAD ALIGNMENT ON TOPOGRAPHIC MAP





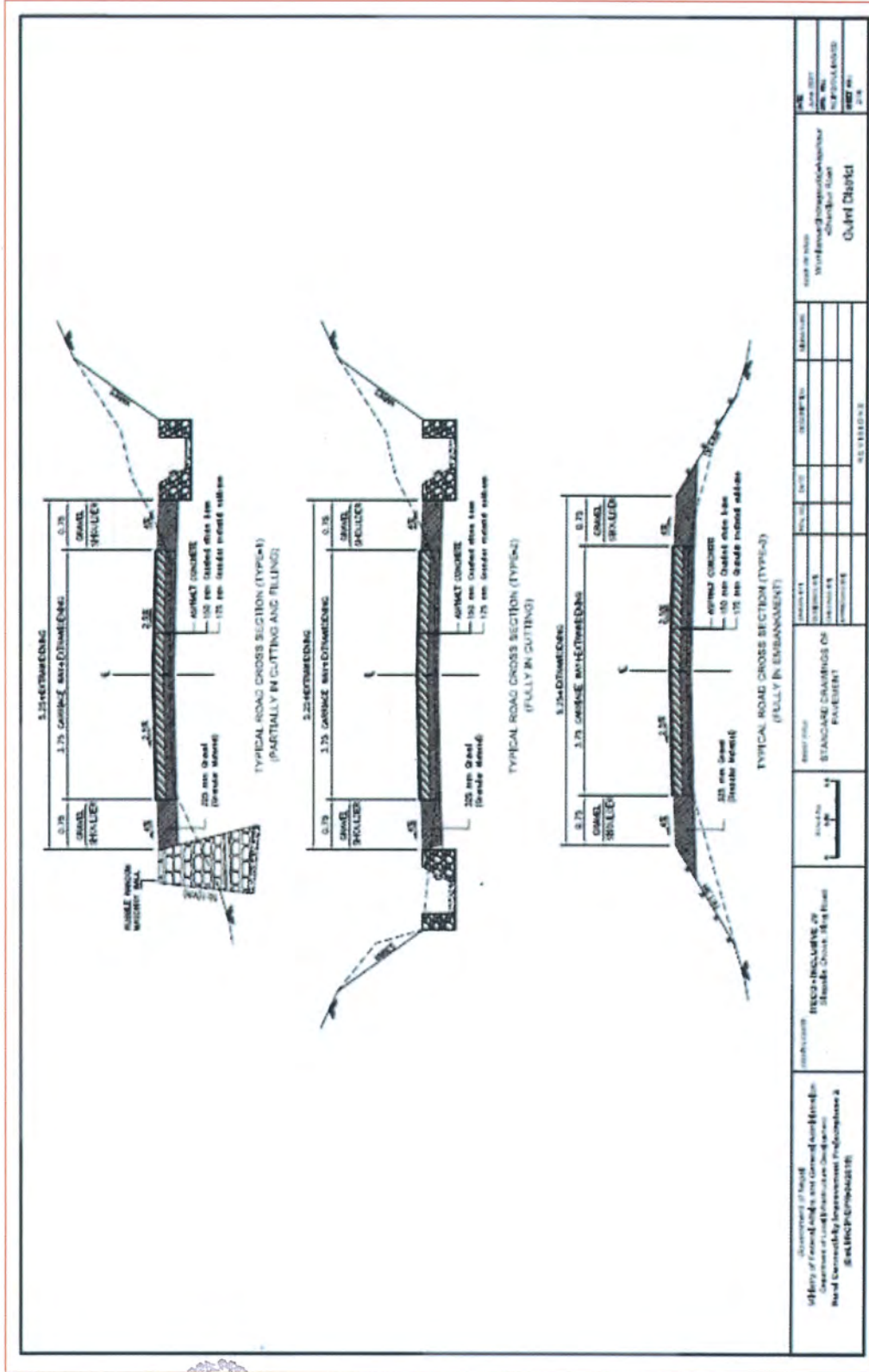


FIGURE 6 ROAD CROSS SECTION





### 3.3 Salient Features

The Salient features of “Wamitaksar (Indregauda) - Aapchaur - Shantipur Road” is presented below.

**TABLE 3: SALIENT FEATURES OF THE PROJECT**

SN.	Components	Details
1.	Name of Road:	Wamitaksar (Indregauda) - Aapchaur - Shantipur Road <ul style="list-style-type: none"> <li>• Main Road Alignment - Chainage: 0+000 to 20+290</li> <li>• Link Road Alignment - Chainage: 0+000 to 2+010</li> </ul>
2.	Location:	
	2.1	Geographical location:
		i) Province: Lumbini
		ii) District: Gulmi
		iii) Local Level: <ul style="list-style-type: none"> <li>• Musikot Municipality</li> <li>• Chandrakot Rural Municipality</li> </ul>
		iv) Wards: <ul style="list-style-type: none"> <li>• Musikot Municipality ward no 5</li> <li>• Chandrakot Rural Municipality ward no. 1, 2, 3 and 4</li> </ul>
	2.2	Geographical feature:
		i) Climate: Tropical/Sub-Tropical
		ii) Geology: Hilly
		iii) Hydrology: Badigad Khola and passes through Khola like Kharbang Khola, Gyadi Khola, Khahare Khola, Kyu Khola
		iv) Meteorology: The climate of the subproject area is sub-tropical/tropical and temperate with average precipitation of 1548 mm. The mean maximum and minimum temperature of the project area is 27 °C and 10 °C.
3.	Classification:	
	3.1	Classification: Provincial Road
	3.2	Existing Surface: Earthen
	3.3	Proposed Surface: DBSD Surfacing and SBSD
		Road Class Identified as per NRS 2070
		Class IV road in mountainous
		No of lanes
		Intermediate lane
4.	Length of Road:	
	4.1	Starting Point: Indregauda (Musikot Municipality ward no. 5)
		Latitude: 28° 7' 35.71" N
		Longitude: 83° 19' 8.47" E
		Elevation: 687 m
	4.2	End Point: Shantipur (Chandrakot RM ward no. 4)
		Latitude: 28° 6' 37.29" N
		Longitude: 83° 24' 50.1" E
		Elevation: 1679 m
	4.3	Length(km): 22.30 Km
		Main Road: 20.29 km



SN.	Components		Details		
			Link Road: 2.01 km (Link road starts from Chainage 7+756 and ends at Chainage 9+660 of the main road alignment)		
4.4	Design Speed		30 km/hr		
4.5	Design Life		20 years		
4.6	Design Capacity		<2000		
4.7	Maximum Gradients%		12		
4.8	Super Elevation (%) (max)		7		
4.9	Camber (%)		2.5		
5	Cross Section:				
5.1	Right Way(m):	of	10.00 m (From Centreline 5m /5m)		
5.2	Formation Width(m):		5.25		
5.3	Carriage WayWidth(m):		3.75		
5.4	Shoulder Width(m):		0.75		
5.5	Right of Way		5m /5m either side of the road		
6.	Pavement Design:				
	I. DBSD Surfacing				
6.1	Layer	Thickness (cm)	Width (m)	Remarks	
a.	Sub-grade	-	5.25	(Carriageway+2 side shoulder)	
b.	Sub-base	17.5	5.25	(Carriageway+2 side shoulder+1 Side shoulder of Base layer level)	
c.	Base	15	4.5	(Carriageway+1 side shoulder)	
d.	Asphalt	2.3	4.5	(Carriageway+1 side shoulder)	
	II. SBSB with				
6.2	Layer	Thickness (cm)	Width (m)	Remarks	
a.	Sub-grade	-	5.25	(Carriageway+2 side shoulder)	
b.	Sub-base	17.5	5.25	(Carriageway+2 side shoulder, M 20 RCC)	
c.	Base	15	4.5	(Carriageway+1 side shoulder)	
d.	Penetration Macadam	5	4.5	(Carriageway+1 side shoulder)	
e.	SBSB	1.3	4.5	(Carriageway+1 side shoulder)	
7.	Cross Drainage Structure:				
7.1	Hume Pipe Culvert:	88.00		Nos	
7.2	RCC Causeway	1.00		Nos	
7.3	Slab Culverts	8.00		Nos	
	<b>Drain Parameter</b>				





SN.	Components		Details		
	Drain Name (Both Side)		Drain A		
	Drain Type		Covered	In Settlement area	
8	Structures:				
	8.1	Stone Masonry with C/S Mortar	13077.73	m <sup>3</sup>	(Retaining/ Breast Wall, drain & X-drainage Structure)
	8.2	Gabion	15436.32	m <sup>3</sup>	(Retaining/ Breast Wall, check wall and Apron)
	8.3	Plum Concrete	84.50	m <sup>3</sup>	(Improvement on foundation)
	8.4	M25 RCC	106.53	m <sup>3</sup>	(Deck Slab of Slab Culvert)
	8.5	M20 RCC	141.34	m <sup>3</sup>	(Rigid Pavement & Causeway Slab)
	8.6	M15 PCC	5026.64	m <sup>3</sup>	(Drain bed & Catchpit)
	8.7	M10 PCC	675.06	m <sup>3</sup>	(Foundation of structure)
9	Earth Work				
	9.1	E/W in Excavation	296,609.20	m <sup>3</sup>	(Roadway and drain)
	9.2	Embankment	11240.00	m <sup>3</sup>	
10	Project Cost NRs.				
	10.1	Overall Total Cost including VAT	NRs. 840,613,646.85 (Including VAT, Price Adjustment and Contingencies)		
	10.2	Cost Per Km	NRs. 32,191,128.47 (Including General Contingency and VAT)		
	10.3	Environment Management Cost (EMP)	Rs. 8,431,916.05		
11.	Others:				
	11.1	Population served	14,089		
	11.2	Construction Period	18 months		
	11.3	Land Requirement for formation width	11.7075ha. (Total including occupied by existing road)		
	11.4	Additional Land Requirement	2.23 ha. (From Barren Land, Cultivated Land, Khola, Settlement and forest)		
	11.5	Forest	Shree Ajamara CF, Private Forest/Sparse vegetation, Dibrung Arjewa CF, Mulabari CF, Chisapakha CF		
	11.6	Employment Generation	60,460 person-days skilled; 200,600 person-days-unskilled: & 261,060-total		



SN.	Components		Details
	11.7	Impacts on Local Infrastructures	40 electric poles, 6 Hume pipes, 23 slab culverts, 1 box culverts, and 9 Residential structures (Partial-Kachhi)
	11.8	Major Settlements	Indregauda (0+000), Aapchaur (3+600), Arjewa (8+900), Sarang(11+700), Bhanjyang(14+150),Bishukharka(15+900), Kyudanda (19+155), Shantipur(20+200)

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)	Area outside of category A, but has repercussive (indirect effect) impact due to construction activities. However, the precise physical delineation of such impact is difficult at this stage; ward number 5 of Musikot Municipality and ward number 1, 2, 3 and 4 of Chandrakot Rural 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 socioeconomic point of view. The administrative boundary of Musikot Municipality and Chandrakot Rural Municipality is considered in this category.



### 3.5 Material 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.

**TABLE 5: MATERIAL 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: Detail Design of Bijauri- Kothari Road")

### 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 (CO<sub>2</sub> EMISSION FACTORS FOR VARIOUS PETROLEUM PRODUCTS AS PER IPCC GUIDELINES)**

S. N	Petroleum Products	IPCC unit	Unit, liters	IPCC (CO <sub>2</sub> )	CO <sub>2</sub> emission per liter	Qty, liter	CO <sub>2</sub> 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
<b>Total</b>							<b>909982.483</b>

(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 2,00,600 man-days (372 people daily) of unskilled labor and 60,460 man-days (112 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 land required for the temporary purpose is about 1.1 ha. 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
<b>1.</b>	<b>Stockpiling and Camp Sites</b>		
	1+190	Barren	Private Land
	8+900	Barren	Private Land
	12+500	Barren	Government Land
	15+550	Barren	Government Land

(Source: Field Study, 2078)

#### 3.8.2 Construction Technology and Implementation Mechanism

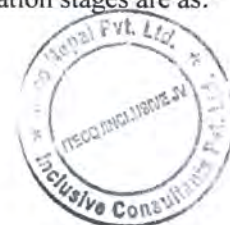
There are two types of road design and construction approach, conventional and labor approach. In this road, a mixed type of construction approach (conventional and labor-based approach) is proposed for construction. In the conventional method, heavy machinery and equipment, heavy concrete structures 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

#### 3.8.3.1 Possibility of Quarry for 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 major sources for the Construction Off-road Structures and Pavement Structures as a Pavement materials are Badigad Khola at the starting point. The stones/boulder for masonry and flexible retaining structures works from river deposited stones, colluvial and residual sediments deposited along the above said locations, which are the proposed sources of construction materials, Contractor has to quarry himself with consulting the responsible authority at the time of construction. The construction material (Steel, Cement, etc.) available at nearby local area will be used during construction work. During the upgradation of the road, 296,612.35 m<sup>3</sup> spoil will be generate where, 11240.45 m<sup>3</sup> will be used for filling propose along the roadside and remaining 285371.89 m<sup>3</sup> will be disposed in specified tipping sites in a controlled manner and the tipping sites will be covered by vegetation through bioengineering techniques. Appropriate spoil disposal site will be identified after the consultation with the municipality, contractor, and proponent during construction work.



### 3.8.4 Materials for Embankment and Sub-grade

- **Embankment Fill:** The whole project road alignment is in mountainous terrain and requires the little embankment filling. The filling quantity can be managed from cut material from widening and grade cutting.
- **Sub-grade Materials:** Sub-grade investigation comprises of determining the in situ CBR and other geological and geomorphologic observations along the alignment.
- **Pavement Construction Materials:** All the materials for the Sub-base, base course, stone aggregates will be produced from the available riverbed material and quarry sites mentioned above. Bitumen can be brought from Tamghas.
- **Availability of Materials for Concrete Works:** Aggregates and sands can be produced from the available riverbed material and quarry sites mentioned above. Steel, Cements and admixtures are easily available in the market i.e., in Shantipur, Wamitaksar and Tamghas. Water for Construction works could be Potable and available from Badigadkhola, Kharbangkhola, Gyadikhola and Hugdikhola.

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

S.n.	Location	Material	Grain Size Distribution			AIV (%)	ACV (%)	LAA (%)	Compaction		CBR (%)	Estimated Quantity (m <sup>3</sup> )
			Gravel (%)	Sand (%)	Silt+Clay %				OMC (%)	MDD (g/cc)		
1	Badigad Khola Gulmi	Sub Base	55.93	38.82	5.25	20.31	19.24	24.11	6.12	2.07	67.23	Sufficient

**Remarks:** 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 the concerned local level.





**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. Secondary information was collected from various documents, reports, maps, designs, and cost estimates. Socio-economic and cultural information was collected, crosschecked, and analyzed. 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

General information of forest area, types and community forest was collected by reviewing publication of DFO, Gulmi. Different literature on birds and mammals, as listed in Bibliography, was reviewed. 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.

#### Tree volume

Using Forest Survey and Statistical Division (FSSD,1991) tree volume of the study area was calculated. Moreover, according to FSSD,1991 the formula used for calculation of tree volume was

$$\text{Ln}(V)=a+b*\text{Ln}(d)+ c\text{Ln}(h)$$

Where, Ln refers to logarithm

V= Total stem volume with bark

D=Diameter at breast height

h=total height

a, b, c are the volume parameters, which are constant for each species but different between species. The volume parameters were obtained from the study carried out by Forest Survey and Statistical Division (FSSD,1991). Consultation with local people of the sub project areas regarding the presence of wildlife including birds, herpeto-fauna and mammals was done. Various scientific methods and techniques were used: as direct and indirect observation techniques used for wildlife survey. Indirect techniques include pugmarks, sprint and scat analysis. Mobile phone and camera were used for pictures of sighting as far as possible. Finally, collected list of flora and fauna with GoN laws, IUCN red List and CITES Appendices was verified.

### 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 Musikot Municipality and Chandrakot Rural 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 14<sup>th</sup>, 2078 in Butwal daily newspaper. A public hearing was organized in Musikot Municipality ward no. 5 and Chandrakot Rural Municipality ward no. 4 on Poush 28<sup>th</sup>, 2078. Minute is attached in **Annex 3: Public Hearing**.

**TABLE 9 : SUMMARY OF PUBLIC HEARING**

S.N.	Date	Place for Public meeting	No. of Participants		Issues and Decisions of Meeting
			M	F	
1.	2078/09/28	Chandrakot Rural Municipality ward no. 4	34	10	<ul style="list-style-type: none"> <li>- Side drain should be made on both sides</li> <li>- Complete the work as soon as possible,</li> <li>- Sprinkling of water daily during the construction of road</li> <li>- Job priority should be given to the locals</li> <li>- Pipe culverts, bridge should be upgraded with the upgradation of the road</li> </ul>
2	2078/09/28	Musikot Municipality ward 5	41	5	<ul style="list-style-type: none"> <li>- Side drain should be made on both sides</li> <li>- Complete the work as soon as possible,</li> <li>- Sprinkling of water daily during the construction of road</li> <li>- Job priority should be given to the locals</li> <li>- Pipe culverts, bridge should be upgraded with the upgradation of the road</li> </ul>



- **Publication of notice 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 the EPR Schedule 9 and deed of inquiry (Muchulkas) was obtained. After this, a similar notice was published on the 10<sup>th</sup> 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 Musikot Municipality and Chandrakot Rural 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.

### 3.9.3 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.

### 3.9.4 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).

### 3.9.5 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.

### 3.9.6 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 Hilly region of Nepal. It is located between latitude 28°7' 35.71" N, longitude 83° 19' 8.47" E and latitude: 28° 6' 37.29" N longitude 83° 24' 50.1" E and the elevation varies from 687 m to 1679 m from the sea level. The climate of the subproject area is sub-tropical/tropical and temperate with average precipitation of 1548 mm. The mean maximum and minimum temperature of the project area is 27 °C and 10 °C. The road track was opened from VDCs and DDCs. The existing road is earthen having 2.5 m to 6 m width. The road alignment follows the hilly terrain. This road alignment passes through cultivated lands, settlements and community forests. Geographically, the road alignment passes through the lesser Himalayan meta-sedimentary rock sequence characterized by the low grade metamorphic rock to sedimentary rock belonging to Nuwakot group (na).







**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. This road alignment passes through cultivated lands, settlements and community forests. A brief of the land use pattern along the road alignment is presented in Table No. 10 and Details of the land use pattern along the road alignment are presented in **Annex 10: Change in Land use.**

**TABLE 10: LAND USE**

SN.	Land use	Area of Land with 10 m RoW in (Hector)	Area of the existing road (4.25m) in (Hector)	Area of Required (5.25m) Road in (Hector)	Additional Land area required (1m) in (Hector)
<b>A. Permanent Land requirement</b>					
1	Barren Land	1.343	0.571	0.705	0.134
2	Cultivated Land	1.808	0.768	0.949	0.181
3	Forest CF	6.465	2.748	3.394	0.647
4	Khola	0.903	0.384	0.474	0.090
5	Private Barren Land	1.145	0.487	0.601	0.115
6	Private Forest/Sparse vegetation	2.605	1.107	1.368	0.261
7	Settlement	8.033	3.414	4.217	0.803
	<b>Total</b>	<b>22.3</b>	<b>9.4775</b>	<b>11.7075</b>	<b>2.23</b>





### 3.10.1.3 Geology

The road alignment passes through the lesser Himalayan metasedimentary rock sequence characterized by the low-grade metamorphic rock to sedimentary rock belonging to Nuwakot group (na). The Nuwakot group consists of Phyllites, sandstone, quartzite and calcareous sandstone along with limestone, dolomite and slates. It consists of Precambrian to Lower Palaeozoic, lower part mainly with marine deposits. Some places along the alignment also showed thin to thick alluvial- colluvial – residual to slope screen materials along the hill slope. The exposed rock surface along the alignment showed hard (quartzite, metasandstone) to soft (phyllite, slate). Some spots showed some green schist.

#### Chainage wise detail Geology of road alignment

- **Ch 0+000 to Ch 0+700:** The alignment consists of mostly residual to alluvial deposits. The most of the road side was used for farming land with terraces. There were some spots showing boulder to gravel mixed soil and at some places, the rock surface was exposed which was moderately to highly weathered. At around chainage 0+700, there was old slide on both, uphill and downhill side of the road. The original ground slope was from flat to almost vertical.

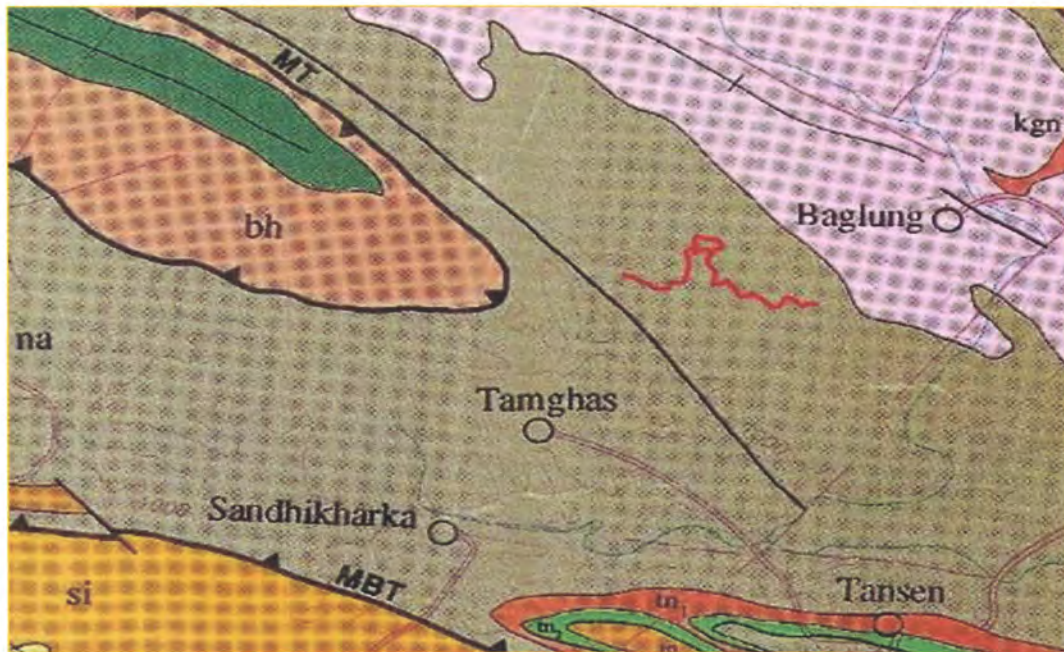


FIGURE 9 GEOLOGY OF PROJECT AREA

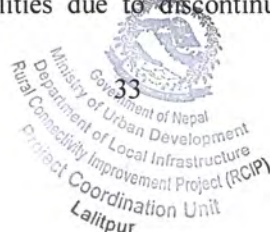






**PHOTOGRAPH 1 RESIDUAL DEPOSITS ALONG THE ALIGNMENT**

- **Ch 0+700 to Ch 1+000:** The alignment passes through rocky terrain. The exposed rock surface was foliated, jointed and fractured rock mass. At some spots, large boulder could be seen showing signs of rock fall. **Foliation plane: 190/ 40, 223/59.** Instabilities caused by the discontinuities can result in planar failure. The sliding of the slope scree material, colluvial deposits and boulders and fractured rock mass at the head of the slope. These issues can be addressed with the provisions of retaining walls and slope trimming and removal of boulders prone to slide or fall.
- **Ch 1+000 to Ch 1+400:** The alignment passes through gentle to moderate ground slope. Residual soil deposits were observed in most of the section. Large overhanging rock fragments could be observed at some spots. At Ch 1+ 300 landslide scree material was observed at downstream side of stream but posed no threats of instability.
- **Ch 1+400 to Ch 3+ 600:** The alignment passes through rocky and residual soil deposits. **Joint planes: 338/63, 159/46, 208/66, 118/87.** Instabilities caused by discontinuities within the rock will not result in wedge or planar failure. However, sliding of residual deposit and fall of rock fragments can be anticipated which can be dealt with slope trimming and retaining wall.
- **Ch 3+600 to Ch 4+ 800:** The alignment does not show any sign of existing failure or impending failure. It mostly passes through residual- alluvial deposits with exposed rock mass at some places.
- **Ch 4+800 to Ch 10+340:** The alignment passes mostly through the rocky terrain. The exposed rock mass was moderate to highly weathered with some spots showing highly crushed rock mass. Some sections showed overhanging rock fragments with dia up to 1 m prone to slide or fall. Instabilities due to discontinuities was unlikely as the major





discontinuity at most of the place was dipping away from road. But, rock falls and failure of colluvium deposits and residual cover soil can be anticipated at some locations. Most of these failures are localized so can be easily dealt with provision such as slope trimming, removal of rock fragments and retaining walls. Foliation plane- 203/ 36



PHOTOGRAPH 2 EXPOSED ROCK SURFACES OBSERVED AT 6+600

- **Ch 10+ 340 to 12+ 400:** Signs of failure were not observed in this stretch of alignment. The alignment mostly passes through residual to colluvial deposits with exposed weathered rock surface at some location. At Ch 11+ 850, signs of rockfall could be observed with block size up to 2 m. Foliation plane- 160/20. Instabilities due to discontinuities are unlikely but rock fall in high weathered zone can be anticipated.
- **12+ 400 to 16+ 200:** The stretch of road consists of slope scree material. The exposed rock mass also shows signs of extensive weathering and large fissures. The alignment also passes through residential area but there were no signs of failure at this location. Failure due to steep cutting of slope for road is likely in the future as some spot showed sign of existing slope failure due to cutting.



PHOTOGRAPH 3 STEEP CUTTING ON SLOPE OBSERVED AT 16+000



- **16+200 to 16+ 300:** Large deposits made by Khahare Khola can be observed at this location. The depth of deposit could not be ascertained with visual observation and needs detailed investigation before proposing any structures over the deposits. The deposit mainly consists of flaky to elongated rock fragments which were moderated strong.
- **16+ 300 to 20+300:** The stretch passes through rocky terrain. The end of this stretch also consists of colluvial deposits. The exposed rock mass was heavily jointed and at around Ch 17+ 380, there was sign of failure with landslide scree material at the base of the slope. The rock mass at most places was covered with thick residual soil deposits.

As the road passes through hilly area, minor landslides are observed along the alignment. There is not the major issue of stability rather than the cut slope failures of the existing road. For the further stabilization at some sections bioengineering has been proposed.

#### 3.10.1.4 Climate/ Hydrology

The project area lies at Sub-Tropical/Tropical and Temperate zone. Temperature in the project area fluctuates from 5.8 °C (in January) to 30 °C (in April) based on DHM temperature records for Tamghas, Gulmi for the past 5 years. November, December, January and February are the coldest months: the minimum temperature ranges from 8.2 °C to 8.5 °C and the maximum temperature ranges from 28°C to 30°C. April, May, June and July are the hottest months and the average maximum temperature recorded over past 5 years ranges from 26.9°C to 28.5°C while the average minimum temperature ranges from 7.1 to 11.33 from November to February.

**TABLE 11: TEMPERATURE AVERAGE**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Maximum	16.4	20.45	26.4	30	28.7	29.7	28.6	28.1	28	26.7	20.9	17.9
Average Maximum	15.92	18.97	22.6	26.9	28.2	28.53	27.1	27.26	27.1	25	20.38	16.47
Minimum	5.8	8.5	11.7	15.3	18.6	21.2	23	16.6	8.1	10.5	8.2	8.3
Average Minimum	7.1	11.33	13.83	16.67	20.27	22.07	23.25	20.57	17.55	15.9	11.03	10.1

(Source: Based on DHM observation)



**Precipitation:** Monthly average rainfall received ranges from a minimum of 0.00 mm in the driest month November, December and January to 854.9 mm in the wettest month, July. Maximum rain falls in the months of June and July that ranges from 115 to 1079.9mm. Average rainfall observed over 1973 through 2012 ranges from 212.3 to 285.5 mm. The mean maximum rainfall received in July i.e., 510.17 and minimum 0.00 in November.

**TABLE 12: PRECIPITATION IN MM RECEIVED IN AAPCHAUR GULMI**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Min	22.7	0.00	22.5	6.3	74.8	212.3	285.5	220.4	19.6	26.3	0.0	0.00
Max	73.1	63.7	134.1	86.3	236.7	521.5	854.9	501	295.1	144	0.0	49.7
Mean	42.57	24.8	58.9	41.5	130.8	297.0	510.1	337.6	157.1	68.8	0.0	16.5

(Source: Based on DHM observation)

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

#### Hydrology and Drainage

The alignment starts nearby Badigad Khola and passes through Khola like Kharbang Khola (Ch 1+335), Gyadi Khola (Ch 6+865), Khahare Khola (Ch 16+230), Kyu Khola (Ch 19+155). There are 6 existing Hume pipe culverts during construction additional 89 HPC, 5 Slab culvert and 1 spam causeway has been proposed. No wetlands are found within the vicinity of the road. In Wamitaksar (Indregauda)-Aapchaur-Shantipur Road there are not any existing bridge.

Sn.	Chainage		Length	Name of Khola
	From	To		
1	1+190	1+335	145.00	Kharbang khola
2	6+855	7+600	745.00	Gidikhola
3	16+230	16+300	70.00	Khaharekhola
4	19+155	19+160	5.00	Kyukhola



### 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/sec<sup>2</sup>). The proposed project area falls under the Seismic Zone IV, which is susceptible to major earthquakes as per the seismic zone map of Nepal, shown below in Figure 10.

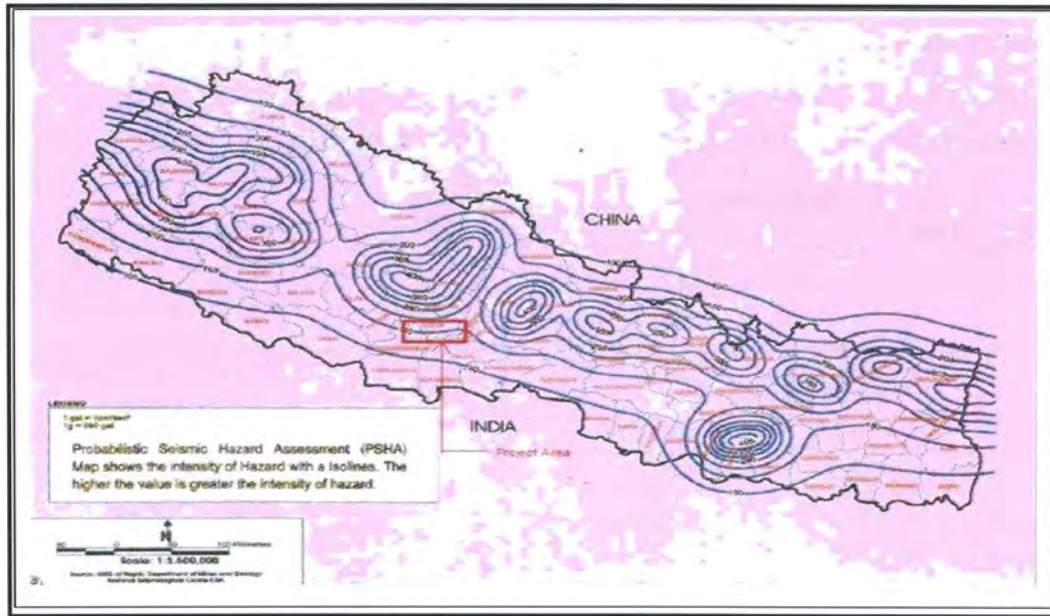


FIGURE 10 PROBABILISTIC SEISMIC HAZARD ASSESSMENT OF NEPAL HIMALAYA

### 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

The alignment starts nearby Badigad Khola and passes through Khola like Kharbang Khola (Ch 1+335), Gyadi Khola (Ch 6+865), Khahare Khola (Ch 16+230), Kyu Khola (Ch 19+155) and several small streams. 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 variation in the flora and fauna around the project area is largely controlled by the physiographic, altitudinal gradient, soil components, aspect and several other local abiotic factors. The road alignment passes through community forest like Shree Ajamara CF, Dibrung Arjewa CF, Mulabari CF, Chisapakha CF and private forest which is tabulated below.

**TABLE 13 DETAILS OF COMMUNITY FOREST ALONG THE ROAD ALIGNMENT**

SN.	Chainage		Length	Name of Forest
	From	To		
1	1+335	3+300	1965.00	Shree Ajamara CF
2	5+550	6+855	1305.00	Private Forest/Sparse vegetation
3	7+600	8+900	1300.00	Private Forest/Sparse vegetation
4	9+900	11+700	1800.00	Dibrung Arjewa CF
5	14+700	15+900	1200.00	Mulabari CF
6	16+300	16+550	250.00	Mulabari CF
7	17+250	18+500	1250.00	Chisapakha CF

#### 3.10.2.1 Floral Diversity

The forests around the project road harbors immense vegetation diversity. Vegetation around the project area includes Chilaune (*Schima wallichii*), Sal (*Shorea robusta*), Kafal (*Hyrica esculanta*), Mauwa (*Engelhardia spicata*), Chiuri (*Bassia butyracea*) and Uttis (*Alnus nepalensis*). Among these tree species, Sal is the protected species of Nepal. Similarly, some NTFPs like Majitho (*Rubia manjith*), Siltimur (*Lindera neesiana*), Chiraito (*Swertia chirayta*) Harro and Tite pati (*Artemisia vulgaris*) are present around the project area. Some of the shrub's species are used as medicine as well. No any trees need to be cut down along the road alignment. Of the reported floral species, the following species has been identified as species of conservation significance under the conservation list of Government of Nepal (NPWC Act, 1973), IUCN Red data book and CITES Appendix.





TABLE 14: PLANT SPECIES ALONG THE ROW

SN.	Local Name	Botanical Name	Legal/Conservation Status		
			GoN	CITES	IUCN
1.	Chiuri	<i>Bassia butyracea</i>	-		
2.	Angeri	<i>Lyonia ovalifolia</i>	-		
3.	Uttis	<i>Alnus nepalensis</i>	-		
4.	Katus	<i>Castanopsis indica</i>	-		
5.	Mauwa	<i>Engelhardia spicata</i>	-		
6.	Kafal	<i>Hyricea esculanta</i>	-		
7.	Gurans	<i>Rhododendron arboreum</i>	-		
8.	Chiloune	<i>Schima wallichii</i>	-		
9.	Sal	<i>Shorea robusta</i>	Protected		
<b>Total</b>					

### 3.10.2.2 Wildlife

#### a. Mammals

Major species of mammals found around the project area are Golden jackal (*Canis aureus*), Wild cat (*Felis Chaus*), Common leopard (*Panthera pardus*) and Dumsi (*Hystrix spp.*), Rato Baandar (*Macacca mulata*). Of the reported faunal species, the following species has been identified as species of conservation significance under the conservation list of Government of Nepal (NPWC Act, 1973), IUCN Red data book and CITES Appendix.

TABLE 15: WILDLIFE FOUND LISTED IN IUCN AND CITES

SN	Order/Family/Common Name	Scientific Name	Legal/Conservation Status		
			GoN	CITES	IUCN
1.	Common leopard	<i>Panthera pardus</i>			
2.	Dumsi	<i>Hystrix indica</i>			LC
3.	Wild cat	<i>Felis chaus</i>			LC
4.	Rato Baandar	<i>Macacca mulata</i>			LC
5.	Golden jackal	<i>Canis aurens</i>			LC

#### b. Birds

Similarly, Crow (*Pyrrhocorax graculus*), Eye-browed thrush (*Turdus obscurus*), Peacock (*Hubaropsis Bengalensis*), Hutityau (*Tringa hypoleucos*), Koili (*Cuculus Sp*), Chil (*Aquila heliacal*), Kalij (*Lophura leucomelanous*) and Dove (*Streptopelia spp.*) are commonly observed bird species around the proposed area.



**c. Aquatic animal**

The alignment starts nearby Badigad Khola and passes through small streams Kharbang Khola (Ch 1+335), Gyadi Khola (Ch 6+865), Khahare Khola (Ch 16+230), Kyu Khola (Ch 19+155) are Rahu, Mungri, Singi, Nal, Garai, Hile and Bam.

<p><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)</i></p>
<p><i>GOV Categories: P Protected by legislation</i></p>
<p><i>CITES Categories: I -Appendix I (are species that are threatened with extinction and are or may be affected by trade), II - Appendix II (re species that are not necessarily threatened with extinction, but may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with the survival of the species in the wild), and III - Appendix III (are species that are listed after one member country has asked other CITES Parties for assistance in controlling trade in a species)</i></p>

**3.10.3 Socio-Economic Environment**

**3.10.3.1 Demographic Information**

The major caste of the zone of influence is Brahman, Kshetri, Janajati, Dalit. It will serve more than 3,257 households as well as the 14,089 population (Male: 6,087 and Female:8,002) of the proposed project-affected wards (**Annex 6: Demographic Information of Local Unit of Proposed Road Alignment**).

**3.10.3.2 Health and Educational Status**

There are altogether 5 health posts and 34 education institutions in the project-affected wards (**Annex 7: Health and Education Status**).

**3.10.4 Occupation**

People in the project area are found involved in various business and agricultural activities. The major occupations of the inhabitants of the project influence areas are agriculture, labor, trade & business and service. About 8.60% of the households are living below the poverty line (HH income below 130,500 /year has been considered as below poverty for the study). (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 any seasonal migration around the project area. Temporary migration can be observed to various parts of India and abroad like Qatar, Malaysia, Arab, Australia and USA to earn money for their livelihood or for study purpose. Especially youth populations in the area are attracted to move abroad in search of better life and earning opportunity.

### 3.10.6 Agriculture

Agriculture is the mainstay of the people of the project area. A variety of food crops is grown. The cash and commercial crops are negligible. The main food crops include paddy, wheat, pulses, other cereals, and vegetables. These products are extensively used for household consumption. Wheat, maize, mustard, millet, and potato are the major crops in the project area. The major source of income is agriculture in the project area. Cows, buffaloes, and goats, poultry are the main livestock reared along with the DIZ of the proposed road.

### 3.10.7 Market Centre

Indregauda and Shantipur have number of shops, people can purchase their daily needs there.

### 3.10.8 Public Infrastructure Communication and Electricity

Various means of communication facilities are available here. Landline phones, fax services, and cyber services are available there. 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 Musikot Municipality and Chandrakot Rural Municipality use various sources of drinking water. About 65% of the people have access to tap water while 35% of people use spring water and others. 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. Seven days traffic count was performed from September 16 to September 22, 2020 at Indregauda (0+000) and Shantipur (20+250). The average daily traffic in the area was found at 218 in August and the detail is provided in **Annex 8** .



### 3.10.9 Existing Practice of Solid Waste Management and Processing

Many local units in Gulmi district have made their public their sustainable plan to manage garbage by themselves. They have initiated the theory of source segregation, collection, transportation, recycling, processing and disposal. Chandrakot Rural Municipality has been managing the waste by themselves and have plan to establish segregation station/ landfill within the district. 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 practices along the proposed road alignment.

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

The majority of the population in the areas belongs to Hinduism. Bada Dashain, Tihar, Maghe Sankranti, Mahashivaratri, Buddha Jayanti are major festivals in the area.

## 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.

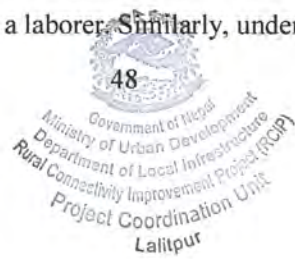
**Road Board Act, 2058 B.S**

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)**

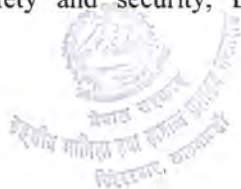
This Act was formulated to conserve and regulate and monitor the International Trade of Threatened Fauna and Flora in order to implement the CITES, 1973. This Act has banned the trade and sample collection of rare and endangered species of flora and fauna. This act has also banned holding, keeping in 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 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)<sup>1</sup>, 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 equivalent 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 laboring 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 200,600 person-days of unskilled manpower and 60,460 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 labour-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 Dalit and Janajati 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 major sources for the Construction of Off-road Structures and Pavement Structures as Pavement material are Badigad Khola at the starting point along the alignment. The stones/boulder for masonry and flexible retaining structures works from river deposited stones, colluvial and residual sediments deposited along the above said locations, which are the proposed sources of construction materials, Contractor has to quarry himself with consulting the responsible authority at the time of construction. 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.

40 Electric poles, 6 Hume pipe culverts, 23 slab culverts, and 1 box culvert 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 2.23 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 proponent/Contractor will take permission from Musikot Municipality and Chandrakot Rural Municipality for quarrying of materials from the bank of Badigad Khola at starting point. Borrow pits and quarry sites are selected avoiding sensitive areas, nearby settlements, water sources, and fertile agricultural lands.

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 is constructed at Chainage 1+190, 8+900, and 15+560. 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. 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 1+190, 8+900, and 15+550. 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 at Kharbang Khola (Ch 1+335), Gyadi Khola (Ch 6+865), Khahare Khola (Ch 16+230), Kyu Khola (Ch 19+155). 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.

#### 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 passes through community forests like Shree Ajamara CF, Dibrung Arjewa CF, Mulabari CF, Chisapakha CF, and private forests. As the proposed road was already track opened, no any trees need to be cut down along the road alignment.

##### 4.2.2.2 Construction Phase

- **Loss of trees and vegetation**

The road alignment passes through community forests like Shree Ajamara CF, Dibrung Arjewa CF, Mulabari CF, Chisapakha CF, and private forests. During road up-gradation, no any trees along the road need to be cleared.

- **Impacts on aquatic habitats**

The nearby area has Badigad Khola and alignment passes through Khola like Kharbang Khola (Ch 1+335), Gyadi Khola (Ch 6+865), Khahare Khola (Ch 16+230), Kyu Khola (Ch 19+155) and other small stream. 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

1.36 ha of private land will be acquired from 135 households (**Annex 5: Consent** papers from the land owners and house owners in the RoW) which are in RoW and 9 Residential structures-Partial (**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**

40 Electric poles, 6 Hume pipe, 23 slab culverts, and 1 box culverts well need 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: diarrhea, 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 proposed road alignment does not affect any religious sites along the road. The additional link road is proposed for upgrading to provide the access of the densely populated Arjewa settlement and agricultural /tourism potential area (Shiva/Krishna Mandir) to the main road alignment.

#### 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 refueling, etc, to keeping it in functional upkeep works, refueling, 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 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 September 16 to September 22 (**Annex 8** : ), 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 mitigate 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			
<b>Construction Stage</b>								
Construction Work	Increase in employment	Increase in income of local people	D	H 60	Lo 20	ST 05	Contractor	No additional cost
Enterprise development/ Business promotion	Create Entrepreneurship	Increase in income of local people	D	M 20	Lo 20	LT 20	Rural Municipality / cottage and small industry office	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			
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 construction material	Contractor	No additional cost
<b>Operation Stage</b>									
Construction of Civil/Bioengineering Structures to	Improvement of the existing environmental condition along	Greenery Enhancement, slope protection	D	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			
manage existing environmental problems	the road alignment								
Upgrading of the road to blacktop standard	Rise of Land value	An increase in the land value of local people / will enhance farmers' capability for borrowing loans on collateral.	IN	M 20	Lo 20	LT 20	Proper and timely maintenance of the road	DoLI/ MoFAGA	No additional cost
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	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)	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
<b>Physical Environment</b>									
<b>Pre- Construction Phase</b>									
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
<b>Construction Phase</b>									
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	NA	Contractor/ DoLI/ MoFAGA



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 of machines and vehicles/ Bitumin Heating Chainage 1+900, 8+900 and 15+550.	Air/Noise pollution	D	M 20	Lo 20	ST 5	Insignificant 45	erosion and Stabilization of cut slopes with bio-engineering. 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. 100,000.00	Contractor
The stockpiling is constructed at Chainage 1+900, 8+900, 12+500, and 15+550.	Impact on land, ground, and surface water and air pollution	D	M 20	SS 10	ST 5	Insignificant 35	Locate 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	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

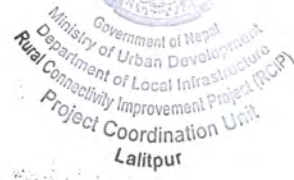




Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
blown by air near the settlement area									
Earth excavation /Operation of quarry sites and borrow pits at Badigad Khola	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
<b>Operation Phase</b>									
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- DoL/MoF AGA



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.	DoLI/MoF AGA
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	DoLI/MoF AGA
<b>Biological Impact</b>									
<b>Pre-Construction Phase</b>									





Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
Tree Cutting Issue							Permission from the concerned land owner and authority.		Contractor/ Proponent
<b>Construction Phase</b>									
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. 100,000.00	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
<b>Chemical Issues</b>									



Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
<b>Construction Phase</b>									
Use of Bitumen	Injury to the construction workers	D	L 10	Lo 20	ST 5	Insignificant 35	Construction workers will be provided safety gear such as helmets, boots, and goggles for their safety.	NRs. 1,50,000.00	Contractor
<b>Socio-Economic Impact</b>									
<b>Pre-Construction Phase</b>									
Land & Property Acquisition							Encourage community development program, Compensation will be provided to the affected household.	As per the Compensation Fixation Committee	DoL/MoF AGA
<b>Construction Phase</b>									
Loss of Agricultural land	Reduction in productive capacity Product, economic loss,	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	DoL/MoF AGA



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 Department of Local Infrastructure  
 Rural Connectivity Improvement Project (RCIP)  
 Project Coordination Unit  
 Lalitpur





Activity/ Issues	Related adverse Impacts/Issues	Type of Impact					Mitigation Measures	Responsibility for Mitigation Measures	
		Nature	Magnitude	Extent	Duration	Rating		Mitigation Cost	Executing Agency
	and social disruption of affected families								
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
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	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	Included in BoQ	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
Establishment of Camp Sites at 1+190, 8+900, 15+550	inadequate safety measures Degradation of Campsite Sanitary environment	IN	M 20	Lo 20	ST 5	Insignificant 45	measures. Construction workers will be ensured. The contractor will ensure that camps are fully restored, including re-top soiling and tree planting if appropriate	NA	Contractor
<b>Operation Phase</b>									
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/MoF AGA/ Sub-metropolitan City
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 board.	Included in BoQ	DoLI/MoF AGA

**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.





## 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 building 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

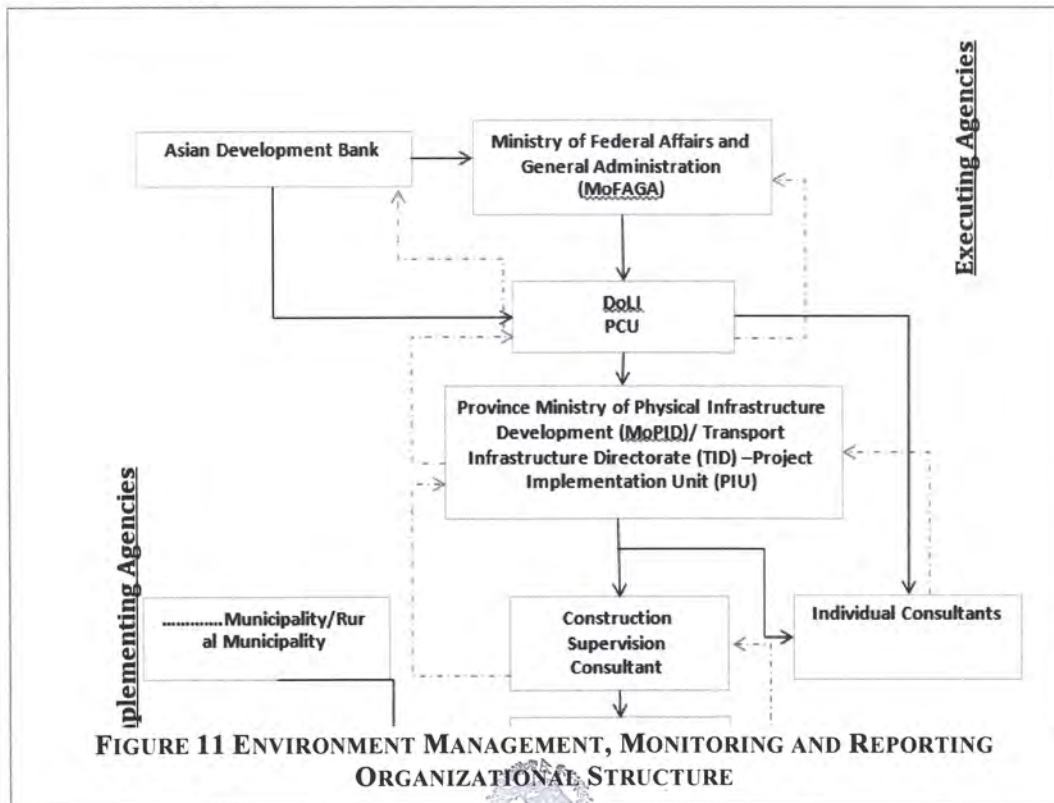




- Inspect and report contractor's state of works related to contractor SEMP and sub-plans
- Audit contractor's works against the conditions set out in contractors' SEMP and sub-plans
- Issue corrective action against works requiring its corrections and verify if it has been respected
- Report all EMP 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.



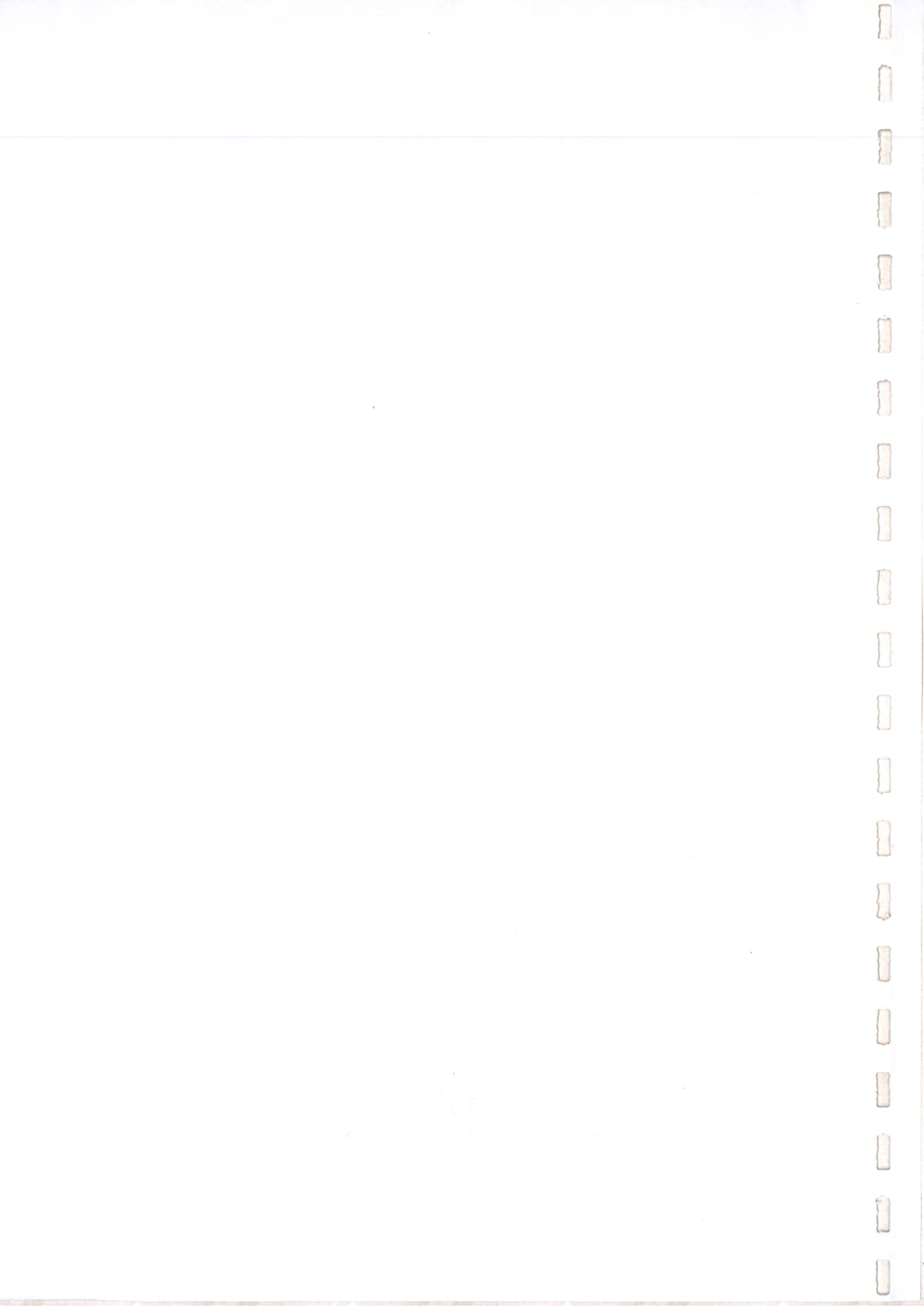
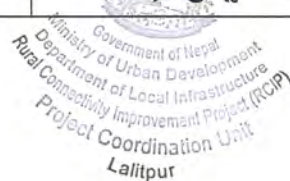




TABLE 23: IMPACT MONITORING

Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
<b>Socio-economic Environment</b>						
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
Employment in projects affected people	Contractor	Number of projects affected people employed	Interaction with project-affected	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
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 the construction phase	PIU/ SC/ MoFAGA
<b>Physical and Cultural Environment</b>						
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, adequate drainage provided	Visit the material stockpiling area, observation, and Photographs	Stockpiling Area	During construction phase	PIU/ SC/ MoFAGA



Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
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
<b>Biological Environment</b>						
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 selection process and design document	Walkthrough survey along final road alignment, verifying sensitive areas	Alignment	The initial stage of surveying	PIU/ CSC/RCIP
<b>Chemical Environment</b>						



Parameters/Issues	Responsible Implementing Agency	Verifiable Indicators	Verification Methods	Monitoring Locations	Schedule	Responsible Monitoring Agency
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 Authority
	Compliance with the benefit augmentation and impact mitigation measures	Local Contractor / Environmental Safeguard Unit	<ul style="list-style-type: none"> <li>The number of local people engaged in construction activities.</li> <li>Use of occupation safety instruments.</li> <li>Compensatory plantation in the ratio of 1:10 for the trees to be removed.</li> </ul>	Visual observation, routine / regular supervision, record books, questionnaire survey from respective stakeholders, etc.	During construction Phase	RCIP Environmental Safeguard Unit	DoLI/ MoFAGA





SN	Parameters	Responsible Implementing agency	Verifiable Indicators	Verification Methods	Schedule	Responsible Monitoring Agency	Reporting Schedule	Reporting Authority
	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	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 Wamitaksar (Indregauda) – Aapchaur – Shantipur Road are presented in table 25 below.



**TABLE 25: INSTITUTIONS AND THEIR ROLE IN EMP IMPLEMENTATION**

<b>Institution</b>	<b>Role</b>	<b>Responsibility in The Project</b>
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 Wamitaksar (Indregauda) – Aapchaur – Shantipur 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 coordination.





Institution	Role	Responsibility in The Project
Local Government Musikot Municipality and Chandarkot Rural 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	150,000.00
Engineer	25	5,000	125,000.00
Biodiversity Expert	25	5,000	125,000.00
Sociologist	25	5,000	125,000.00
Support staff	25	2,500	62,500.00
Transportation cost		LS	80,000.00
Report preparation		LS	25,000.00
Central level monitoring		LS	100,000.00
Instrumentation cost	One time		50,000.00
<b>Total</b>			<b>842,500.00</b>



**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	Remarks
1	Road furniture and traffic safety	NRs.	6,659,799.25	BOQ
2	Bio-Engineering works	NRs.	929,616.80	BOQ
3	EMP and EmoP	NRs.	21,40,000.00	LS
4	Environment Monitoring cost	NRs.	842,500.00	TABLE 25
	Total	NRs.	<b>10,571,916.05</b>	

**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
<b>TOTAL (NRs.)</b>			<b>1,050,000.00</b>	





**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	DOLI/MoF AGA/MoFE /PSC
Land and Property Acquisition	Loss of Private & Communal Property	ROW	Follow the CPP Procedures	Pre-Construction	RCIP/PSC	Included in PSC /CPP	DOLI/MoF AGA/MoFE
<b>Construction Stage</b>							
Pollution	Operation of machines and vehicles/ Bitumen Heating	ROW and near 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	DOLI/MoF AGA/MoFE
Stockpiling of construction Materials	The stockpiling is constructed at Chainage 1+190, 12+500 and 15+550	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	DOLI/MoF AGA/MoFE
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	DOLI/MoF AGA/MoFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
Earth excavation /Operation of quarry sites and borrow pits at Badigad Khola near to starting point	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 BOQ	DOLI/MoF AGA/MoFE
<b>Operation Stage</b>							
Inadequate slope protection,	wash away of sediments (from shoulder) by rainwater leading to road damage/ instability)/	Project direct impact area	Regular maintenance of structures.	Operation	DOLI/RCIP	Included BOQ	DOLI/MoF AGA/MoFE
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/MoF AGA/MoFE





Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
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	DOL/RCIP		DOL/MoF AGA/MoFE
Vehicle movement	Air/Noise pollution	Project direct impact zone	Sign boards for speed and noise control will be erected at appropriate places, affected households will be suggested to plant vegetative barriers.	Operation	DOL/RCIP		DOL/MoF AGA/MoFE
<b>Biological Environment (Construction)</b>							
		Construction Stage			RCIP/DOL		MoFAGA/ MoFE
	Reduction in forest area and loss of wildlife habitat	Especially at forest area. Ch 3+300, 6+855, 8+900, 9+900, 14+700, 16+300, 17+250	According to the Work Procedure with Standards for the Use of National Forest Land for National Priority Project, 2076 of Government of Nepal, project has to carry out plantation (with protection for five years) equivalent to the 10 times the	Construction/Operation	RCIP/DOL	As per the National Forest Land for National Priority Project, 2076	DoLI/MoFA GA/MoFE



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
			number of lost tree and compensate the loss of forest area from the construction of the road by providing the equivalent land or pay for the plantation and protection cost to the Division Forest Office.				
Wildlife casualties due to Road Collision	Speed limit will be enforced at segment passing through forest area	Especially at forest area. Ch 3+300, 6+855, 8+900, 9+900, 14+700, 16+300, 17+250	Speed limits sign boards and awareness program to the driver	Construction/ Operation	RCIP/DOL I	NRS 1,50,000.00	MoFAGA/ MoFE
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	Construction Stage	RCIP/DOL I	NO Cost	MoFAGA/ MoFE





Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
			about these activities and their consequences.				
Fuel for heating Bitumen/ Cooking fuel (firewood) for the construction crew	Illegal cutting of trees & collection of firewood from nearby forests	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	MoFAGA/ MoFE
<b>Chemical environment construction stage</b>							
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. 1,40,000.00	DOLI/MOF AGA/MOF E
<b>Socioeconomic Environment</b>							
Land & Property Acquisition		Pre-construction stage	Encourage community development program,	Pre construction Stage	RCIP	Included in the CPP	DOLI/MOF AGA/MOF E



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation	
			Compensation will be provided to the affected household.					
		<b>Socioeconomic Environment (Construction Stage)</b>						
Loss of Agricultural land	Reduction in productive capacity Product, economic loss, and social disruption of affected families	Construction stage	Encourage community development program, Compensation will be provided to the affected household.	construction Stage	RCIP	Included in CPP	DOLI/MOF AGA/MOF E	
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/MOF AGA/MOF E	
The influx of Outside Workers	Increased Usages of Public Utilities due to		The contractor will be responsible for managing essential commodities for the construction force.	construction Stage	RCIP	No cost	DOLI/MOF AGA/MOF E	





Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation
	construction work Force						
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/MOF AGA/MOF E
Establishment of Camp Sites at Chainage 1+190, 8+900, 15+550	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/MOF AGA/MOF E
Chainage 1+190, 8+900, 15+650							
<b>Socioeconomic Stage Operation Stage</b>							
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/DOL I	No Cost	DOLI/MOF AGA/MOF E



Issues	Activities	Location	Execution (How to)	Time Action	Responsibilities	Estimated Resources	Monitoring and Evaluation	
Increased vehicle operation	Increase chance of accidents: loss of life and property	Operation Stage	Arrangement of safety signs, road delineators, and provision of speed limit sign board.	Operation Stage		No Cost	DOLI/MOF AGA/MOF E	
<b>Total Cost</b>							<b>NRs. 21,40,000.00</b>	

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

  
 नेपाल सरकार  
 शहरी विकास विभाग  
 स्थानीय तह संस्थाहरूको  
 ग्रामीण सञ्जाल सुधार परियोजना

  
 Inclusive Connections Pvt. Ltd.  
 Management



## 8. CONCLUSION

The implementation of the proposed “**Wamitaksar (Indregauda)-Aapchaur-Shantipur Road (20+300 Km)**” 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.



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- Detail Engineering Design of Wamitaksar (Indregauda) – Aapchaur – Shantipur Road





ANNEX

Annex 1: Approved ToR letter



नेपाल सरकार  
संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय  
(वातावरण तथा वास्तुविज्ञान विभाग)  
सिंहदरबार, काठमाडौं

फोन नं. ४२००३१६  
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प.सं.: -वा.त.वि.स्य.शा./०५१/०५८  
च.नं.: - ३५५

मिति: २०७८/१/१२

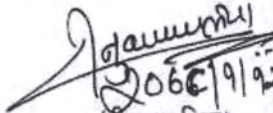
विषय: प्रारम्भिक वातावरणीय परिक्षण (IEE) प्रतिवेदनको कार्यसूची स्वीकृती सम्बन्धमा ।


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

प्रस्तुत विषयमा तहाँ कार्यालय प्रस्तावक रहेको गुल्मी जिल्लाको वामीटक्सार (ईन्द्रगौडा)-आपचौर-शान्तिपुर सडकको प्रस्तावको सम्बन्धमा तयार गरिएको प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदनको कार्यसूची स्वीकृतार्थ तहाँ कार्यालयको प.सं. २०७७/०७८, च.नं. ५१९, मिति २०७७/१२/१९ को पत्र प्राप्त भएकोमा वातावरणीय अध्ययन परिक्षण पुनरावलोकन समिति तथा स्थानीय पूर्वाधार विकास विभाग मार्फत प्राप्त सुझाव लगायत समावेश गर्दै तपशील बमोजिम हुने गरी यस मन्त्रालयको मिति २०७८/१/१२ गतेको निर्णयानुसार स्वीकृत भएको व्यहोरा अनुरोध छ ।

तपशील:

१. कार्यसूची उपर पुनरावलोकन समितिले दिएको राय/सुझाव/टिप्पणी प्रारम्भिक वातावरणीय परिक्षण (IEE) प्रतिवेदनको अंश हुने ।
२. ऐन, नियम, कार्यविधि, निर्देशिका, मापदण्ड लगायतको पुनरावलोकन गर्दा विद्यमान प्रवधानहरूको पुनरावलोकन गर्नुपर्ने ।
३. 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 र अनुसूची ११ बमोजिमको ढाँचामा तयार गरी पेश गर्नुपर्ने ।

  
२०७८/१/१२  
(रिनु थपलिया)  
शाखा अधिकृत




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







Annex 2: Approved ToR



**Terms of Reference (ToR)**  
for  
**Preparation of Initial Environmental Examination (IEE) Report**  
of  
**Upgrading of Wamitaksar(Indregauda)-Aapchaur-Shantipur**  
**Road (20.38Km)**  
**Gulmi, 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**  
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**March 2021**







**List of Abbreviations and Acronyms**

ADB	Asian Development Bank
ADS	Agriculture Development Strategy
AP	Affected Person
°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
DCC	District Coordination Committee
DLP	Defect Liability Period
DIA	Direct Impact Area
DHM	Department of Hydrology and Meteorology
DoLI	Department of Local Infrastructure
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
EMP	Environment Management Plan
EPA	Environment Protection Act
EPR	Environment Protection Rules
IEE	Initial Environmental Examination
IIA	Indirect Impact Area
IUCN	International Union for Conservation of Nature
JV	Joint Venture
Km	Kilometer
LHS	Left Hand Side
m	Meter
PCU	Project Coordination Unit
PIU	Project Implementation Unit
RCIP	Rural Connectivity Improvement Project



<b>RM</b>	Rural Municipality
<b>RHS</b>	Right Hand Side
<b>RoW</b>	Right of Way
<b>RRRSDP</b>	Rural Reconstruction and Rehabilitation Sector Development Project
<b>ToR</b>	Terms of Reference
<b>GoN</b>	Government of Nepal
<b>MoFAGA</b>	Ministry of Federal Affairs and General Administration

  
ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
IT/ECO-Inclusive I/V Page 2





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ITECO-Inclusive IEE



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



**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 Wamitaksar (Indregauda)- Aapchaur - Shantipur Road is Rural Connectivity Improvement Project (RCIP) of Department of Local Infrastructure (DoLI). As DoLI/RCIP is under the Ministry of Federal Affairs and General Administration (MoFAGA), MoFAGA is the concerned authority for the approval of Terms of Reference (ToR) of IEE. The address of the proponent is:

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





## CHAPTER 2: PROPOSAL

### 2.1 General Introduction

Development of a road network has multi-fold benefits for the overall socio-economic wellbeing 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.

Wamitaksar (Indregauda)-Aapchaur-Shantipur Road is in Gulmi district helps to connect Khagakot, Purthighat and Shantipur, the eastern part of Gulmi district to Tamghas. Likewise, Indregauda (starting point Ch 0+000) connects Mid Hill highway at Kharbang (10.75 km) though Burtibang Marga. At present, the road is narrow earthen track and has proposed to "ultimate" blacktopped standard with carriage width of 3.75m and formation width 6.75 m. The alignment passes through Raniban Community forest, Kehu Chisi Pakha Community forest and private forest. The project acquired approximately 1.2 ha forest area, 0.92 ha cultivated land, 0.75 ha settlement area and 0.1 ha Barren land. Hence, the project affects mostly forest and cultivated land. However, the upgraded road to bituminous standard will also increase design speed, save travel time, reduce travel cost and protect local communities from dust.

### 1.2 Relevancy of the proposals

The road provides the ease access to the famous tourist destinations like Deurali Mandir, Shalime Daha and Timure lake. Likewise, Gulmi is famous for coffee; the alignment passes through Aapchaur, which has high potential for coffee production will get easy access to the market. Furthermore, easy access road helps to increase tourist and economic activities, which ultimately help to improve social and economic status of the people in the area.

The main objective of Rural Connectivity Improvement Project (RCIP) is to upgrade local roads, connect the local markets to the main highways. Upgrading of Wamitaksar (Indregauda)-Aapchaur-Shantipur Road helps to connect Khagakot, Purthighat and Shantipur, the eastern part of Gulmi district to Tamghas. Likewise, Indregauda (starting point Ch 0+000) connects Mid Hill highway at Kharbang (10.75 km) though Burtibang Marga. Therefore, Department of Local Infrastructures has prioritized this road to upgrade blacktop standard.

### 1.3 Objectives of Proposal

The overall objective of the project is improved connectivity between rural communities, productive agricultural areas and socioeconomic centers in Nepal

- To improve the rural road conditions between the selected rural communities, productive agricultural areas, and socioeconomic centers and



- To enhance the capacity of rural infrastructure agency and road users in project areas capacity.

Likewise, the objective of the project is to upgrade existing narrow earthen track to bituminous paved road including cross drainage structures, side drain and measures for slope stability and traffic safety with carriageway width 3.75 m and formation width 6.75 m. Upgrading of road will enhance trade activities between the areas linked to the road. Implementation of proposal will enhance level of service.

#### 1.4 Rationality of conducting an IEE

As per the section 3 of Environment Protection Act, 2076 and Rule (3), of Environment Protection Rules (EPR) 2077, an environmental study report must be prepared to implement any proposal. Moreover as per the Rule (5) of EPR, 2077, ToR must be prepared and get approval from the concerned authority before conducting environmental study. As the length of proposed road is 20.38 Km and acquired 1.2 ha forest area, pertaining to Schedule 2 (Gha) Road Sector (8) and Schedule 2 (Ka) Forest area (12) of EPR, 2077 an IEE study will 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 expected that ADB will finance for the implementation of this proposal. 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 shall 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:

- 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;
- Clarify the responsibilities of different institutions involved in the project cycle
- Systematizing the IEE working procedures in compliance with the EPA,2076 and EPR, 2077 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. IEE also identifies and evaluate any significant negative impacts





- To identify and prepare baseline condition of existing physical, biological, socio-economic and cultural environment 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.
- To prepare environmental management plan (EMP) and propose monitoring mechanism of implementation of EMP;
- To make sure IEE is sufficient for implementation of the proposed road or not.
- To inform decision makers on the outcome of implementation of the proposal.

### 2.7 Project description

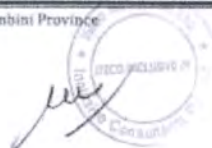
The proposed road alignment is in Gulmi district of Lumbini Province. The road starts from Musikot municipality ward no. 5, Indregauda (0+000) and ends at Chandrakot RM ward no. 4, Shantipur Bazar (20+380). The road alignment passes through Raniban Community forest, Kebu Chisi Pakha Community forest and Private forest. Geographically, alignment starts at the latitude 28° 07' 35.71" N and longitude 83° 19'08.47" E with an altitude of 686 m and ends at latitude 28° 06' 37.29" N and longitude 83° 24' 50.10" E with an altitude of 1058 m above the sea level. The total length of the road alignment is 20.38 Km in middle mountain region with Sub tropical climatic zone of Nepal.

Table 1: Land Use Pattern

Chainage		Land Use Pattern	
From	To	Left	Right
0+000	1+500	Indregauda Settlement Area	Indregauda Settlement Area
1+500	2+600	Raniban Community Forest	Raniban Community Forest
2+600	3+100	Raniban Community Forest	Barren Land
3+100	5+350	Sarang Settlement Cultivated Land	Sarang Settlement Cultivated Land
5+350	5+900	Barren Land	Barren Land
5+900	7+250	Forest Area	Forest Area
7+250	8+750	Cultivated Land	Cultivated Land
8+350	10+250	Cultivated Land	Cultivated Land
10+250	11+900	Cultivated Land	Cultivated Land
11+900	13+500	Private Forest	Cultivated Land
13+500	14+750	Cultivated Land	Barren Land
14+750	15+500	Bhanjyang Settlement Agricultural Land	Bhanjyang Settlement Agricultural Land

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15+100	16+750	Kehu Chisi Pakha Community Forest	Kehu Chisi Pakha Community Forest
16+750	17+250	Kehu Chisi Pakha Community Forest	Kehu Chisi Pakha Community Forest
17+250	18+500	Kehu Chisi Pakha Community Forest	Cultivated Land
18+500	19+300	Cultivated Land	Cultivated Land
19+300	20+380	Shantipur Settlement	Shantipur Settlement

Table 2: Existing Road Width

Chainage		Road Width
From	To	
0+000	1+500	3.5
1+500	3+000	2.8
3+000	4+500	2.75
4+500	6+000	3.2
6+000	7+500	4.2
7+500	9+000	3.9
9+000	10+500	3.8
10+500	12+000	2.8
12+000	13+500	3.1
13+500	15+000	2.9
15+000	16+500	3
16+500	18+000	3.5
18+000	19+500	3.8
19+500	20+380	4



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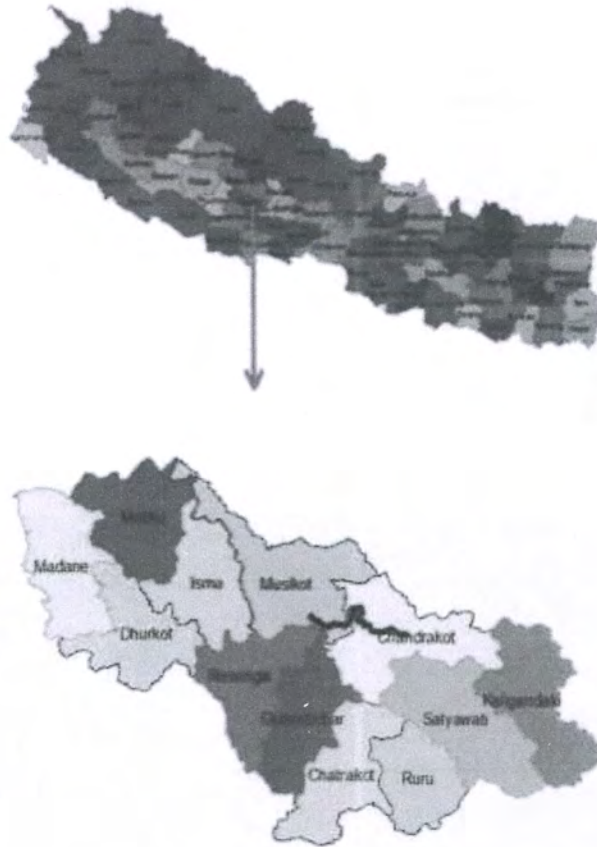


Figure 2- 1: Location of Project Area





Figure 2- 2: Location of Wamitaksar (Indregauda)- Aapchaur - Shantipur Road Section

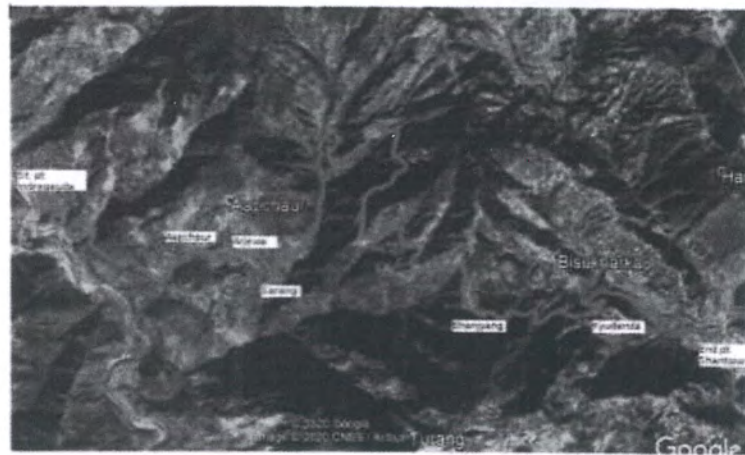
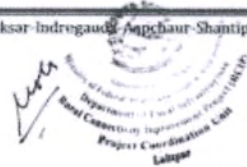


Figure 2- 3: Google map of Wamitaksar (Indregauda)- Aapchaur - Shantipur Road on Gulmi District

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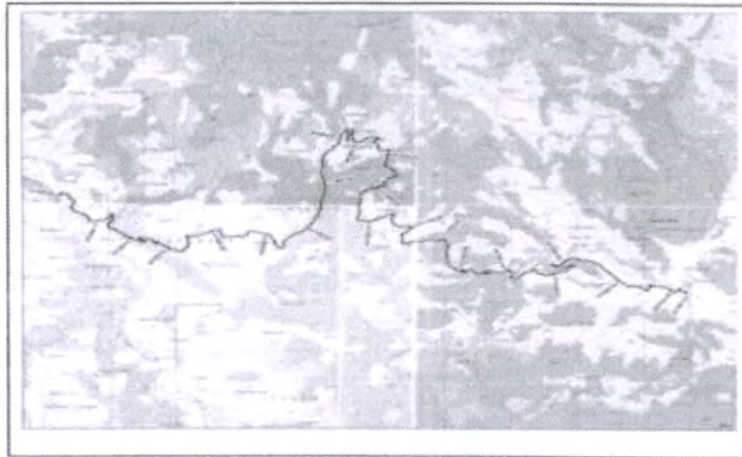


Figure 2- 4: Topo Map of Road Alignment

**2.7.1 Salient Features**

The salient feature of the proposed project has discussed below:

**Table 2- 1: Salient Features of the Project**

1	Name of the Project	Upgrading of Wamitaksar (Indregauda)- Aapchaur - Shantipur Road Section
2	Geographical Location	
2.1	Province	Lumbini Province
2.2	District	Gulmi District
2.3	Municipality/ RM	Musikot Municipality and Chandrakot RM
2.4	Location	Starting Point: 28° 07' 35.71" N 83°19'08.47" E, 686 m End Point : 28° 06' 37.29" N 83°24' 50.10" E, 1058 m
3	Geographical Features	
3.1	Geography	Hilly
3.2	Terrain	Slope
3.3	Climate	Sub tropical
3.4	Geology	Loose soil, Boulder mix soil
4	Detail of Road	
4.1	Route	The road starts from Musikot Municipality ward no. 5, IndregaudaChowk and passes through Aapchaur, Sarang, Bhanjyang, Kyudanda and ends at Shantipur Bazar, Ward no. 4, Chandrakot RM

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

सुदूर पश्चिम प्रदेश  
 नेपाल सरकार  
 कृषि, सिंचनी तथा पशुपालन विभाग  
 विरेन्द्रनगर, काठमाडौं

4.2	Forest	Community and Private Forest
4.3	Start Point	Indregauda Chowk (Musikot Municipality ward no. 5)
4.4	End Point	Shantipur Bazar (Chandrakot RM ward no. 4)
4.5	Length of Road	20+380 Km
4.6	Classification	
	i. Administrative Classification	District Road as per DTMP of Gulmi District. It functions as a provincial Road of Lumbini Province.
	ii. Technical Classification	Class IV
4.7	Pavement	Bituminous (After the finalization of the type of Bituminous Pavement, impact will be analyzed in IEE Report)
<b>Design Standards</b>		
5	Design Speed	30 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	5.25 m (Excluding drain) on Rural Area 6.75 m (Including Drain and Footpath)
6.3	Carriageway width	3.75 m (Single Lane)
6.4	Shoulder Width	0.75 (On Either side) in Rural Area
6.5	Side Drain Type	U Drain
7	Carriageway Camber	2.5 % (Bituminous)
8	Minimum Radius of Horizontal Curve	20 m, Adopted 15 m (Existing Road Requirement)
9	Maximum gradient	12%
10	Average gradient	7%
11	Minimum Gradient	0.5%
12	Design traffic	20years
13	Width of slab culvert	6.05 m
14	Minimum Diameter of pipe culvert	600 mm and 900 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 150 mm (exact thickness will be finalized after design completion)
15.3	Wearing Course	Bituminous ( 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

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	incorporated in IEE report.
Population served	Approximately 16,000
Construction Period	2 years

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

### 2.8 Existing Environmental Condition

#### Physical Environment

##### Hydrology, Meteorology and Climate

The road alignment passes through small stream like Badhighat Khola (Ch 0+000), Khahari Khola (Ch 7+600) and Hugdi Khola (Ch 14+100). Generally, rainy season starts from June and ends in September. The meteorological record shows unevenly distributed monsoon rain with the total average annual rainfall of 1100 mm. Average minimum temperature of 6°C and average maximum temperature of 26 °C in the area.

##### Geology and Soil

Geologically, the area lies in the Lesser Himalayan Zone. The Lesser Himalayan Zone is bounded to the north by the Main Central Thrust and to the south by Main Boundary Thrust. The rocks of Lesser Himalayan Zone have been transported southwards in several thrust slices. Generally, two types of sequence namely autochthonous and allochthonous. The both sequence mainly have unfossiliferous, sedimentary and metasedimentary rocks such as slate, phyllite, schist, quartzite, limestone, dolomite etc ranging in age from Precambrian to Eocene. Since, the project area in between Budhi Gandaki and Bheri river amount of transported high-grade metamorphic rock (allochthonous) is low and the area is generally covered by autochthonous sequence.

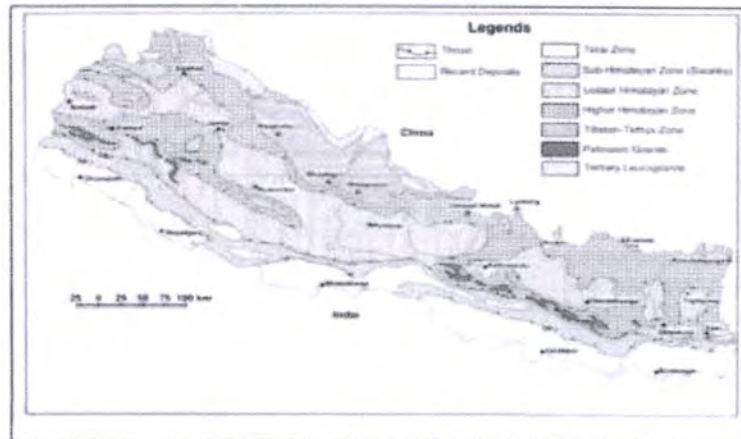
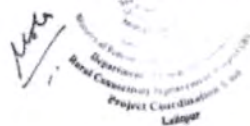


Figure 2- 5: Geological Map of Nepal



**Biological Environment**

**Flora and Fauna**

The alignment passes through Raniban Community forest, Kehu Chisi Pakha Community forest and Private forest at chainage (2+600, 3+100, 5+900, 8+350, 16+750) The flora species found in the forest area are Salla (*Pinus roxburghii*), Sal (*Shorea roxburghii*), Simal (*Bombax ceiba*), Khayer (*Acacia catechu*), Peepal (*Ficus religiosa*), Bans (*Bambusa spp.*) and Titri (*Rh. chinensis*) etc. Major species of mammal include Ban Biralo (*Felis chaus*), Chituwa (*Panthera pardus*), Rato Baandar (*Macacca mulata*), Langur (*Somnophithecus entellus*) and Syal (*Canis aureus*)

**Table 2- 2: Rare and Endangered Mammal Species in Project Area**

S.N	Reported	Scientific Name	IUCN/CITIES
1.	Ban Biralo	<i>Felis chaus</i>	LC
2.	Rato Baandar	<i>Macacca mulata</i>	LC/II
3.	Syal	<i>Canis aureus</i>	LC

**Birds**

Most of the species are permanent resident in these habitats. Koili (*Cuculus Sp*), Chil (*Aquila heliaca*), Kalij (*Lophura leucomelanous*) etc are main bird species reported in the project area.

**Table 2- 3: Rare and Endangered Birds Species in Project Area**

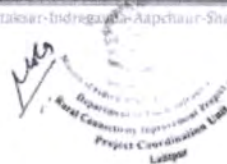
S.N	Reported	Scientific Name	IUCN/CITIES
1.	Chil	<i>Aquila heliaca</i>	VU
2.	Kalij	<i>Lophura leucomelanous</i>	NT

**Socio-economic and Cultural Environment**

The population of affected wards of Musikot municipality is 8,662 whereas, Chandrakot RM is 8,360. More than 95% of the population residing is Hindu. Similarly, there are about 4% of population are Buddhists and few people follow Islam, Jain, Christian and Sikh. These wards are mainly inhabited by Brahmins, Kshetris, Magar, Gugung, Dalits etc. The economy of the area is predominantly based on agriculture and animal husbandry.

**2.9 Source of Construction materials and Quarry Site**

The basic materials required for the road upgradation are soil, gravel and crushed rock. Gravel will be used for sub-base upgrading, and crushed stones are used for base-course upgrading and for bituminous surfacing. Remaining materials like cement, bricks, steel structures, cable wire will be bought from nearby authorized dealer. Quarry site will be





finalized after completion of DPR however; the necessary material will be extracted environment friendly from authorized approved quarry site nearby project area.

**2.10 Campsite and Stockpiling**

Both skilled and non-skilled work force will be needed for the construction of the project. Required work force as per DPR will be managed during construction. Their proper accommodation will be managed in appropriate campsite. The campsite and stockpiling site will be finalized during the IEE report preparation. The campsite and stockpiling yards will be established taking consideration of minimizing negative environmental impact.

**2.11 Project Area Delineation**

**Direct Impact Area**

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 (DIA).

**Indirect Impact Area**

Indirect Impact Zone (IIA) will be the surrounding environment next to Direct Impact Area (DIA) 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 adjoining wards of Chandrakot RM 1, 2, 4 and Musikot municipality ward no. 5.

**Zone of Influence**

The Zone of influence (ZoI) covers the various settlements of ward number 1, 2 and 4 of Chandrakot Rural Municipality and Musikot Municipality ward no. 4 and 5 of the proposed road alignment.



ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
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**CHAPTER 3: PROCEDURE TO BE ADOPTED WHILE PREPARING THE REPORT**

The ToR has been prepared pertinent to Section 5 (1) of EPA 2076 and Rule 5 (1) of EPR, 2077. During the IEE study, public hearing will be conducted as per the provision of Section 3 (5) of EPA, 2076 and Rule 6 of EPR, 2077. The IEE report will be prepared as per the provision of Rule 7 and schedule 9, 11 and 13 of EPR, 2077

The basic methodology as per provisions of EPR, 2077 and National EIA guidelines 1993 will be followed while preparing the IEE Report. It also includes review of literature and field based study and consultation as well. It must be followed by a 7-days public notification (Rule 7 of EPR, 2077). The suggestions will be collected from the various stakeholders. Moreover, the project baseline information related to physical, biological socio-economic and cultural environment will also be collected by 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 RM/ Municipality 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 environmental information.

**3.2 Field Study and Site Inspection**

Field studies will be conducted in project areas in an extensive manner. Investigation 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.

**3.2.1 Preparation of Community Participation Plan (CPP)**

The Consultant will prepare the Community Participation Plan (CPP) of the 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 clause if small strip of private land is required for upgrading of this road. The CPP will give detail information on 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 will be described in the IEE report.





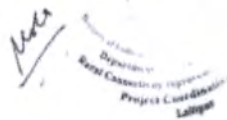
**Table 3- 1: Methodological Approach for Field Study and Site Inspection**

Data Required	Method, Tools and Sources
<b>• Physical Environment</b>	
Physiological, Topography, Land use type and classification	Secondary Source data collection Remote sensing and GIS analysis on the topographical maps published from the Department of Survey, Google Image
Geology-Rock types, seismicity and stability	Field investigation/Direct observation, Analysis of geological map published by Department of Mine and Geology
Soil type and classification	Geological Map
Sound/Noise condition	Field observation, available secondary data
Weather and climate condition, temperature, precipitation	Secondary information from Department of Hydrology and Meteorology (DHM) and other published literature
Type, Volume and Source of Construction materials required	Secondary information from project engineers, feasibility/detail design reports
Information on borrow sites/tipping sites/stockpiling and camp sites	Direct field information / Interaction with project engineers, local stakeholders
<b>• Chemical Environment</b>	
Air Quality	Direct field observation and available secondary information
Water Quality	Direct field observation and available secondary information
<b>• Biological Environment</b>	
Vegetation analysis	Field enumeration/ Survey
Fauna Environment	Key Informant Interview
Aquatic animals	Visual observation/ Key Informant Interview/ Past literature for fish
<b>• Socio-economic and Cultural Environment</b>	
Demographic, Economic and social services and facilities	Secondary Information from CBS, District Co-ordination Committee and Primary information of the direct impact and indirect area will be collected through structured questionnaire and focus group discussion from HHS survey

**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

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places, Municipalities and RM. 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 public hearing. 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.

### 3.4 Analysis of data

The data/information collected from the fieldwork will be analyzed and interpreted to establish the relation between the environmental impacts and their mitigation measures. The analysis will be quantifiably described as far as possible. The analysis will be done by predictive methods. 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 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 cross checked for errors and discrepancies, if any. All the data will be compiled into a computerized database system.

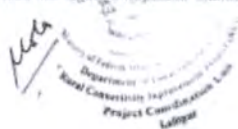
### 3.5 Impact Assessment

The baseline environmental data and information collected and 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** on the basis of 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 on the basis of 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**

<b>High/Major Magnitude</b>	If the adverse impacts cannot be mitigated then the magnitude of impact is considered as high.
<b>Medium Magnitude</b>	If the impacts make the resources still usable but at some inconvenient to the public then magnitude of impact would be considered as medium
<b>Low Magnitude</b>	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:**

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**

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

<b>Long-Term</b>	An impact that lasts beyond 20 years is considered to be long term
<b>Medium-Term</b>	An impact that continues for more than 3 years but less than 20 years may be considered as medium term
<b>Short-Term</b>	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)

On the basis of 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 BS and the approved ToR. As ADB has provided financed assistance for the preparation of DPRs for RCIP-2 and it is expected that ADB will provide financing for the implementation of the project as well, the IEE report will be prepared in English language





and Executive Summary will be prepared in Nepali language as per Rule 7 (8) and (9) of EPR, 2077.

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 given in the Annex 1

*W*  
Secretary  
Ministry of Federal Affairs  
Department of Local  
Rural Connectivity Improvement Project

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Government of Nepal  
Ministry of Urban Development  
Department of Local Infrastructure  
Rural Connectivity Improvement Project (RCIP)  
Project Coordination Unit 135  
Lalitpur

नेपाल सरकार  
विश्वविद्यालय, काठमाडौं

ITECO INCLUSIVE JV  
Inclusive Consultants Pvt. Ltd.

**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**

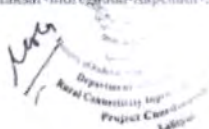
- Constitution of Nepal

**4.2 Acts**

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

**4.3 Plans and Policies**

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





#### 4.4 Rules and Regulations

- Child Labor (Prohibition and Regulation) Rules, 2062 BS
- Environment Protection Rules, 2077 BS
- Forest Regulation 2051 BS
- Labour Rules, 2050 BS
- Solid Waste Management Rules, 2070 BS

#### 4.5 Manuals/Guidelines

- Environmental management guidelines for roads and bridges, DoR, 2056 BS
- National EIA guidelines, 1993 AD
- Environmental and Social Management Framework, ESMF (Revised) (2013), DoLIDAR
- Environmental Assessment in Road Sector, 2057 BS
- Forest Products Collection and Sales Distribution Guidelines, 2057 BS
- Guideline on working Procedure for National Forest Areas for National Priority Project, 2076
- Community Forest Inventory Guidelines 2073BS
- Occupational Safety and Health Guidelines, 2074 BS

#### 4.6 Standards

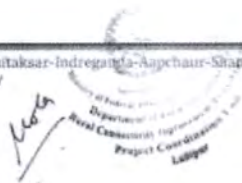
- National Ambient Air Quality Standards, 2069 BS
- Nepal Vehicle Mass Emission Standards, 2069 BS
- National Standard for Sound Quality, 2069 BS
- Nepal Rural Road standards, 2071 BS
- Nepal Road Standards, 2070 BS
- Stone, Aggregates and Sand Quarrying, Sale and Management Standards, 2077 B.S
- Nepal Noise Standards, 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 TIME SCHEDULE TEAM COMPOSITION AND ESTIMATED BUDGET**

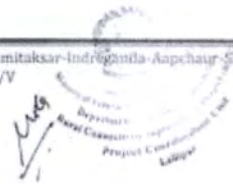
**5.1 Time Schedule**

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.	Public Hearing and Meeting with Stakeholder				█	█											
4.	Publication of Public notice 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														█	█	
8.	Submission of Draft Report and Presentation																█
9.	Final Report Preparation and Submission																█
10.	Approval of the IEE Report																█

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**5.2 Team Composition**

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

**Table 5- 2: IEE Team Members**

SN	Name	Functional Title	Academic Qualification	Professional Experience	Related IEE/EIA (Annex 6)
1.	Mr. Navaraj Pokharel	Environmental Expert (Team leader),	M.Sc. Environmental Science,	15 Years of Experience	More than 3
2.	Mr. Sagun Maharjan	Environmentalist	(M.Sc. Environmental Science),	6 years of Experience	More than 3
3.	Mrs. Aasha Suwal	Biodiversity Expert	(M.Sc. Biodiversity ),	6 years of Experience	More than 3
4.	Mr. Chintamani Sharma	Sociologist,	MA Sociology,	15 years of Experience	More than 3
5.	Mr. Yagya Bahadur Malla	Transportation Engineer	Masters in Highway Engineering .	20 Years of Experience	More than 3
6.	Mr. Manil Neupane	Geologist,	M.Sc. Geology,	5 years of Experience	More than 3

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 19 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 Lumbini Province. 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 PROPOSAL 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

Beneficial impacts due to implementation of the Proposal during construction and operation phases of the project shall be assessed and further enhancement measures need to be suggested. They shall be related mainly to raising the livelihoods of the local people. The likely beneficial impacts envisaged during construction and operation phases are:

- Employment Generation and Increase in Income
- Skill Enhancement
- Women and Indigenous People Empowerment
- Improvement in Accessibility and Saving of Time and Transportation Cost
- Increase in Trade, Commerce and Market Development
- Tourism Development

### 6.2 Adverse Impacts

The likely adverse impacts during construction and subsequent operation phases due to the project actions, as stated in the following paragraphs, shall be identified, predicted and evaluated.

#### 6.2.1 Socio-Economic Environment

The social and economic issues that shall be assessed during the IEE study shall include followings.

##### Pre-construction phase

- Loss of production (standing crops and private trees)
- Land and property acquisition (public/community land)

##### Construction Phase

- Loss or Degradation of Farm Land Productivity
- Land acquisition issues
- Loss of Private property/assets
- Decline in Aesthetic Value
- Health, sanitation and safety of workers
- Issues on infrastructures such as irrigation channel, transmission lines, telephone lines etc.





- Conflict on or with nearby host community
- Issues on occupational health and safety including COVID-19

**Operation and maintenance Phase**

- Encroachment of RoW
- Road safety measures

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

The cultural issues that shall be assessed during the IEE study shall include followings

**Construction Phase**

- Impact on religious, cultural, and historical assets
- Pond, well with religious value
- Landscape aesthetics

**Operation and maintenance Phase**

- Impacts on traditional norms and values

**6.2.3 Physical environment**

The physical issues that shall be assessed during the IEE study shall include followings

**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/burrow site operation
- Change in Land use pattern
- Slope Instability and Landslides
- Loss of productive soil
- Impact/Issues due to construction camps
- Transportation of construction materials(Stock Piling and muck/ spoil / waste Disposal)
- Impact/Issues due to solid waste generation
- Impact/Issues on air quality, water quality and noise level
- Issues of road Construction Schedule
- Pollution of water sources
- Contamination of soil
- Potential impacts caused by Bitumen
- Occupational safety and health gadgets



**Operation and maintenance Phase**

- Impact/Issues due to air, noise and water pollution
- Obstruction on drainage
- Cleaning of work camp, labor camp, stockpiling yard, crusher plant, hot mix plant

**6.2.4 Chemical Environment**

The chemical environment related issues concerning environmental protection during pre-construction, construction and operation phases shall be assessed during the IEE study, and may include followings:

**Construction Phase**

- Impacts/Issues of Construction Materials (Bitumen, Paints, Oil, Greeze 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**

With regard to biological aspects, the IEE study shall focus on the following issues during the pre-construction, construction and operation phases:

**Pre-construction Phase**

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

**Construction Phase**

- Loss of forest (Community and Private forest)
- Possible impact on flora and fauna (biodiversity)
- Possible impact on aquatic ecosystem of Badhighat, Gidi khola and Hugdi khola

**Operation and maintenance Phase**

- Depletion of forest resources
- Disturbance to wildlife due to vehicular movement

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



  
नेपाल योजना आयोग  
संघीय मामिला तथा स्थानीय विकास विभाग, काठमाडौं

  
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Ministry of Local Development  
Department of Urban Development  
Rural Connectivity Improvement Project  
Project Coordination Unit  
Lalitpur

  
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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



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### CHAPTER 7: ALTERNATIVES OF THE PROPOSAL

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 analyzed 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 therefore, alignment has been already fixed

- **Alternative schedule and process**

During the IEE study period, the alternative time schedule of construction, design and all the activities will be analyzed. 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 analyzed 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 not implemented in the proposed area will be analyzed during the IEE study.



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**CHAPTER 8: THE PREVENTION MEASURES OF THE IMPACTS 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)					



Table 8- 3: 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 (Muchulka) of pasting public notice, and recommendation letters from concerned municipality will also to be include in the report. In addition, the inputs and suggestions received from the Public Notice/Consultation with locals and concerned Rural 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.

S.N	Comment	Remarks
1.	Is Cross-Drainage Structure enough or not for this Road	We have 600mm and 900mm drainage structure which will be placed in road according to need and discharge of water. Corrected in Salient features. Page 14
2.	Detail of Rural Communities, Detail of Agricultural Area and Socio-economic sectors	Detail will be included in IEE report
3.	Include Forest area in Rationality	Included in Rationality. Page number 8
4.	Existing Environmental Condition <ul style="list-style-type: none"> <li>• Seismicity</li> <li>• Slope Stability</li> <li>• Wildlife movement at present condition</li> </ul>	Detail will be included in IEE report
5.	Total cost of project/Km cost	Will be included in IEE report
6.	Chainage wise hydrological detail	Detail will be included in IEE report
7.	Socio- Economic Environment Pre-construction phase <ul style="list-style-type: none"> <li>• Include acquisition of public/community land</li> <li>• Included right of way encroachment</li> </ul>	Acquisition of public/community land and right of way encroachment has been included.





**CHAPTER 10: 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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**Annex 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 on local infrastructures
- 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.





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 & Consultation with Affected Person**

- 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 DOL/RCIP, PIU  
  
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.):
  - 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

  
Ministry of Federal Affairs, Government of Nepal  
Department of Local Infrastructure  
Rural Connectivity Improvement Project (RCIP)  
Project Coordination Unit

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

  
नेपाल सरकार  
सुदूरपश्चिम प्रदेश विकास विभाग  
दिल्लेचौर, काठमाडौं







2.2 Documenting of Affected Person

2.2.1 Format for Affected Person (AP)

District: Municipality/Rural Municipality: Village:

Name of Subproject Road: Total Length (in Km):

Details of Affected person

S.No.	Village name	Name of the AP	Vulnerable Category				Type of Impact/Loss	Extent of Loss	Ownership
			Indigenous People	Dalits	Below Poverty Line	Female headed Household Disabled			
						Households losing structure(R, C, R+C, boundary / Fence)			
						Land (total land holding size) with type of land (irrigated / un-irrigated)			
						Livelihood			
						Structure (partial / total and type of structure (sqm)			
						CPR, trees, crops (specify)			
						Land (sqm) (size of residual holding)			
						Structure (sq m)			
						Titheholder, squatter, encroacher, tenant			
Total									

LHS = Left Hand Side; RHS = Right Hand Side

The road alignment will be finalized with the best efforts to address the above issues. The next consultation with the likely affected person will be on (date) at (location)

Countersigned

.....

Name:

From RM/M:

.....

Name:

PIU Engineer

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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 Environment**

**2.4.1 Checklist for Physical 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**

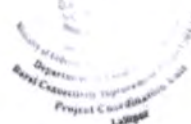
1. Collect any data on air quality of the area from previous literature
2. Investigate on the air polluting activities of the area (traffic, biomass burning, industries, other anthropogenic activities)

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

**F: List of the Required Structure**

**2.4.2 Formats for Physical Environment**

**2.4.2.1 Format for Land Slide Investigation Survey Sheet**

Chainage (From – To)	Particular	Field Data
	Sheet No.	
	Location	
	Dimension (L*B*H)	
	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	





2.4.2.2 Format for Land Use

Left From	Land Use Type(Khet, Barh, Kharbari/Abandoned Land, Forest, Shrubs, Settlement etc.)	Ownership	Remarks	Right		Ownership	Remarks	Land Use Type(Khet, Barh, Kharbari/Abandoned Land, Forest, Shrubs, Settlement etc.)	Ownership	Remarks
				From	To					

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

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



2.4.2.4 Format for Spoil Management Location

S.No.	Chainage		Location or Name of Place	Approx. Capacity	Description
	From	To			

2.4.2.5 Format for List of Watershed, Water Resources, and Local Stream along the road alignment

S.No.	Chainage		Location, Name of Place	Name of Feature	Description
	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.)
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.). (Format-A7)
6. **Conservation significance:** The species found shall also be categorized 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: .....

**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: .....



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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-A1 for Forest Classification by Forest Act-Affected by the Project

Chainage	Name of Forest		Dominant tree species	Associated tree species	Associated shrub/herbs	Ecological Status	National Forest (by management types)							
	From	To					G	CF	LF	RF	PF			

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-A2 for Community Forest

Chainage	Forest Name	Municipality/ Rural Municipality	Ward No	Area (ha)	Total involved HH	Total Beneficiary Nos	Year Established	Janajati HH	Main Forest products used

2.5.2.4 Format A3 for Religious Forest

Chainage	Forest Name	Municipality/ Rural Municipality	Ward No	Area (ha)	Total involved HH for protection	Religious purpose	Year established	Main Forest products used

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2.5.2.5 Format-A4 for Private Forest

Chainage	Forest Name		Municipality/ Rural Municipality	Ward No	Area (ha)	Year established	Name of Owner	Main Forest products used
	From	To						



2.5.2.6 Format-A5 for Wild Vegetation Observed – Tree, Shrubs, Herbs, Pteridophytes, Bryophytes, Lichens and Fungi- Project Area

SN	Botanical Name	Local Name	Observed site	Vegetation 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-Pteridophyte, B-Brayophyte, F - Fungi



2.5.2.7 Format-A6 for Agro-vegetation Diversity Observed – Fodder, Fruits, cereals, legumes, vegetable and ornamental – Project Area

SN	Botanical Name	Local Name	Observed Site	Vegetation 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-A7 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.











2.5.2.12 Format-A11 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-A12 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-A13 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
			Common	Sparse	Rare	F	B	O			

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	Common Names	Scientific Names	Status of occurrence			Habitat			Migratory Status/ season	Observed Location	Reported Location
			Common	Sparse	Rare	F	B	O			

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	Common Names	Scientific Names	Status of occurrence			Habitat			Migratory Status/ season	Observed Location	Reported location
			Common	Sparse	Rare	F	B	O			

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.

2.6.4. Formats for Butterflies of the Project Area

S N	Common Names	Scientific Names	Status of occurrence			Habitat			Migratory Status/ season	Observed Location	Reported location
			Common	Sparse	Rare	F	B	O			

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	Common Names	Scientific Names	Status of occurrence		Migratory Status/ season		Observed Location	Reported location	Conservation status
			Common	Sparse	Rare	M/R/V			

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

2.6.6 Attendance sheet for the Wildlife Focus Group Discussions

Name of Municipality/Rural Municipality:

Location:

Date:

SN	Name	Male/Female	Age	Signature





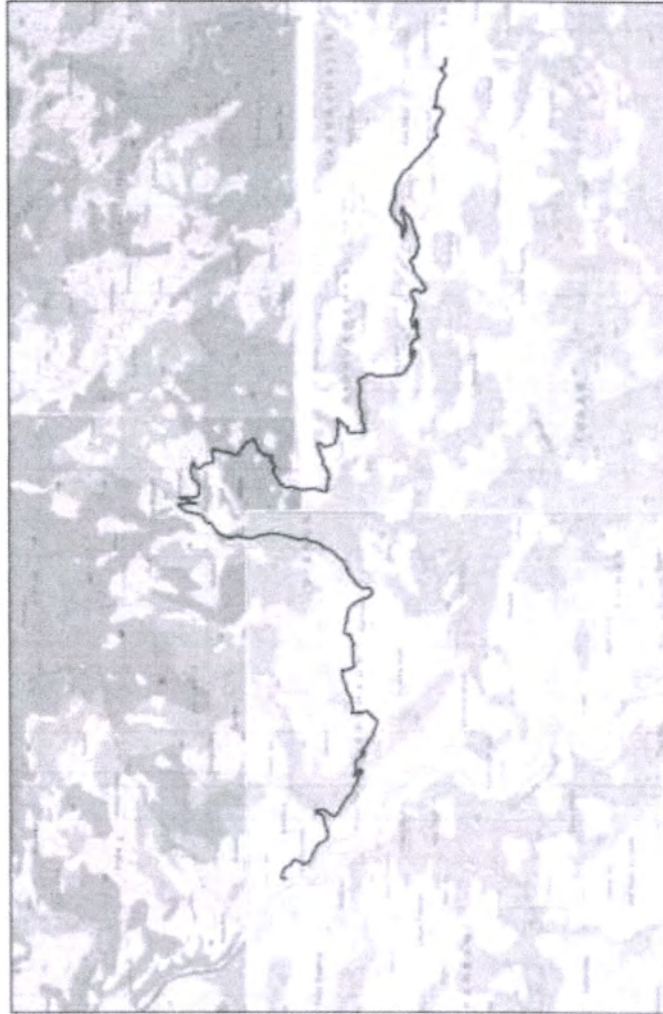
2.7 Format for: Information on Quarry Sites near the Road Alignment

Location/ Chainage	Distance from the Road	Side of the Road (Left/Right)	Type of material available in the quarry (Sand/Gravel/St ones)	Status of the access road	Approximate quantity of material available	Tentative Rehabilitation/ Reclamation measures

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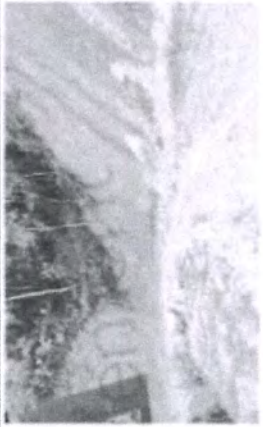





Annex 3: Topo Map of Project Area





Annex 4: Photographs  
 Photographs of Wamitaksar –Indregauda- Aapchaur - Shantipur Road Section

		Landslide Prone area	End Point (20+380 km at Shantipur)
		Starting Point (00+000 at Indregauda)	Private land on RoW



**Annex 5: Public Notice and Muchulka**

**सार्वजनिक सूचनाको ढाँचा**

नेपाल सरकार  
संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय  
स्थानीय पूर्वाधार विभाग

**ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई**  
श्रीमहल पुल्चोक, ललितपुर

बामीटम्भार(इन्द्रेगौडा)-आपचौर-शान्तिपुर सडक आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयारी सम्बन्धि सार्वजनिक सूचना

( प्रकाशित मिति - २०७७ )

लुम्बिनी प्रदेश, गुल्मी जिल्ला, मुमिकोट न.पा. र चन्द्रकोट गा.पा. मा 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 पुल्चोक, ललितपुर फोन: ०१-५५३८२०६, ईमेल: rcippcu@gmail.com वेबसाइट: <a href="http://www.dofl.gov.np/rcip/">http://www.dofl.gov.np/rcip/</a>
प्रस्तावको व्यहोरा	बामीटम्भार(इन्द्रेगौडा)-आपचौर-शान्तिपुर सडक निर्माण तथा स्तरोन्नती, २०.३८ कि.मि. सडक कालीपत्रे स्तरमा स्तरोन्नती भई स्थानीय स्तरमा सहज यातायातको सुविधा उपलब्ध हुनेछ।
प्रभाव पर्न सक्ने जिल्ला / न.पा./ गा.पा.	लुम्बिनी प्रदेश, गुल्मी जिल्ला, मुमिकोट नपा र चन्द्रकोट गापा

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 यकिन गर्न सो स्थानको नपा/गापा तथा त्यस क्षेत्रका विद्यालय, अस्पताल स्वास्थ्य चौकी तथा सरकारीवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यो सार्वजनिक सूचना प्रकाशन भएको मितिले सात दिन भित्र आइपुग्ने गरीलिखित राय सुझाव उपलब्ध गराई दिनुहुन अनुरोध गरिन्छ। राय सुझाव का लागि निम्न ठेगानामा प्रचार गर्न वा ईमेल पठाउन सकिने छ।

प्रस्तावक को नाम/ ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई ठेगाना: श्रीमहल पुल्चोक, ललितपुर फोन: ०१-५५३८२०६, ईमेल: rcippcu@gmail.com
परामर्शदाता को नाम / ठेगाना	परामर्शदाता को नाम: ITECO-Inclusive J/V ठेगाना: सितापाइला, काठमाडौं, फोन: ०१-४०३४८८०, ईमेल: iteco.inclusive@gmail.com





२. सार्वजनिक स्वतन्त्रता सूचना टाँसेका मुमुल्काको ढाँचा

आज मिति \_\_\_\_\_ गतेका दिन ग्रामिण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई प्रस्तावक रहेको बानीटक्सर(इन्द्रेगौडा)-अपचौर-शान्तिपुरसडक निर्माणको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयार गन्वन्धी सार्वजनिक सूचना परामर्शदाला प्रतिनिधि -ITECO-Inclusive J/V फिज्ड टोसी) ले - कार्यालयको नाम) को सूचना पाटिमा टाँसेको ब्यहोरा प्रमाणित गरिन्छ ।

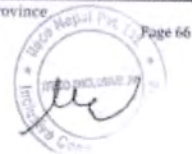
सूचना टाँसेको प्रमाणित गर्ने पदाधिकारीको नाम -

पद -

दस्तखत -



ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive J/V



**Annex 6: 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 Risk/financing 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 July 3 to 19<sup>th</sup> 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.aib.org/sites/default/files/publication/481246/environmental-dimensions-sdcs-stocktake-report.pdf?field=ART1\\_uno2fistM7afn18AWRtwsB4ek51CAbDMARy1UbrSyZRP1uMXByDEvE](https://www.aib.org/sites/default/files/publication/481246/environmental-dimensions-sdcs-stocktake-report.pdf?field=ART1_uno2fistM7afn18AWRtwsB4ek51CAbDMARy1UbrSyZRP1uMXByDEvE)
- 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

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- Researches and Direction for Future 31 March – 01 April 2009, Kathmandu, Nepal Organized by University of Yamanashi Japan <http://www.nardf.org.np/reports/2009/par%201%20chapter6/Synopsis.htm#RENV-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. & Upreti 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, 22<sup>nd</sup> July, 2013 [http://www.republica.com.np/portal/index.php/web/?action=news\\_details&news\\_id=68172](http://www.republica.com.np/portal/index.php/web/?action=news_details&news_id=68172)
- Pokharel N. (2013) "Disaster Risk, Challenges of Dealing with it" The Himalaya Times, April 15, 2013 <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 COPENHAGEN 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](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) "SANGHYA RAJYA MA PARBYABARANIYA SIMANA" Article published in Kantipur daily in 11 March, 2008
- Pokharel, N. (2005) "NAYA RAJYA PRANALIMA BIGYAAN PRABIDHI" Article published in ANNAPURNA POST daily in 5 FAGUN 2065 BS
- Pokharel, N. (2005) "PRAKRITIK SHROTI RA SANGHYATA" Article published in ANNAPURNA POST daily 16 Baisakh 2065 BS
- Pokharel, N. (2005) "FOHOR KO PUNA PRAYOG RA PRASODHAN" Article published in ANNAPURNA POST daily 8 Magh 2065 BS
- Pokharel, N. (2009) "VUICHALD 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. (2005) "NEPALMA SAHARIKARAN KA MUDDA RA CHUNAUTI" Article published in ANNAPURNA POST daily in 24 Mangsir 2064 BS
- Pokharel, N. (2005) "SAHARI CHHETRA MA BATABARAN PUNABYABASTHAPAN KO AABASKATA" Article published in ANNAPURNA POST daily in 27 Poush 2064 BS
- Pokharel, N. (2005) "SARBAJANIK NUJI SAJHEDHARI" Article published in ANNAPURNA POST daily in 7 kank 2065 BS

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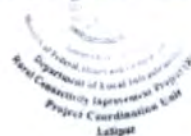
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EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT:

Period	Employing organization and your title/position.	Country	Summary of activities Performed Relevant to the Assignment
January 2016 onwards	Employer; Multi Disciplinary Consultant P. Ltd  Position: Team Leader / Environment Safeguard Specialist	Nepal	Overall responsibility for the EIA Report Preparation of DPR , IEE and EIA works under the firm
December, 2013 to December, 2016	Employer: Department of Hydrology and Meteorology,  Government of Nepal. (Pilot Programme of Climate Resilience, Building Resilience to Climate Related Hazards (BRCH)  Kathamandu, Nepal  Position: Environment Safeguard Specialist	Nepal	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.  Preparation of Climate Disaster Management Plan for various Climate induced Disasters including the Floods, Landslides Cloud Burst and their Financial Analysis etc.
March, 2018 to June, 2018	Employer: Asian Development Bank, Manila, TA Strengthening Capacities to Design and implement Smart Urban Infrastructure - (49378-001)  Position Held: Climate Change and Disaster Risk (CRVA) Specialist	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	Employer: Asian Development Bank,  ADB TA-9245 Regional Capacity Building for Integration of Environmental SDGs into National Policy and Planning  Position: National Coordinator	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.

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October, 2013 to December, 2013	<b>EMPLOYER:</b> SILT Consultant Pvt. Ltd <b>POSITION HELD:</b> 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 <b>Environment Assessment (Social, Cultural and Financial Assessment), environment Screening, Preparing Environment Management plans especially for 5 subprojects of Mid Hills.</b>
April, 2013 to September, 2013	<b>EMPLOYER:</b> Adel Al-Obaid Engineering Consultants with Hamza Associates and in association with Multi Disciplinary Consultants (P) Ltd. and Total Management Service Pvt Ltd/Nepal <b>POSITION HELD:</b> Environment Safeguard Specialist	Nepal	Consulting Services for Sitapala Dharke Road, 26 KM of Detail Design Study Road, <b>OPEC Fund</b> , Department of Roads, Foreign Department Responsible for <b>environment examination (Ecological, Social and Financial assessment), environment Screening, Preparing Environment Management plans.</b>  <b>Beneficial Population: 1,600,000</b>
November 2011 To April, 2013	<b>EMPLOYER:</b> SNC Lavalin Canada in association with SILT Consultants (P) Ltd  Consulting Services for Project Preparatory Consultant 1 for Road Component (PPC1 - Road – approx. 900 KM) of Transport Project Preparatory Facility (TPPF) <b>POSITION HELD:</b> Environmental Safeguard Specialist	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 Feasibility Study of Road, ADB Grant No. 0227 -- NEP, Department of Roads, Project Directorate (ADB) Responsible for <b>environment examination (Ecological, Social and Financial Assessment), environment Screening, Preparing Environment Management plans.</b>
February 2011 to December 2012	<b>EMPLOYER:</b> Tara Gaun Bikas Samiti Board, Ministry of Tourism, GoN <b>POSITION HELD:</b> Environmentalist/Climate Expert	Nepal	Coordination on the <b>environmental and natural resource management</b> aspects during the preparation of Tourism Master Plan. Preparation of District Tourism Master Plan for Achham District, Kavre District Nepal.

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August 2009 to November 2011	<b>EMPLOYER:</b> ERMIC (P.) Ltd  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	<b>Initial Environment Examination (IEE)</b> of the proposed 400 kv Cross Boarder Transmission Line for Anar-3rd Project with Length 209 km (Sankhuwasabha, Bhojpur, Khotang, Udayapur, Dhanusha, Mahottari) from Diding of Sankhuwasabha - Dhakebar- Balthanaha (India, Nepal Boarder).
2011 to 2012	<b>EMPLOYER:</b> ERMIC (P.) Ltd  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	Coordination on Preparation of Scoping, ToR and <b>Environmental Impact Assessment (EIA)</b> of Num - Kimathanka (72 km) Road Project Sankhuwasabha, GESU, Ministry of Physical Planning and Works, GoN.  <b>Total Cost:US\$ 18000</b>  <b>Beneficial Population: 250,000</b>
January 2011 to 2013	<b>EMPLOYER:</b> Menchhiyam Hydropower Menchhiyam Company  <b>POSITION HELD:</b> 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 Piliwa Khor  <b>Total Cost:US\$ 45000 (Detail Design)</b>  <b>Beneficial Population: 100,000</b>

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January 2012 to August 2012	<b>EMPLOYER:</b> Nepal Health Care Co-operative Ltd Kathamandu  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	Coordination on Preparation and approval of Terms of References (TOR) and <b>Initial Environment Examination (IEE)</b> of the Manamohan Memorial Eastern Regional Hospital, with 100 beds capacity, in Jhapa.
January 2012 to August 2012	<b>EMPLOYER:</b> Energy Venture Pvt. Ltd  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	Coordination on Preparation and approval of Scoping, ToR and <b>Environmental Impact Assessment (EIA) study reports</b> of the Lapche Khola Hydropower Project in Dotkaha with installed capacity of 89 MW.  <b>Total Cost:US\$ 115000 (Detail Design)</b>  <b>Beneficial Population: 500,000</b>
January, 2011 to March, 2012	<b>EMPLOYER:</b> Siddhartha Environmental Service, Nepal  <b>POSITION HELD:</b> Environmentalist	Nepal	Preparation of <b>Scoping and ToR for Bheri-Babai Multipurpose Diversion Project component B</b> , DoI, Nepal  <b>Total Cost:US\$ 5000</b>  <b>Beneficial Population: 100,000</b>
December 2011 To February 2013	<b>EMPLOYER:</b> Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal. Coordination on Preparation of Scoping, ToR and <b>Environmental Impact Assessment Study Report</b> of Suri Khola Hydropower Project, Dotakha with installed capacity of 3.8 MW, Field Survey, Public consultation on Environmental Impact Assessment study report preparation and Approval. <b>Total Cost:US\$ 65000 (Detail Design)</b>  <b>Beneficial Population: 100,000</b>
May 2011 To October 2012	<b>EMPLOYER:</b> Peoples, Hydropower Pvt. Ltd, Anamnagar, Kathamandu  <b>POSITION HELD:</b> 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 49.5 MW Hydropower at Dordi Khola of Lamjung District, Nepal.  <b>Total Cost,US\$ 95000 (Detail Design)</b>  <b>Beneficial Population: 100,000</b>
December 2007	<b>EMPLOYER:</b> District Development Committee	Nepal	Prepare the Initial Environment Examination (IEE) of the Sustainable Sand, Gravel and stone collection

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To July 2011	Office, Kaski, Pokhara <b>POSITION HELD: Environmentalist/Team Leader</b>		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  <b>Total Cost:US\$ 10000</b> <b>Beneficial Population: 400,000</b>
June 2010 To Dec 2011	<b>EMPLOYER: e-RG Nepal</b> <b>POSITION HELD: Environmentalist</b>	Nepal	Coordination on Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechaap District.  <b>Total Cost:US\$ 10000</b> <b>Beneficial Population: 50,000</b>
November 2009 To November 2011	<b>EMPLOYER: e-RG Nepal</b> <b>POSITION HELD: Environmentalist</b>	Nepal	Coordination on Preparation and Approval of Scoping, ToR and EIA study for the Deurali Khola Medium Reservoir Hydropower Project, with 30 MW, Ilam.  <b>Total Cost:US\$ 7000</b> <b>Beneficial Population: 50,000</b>
Jan 2009 To April 2011	<b>EMPLOYER: e-RG Nepal</b> <b>POSITION HELD: Environmentalist</b>	Nepal	Coordination on Preparation and approval of <b>EIA study</b> of Upper Tadi Hydroelectric Project installed Capacity 11 MW at Nuwakot District.  <b>Total Cost:US\$ 75000 (Detail Design)</b> <b>Beneficial Population: 50,000</b>
April 2009 To May 2010	<b>EMPLOYER: e-RG Nepal</b> <b>POSITION HELD: Environmentalist</b>	Nepal/Coordi	Preparation Of Tor And <b>IEE Study</b> Of Pawa Khola Small Hydropower Project With 2.4 Mw, Ilam.  <b>Total Cost:US\$ 35000 (Detail Design)</b> <b>Beneficial Population: 50,000</b>
2010	<b>EMPLOYER: Finland Consulting Group, ERMC Nepal</b> <b>POSITION HELD: Environmental Specialist</b>	Nepal/Coordi Handle all the	Handle all environment aspects of the Pre-Project Technical Assistance of the <b>Community Irrigation Project</b> , funded By Asian Development Bank (ADB)

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			with Department of Irrigation, GoN. <b>Total Cost:US\$ 20,000 (Detail Design)</b> <b>Beneficial Population: 100,000</b>
January 2010 to March 2012	<b>EMPLOYER:</b> Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)  <b>POSITION HELD:</b> Team Leader/Environmentalist	Nepal/Coordn	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 Bariepa, Dhulikhel and Pansuli Municipalities of Kavre District funded by, Asian Development Bank  <b>Total Cost:US\$ 85000 (Detail Design)</b> <b>Beneficial Population: 150,000</b>
January 2010 to March 2012	<b>EMPLOYER:</b> Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)  <b>POSITION HELD:</b> Environmentalist	Nepal	Social Impact Assessment (SIA) of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)  <b>Total Cost:US\$ 85000 (Detail Design)</b> <b>Beneficial Population: 150,000</b>
February 2008 to June 2009	<b>EMPLOYER:</b> Himalayan Hydropower Company, Nepal  <b>POSITION HELD:</b> Environmentalist	Nepal	Responsible for the Biological aspects of Environmental Impact Assessment (EIA) of Super Madi Hydropower (44 MW) Kaski, Nepal  <b>Total Cost:US\$ 20000 (Detail Design)</b> <b>Beneficial Population: 100,000</b>
June 2007 To August 2007	<b>EMPLOYER:</b> ERMIC (P) Ltd  <b>POSITION HELD:</b> Environmentalist	Nepal	Environmental data collection for the Bagmati Watershed Development Project from various districts of Bagmati Watershed  <b>Total Cost:US\$ 25000 (Detail Design)</b> <b>Beneficial Population: 600,000</b>
January 2006 To January 2011	<b>EMPLOYER:</b> e-RG Consultancy, Kathmandu, Nepal  <b>POSITION HELD:</b> Environmentalist	Nepal	Partial inputs for various Environmental Impact Assessment Projects on different sectors.

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February 2009 To July 2010	<b>EMPLOYER:</b> Himalayan Hydropower Company Kathmandu, Nepal <b>POSITION HELD:</b> Environmentalist	Nepal	Responsible for the Biological Environment of <b>Environmental Impact Assessment (EIA)</b> of Namasajuna Madi Hydropower (20 MW) Kaski, Nepal.
February 2007 To January 2009	<b>EMPLOYER:</b> Nepal Jalabidhyat Prabhardhan Company, Kathmandu, Nepal <b>POSITION HELD:</b> Environmentalist	Nepal	Coordination on preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal as Biological Aspects.  <b>Total Cost: US\$ 3000</b>  <b>Beneficial Population: 50,000</b>
February 2007 To January 2009	<b>EMPLOYER:</b> UNDP <b>POSITION HELD:</b> Environmentalist	Nepal	Support on the various <b>urban environment related projects under Public Private Partnership</b> for Urban Environment, UNDP Supported Project. This Project was Working on the Management of <b>urban environmental problems through Public private Partnership</b> mechanism in 10 municipalities of Nepal.
March 2005 To August 2005	<b>EMPLOYER:</b> TRPAP/UNDP/MoTCA <b>POSITION HELD:</b> Environmentalist	Nepal	Collection of the environmental data from Langtang National Park area on environmental and forest based data.
2003 to 2005	<b>EMPLOYER:</b> The Earth Preservation a magazine <b>POSITION HELD:</b> 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".
Aug 2007- till to date	<b>Environmental Science Lecturer for College of Applied Sciences, Nepal</b>	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)

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LANGUAGE SKILLS:

	Speaking Mother Tongue	Reading	Writing
Nepali	Excellent	Excellent	Excellent
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><b>Name of the Assignment:</b> Various <b>Employer:</b> Multi Disciplinary Consultants Pvt. Ltd. <b>Location:</b> Kathmandu <b>Field/Position held:</b> 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. <b>Name of Project Involved:</b></p> <ul style="list-style-type: none"> <li>• Master Plan and Detailed Engineering Design of Shopping Complex at Rupakot Municipality, Diktel, Khotang June 2018 Dec 2019</li> <li>• Master Plan and Detailed Engineering Design of Multipurpose Building at Lalitpur Metropolitan City, Lagankhel June 2018 Feb 2020</li> <li>• Topographical Survey, Soil Investigation, Detailed Architectural and Engineering Design and Detailed Water Supply Survey and Design of Dhaulagin Polytechnic Institute at Balewa, Baglung District July 2013 April 2014</li> <li>• Study, Design and Construction Supervision of Four Regional Markets (Contract ID PACT / S - AF 20.a/2013)             <ul style="list-style-type: none"> <li>❖ Fruit and Vegetable Wholesale Market, Katarah.</li> <li>❖ Birnagar</li> <li>❖ Livestock Poultry Wholesale Market, Damak, Jhapa</li> <li>❖ Fruit and Vegetable Wholesale Market, Butwal</li> <li>❖ Rupandehi</li> <li>❖ Livestock and Poultry Wholesale Market.</li> <li>❖ Mahendranagar, Dhanusha Dec 2014 to Dec 2018</li> </ul> </li> <li>• Feasibility Study and Master Plan and Detailed Engineering of Regional Bus park Project in Pokhara- Lekhnath Metropolitan City, Pokhara July 2018 January 2020</li> <li>• Topographical Survey, Soil Investigation, Master Plan, Preparation and Cost Estimate for Madan Pokhara Polytechnic Institute, Damkoda, Palpa (Contract No. CTEVT/TEVT Exp 069/70/AED-04) August 2013 to April 2014</li> <li>• 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</li> <li>• 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</li> <li>• Master Plan and Detailed Engineering Design of Bus park July 2016 April 2017</li> <li>• Study, Design and Construction Supervision of Four Regional Markets (Contract ID PACT / S - AF 20.a/2013)</li> <li>• Detailed Design and Construction Supervision of Administrative Building of Lumbini development Sacred Garden at Lumbini, Rupandehi July 2013 Nov 2015</li> <li>• Local Road Asset Management Support (LRAMS) (Package: RAP3/2013/011 Ashham District) Feb 2014 to Jan 2016</li> <li>• Environmental Impact Assessment (EIA) of Setai-Lok-Marga Package No. GESU/SLM-01/067-68 Jan 2012 to Nov 2015</li> </ul>

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	<ul style="list-style-type: none"> <li>• EIA Study for the Construction of GETA Medical College, Geta.</li> <li>• Kailali Contract No. GMC-K/S/LCS-1/EIA Study May 2015 to July 2016</li> <li>• "Master Planning and Detailed Project Report (DPR) Preparation of Buddha Statue (World's Tallest Buddha Statue)" July 2015 to Feb 2017</li> <li>• Construction of Technical Cum Administrative Building Complex of NTC June 2005 to June 2015</li> <li>• Design and Supervision Consultant's Services in Melamchi Water Supply Project/ Melamchi Diversion Scheme/ Contract MDS/DT/01 July 2008 to May 2015</li> <li>• Detailed Engineering Survey, Design and Cost Estimate for Benchare Danda Long-Term Sanitary Landfill Site July 2014 to July 2015</li> <li>• Initial Environmental Examination (IEE) of Infrastructure Development Project of Hile Weekly Market August 2014 to March 2014</li> <li>• Preparation of Detailed Engineering Design of Land Development Programme (DPR) of Biratnagar Ring Road Oct 2014 to July 2016</li> <li>• Detail Engineering Survey, Design and Report Preparation of Road of (i) Kapringanj Pawa Simar, (Simar)Nayabaliya-Pashim Dangun</li> <li>• Kandyaharshahi-Thane-Ramnagar-Bhutahe Chaprahi-Narshing-Janta Choke</li> <li>• MRM Sunsari (24.5km), (ii) Kathama Pato sadak, Saptari (17.8km), (iii) Siraha Na Pa 2-Goriya-Laxminiya-Sikka-Joti-Lagadi Gadiyani Sadak, Siraha (8.3km) (iv) Fuljar-Ishworgur-Sebergun-Moharpur-Buhaypur-Vahti-Trivivannagar sadak, Sarlahi (23.1km), (v) Nagerain chowk-Purwan Tole-Lahukiya sadak, Dhanusha</li> <li>• (4.5km) (vi) Shubachwok Dhanushadham Dharapani Section of Jafahi Shubachwok Dhanushadham Dharapani Sadak, Dhanusha (11.7km) Contract ID: PMEUI/337159/073/74 DPR 17 2016</li> <li>• Topographical Survey, Soil Investigation, Detailed Architectural and Engineering Design and Detailed Water Supply Survey and Design of Dhaulagiri Polytechnic Institute at Baleswa, Baglung District July 2013 April 2014</li> <li>• 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</li> <li>• 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</li> <li>• Feasibility Study of Highway, Nepalthok – Pokhara Sector of Paspatal (MidHill) Highway "Ch 0+000 to Ch 272+695", Contract No. MH/HFS/2-01/068/69/March 2012 to Sep 2012</li> <li>• Detailed Engineering Survey, DCP Test, Design of</li> <li>• Roads, Concise IEE Study and Cost Estimate &amp;</li> <li>• Preparation of Detailed Project Report (DPR) of</li> <li>• Sahajpur – Bogtan Dipajal Road in Doti District June 2013 to August 2015</li> </ul> <p><b>Name of the Assignment:</b> Supporting Implementation of Environment-Related Sustainable Development Goals in Asia and the Pacific <b>Employer:</b> Asian Development Bank, Manila ; <b>Location:</b> Kathmandu</p> <p><b>Position held:</b> National Coordinator for Environmental SDGs (Nepal) (S0158-001) <b>Activities performed:</b> 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.</p> <p>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.</p>
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	<ul style="list-style-type: none"> <li>i. Liaise with ADB Resident Mission, government ministries, and development partners to fill in the identified stocktaking gaps.</li> <li>ii. Prepare a Stocktaking Report of Nepal</li> <li>iii. Assist liaising with the workshop participants and helping them prepare presentation.</li> </ul>
	<p><b>Name of the Assignment:</b> Building Resilience to Climate Related Hazards, (BRCH) a project by Pilot Programme on Climate Resilience (PPCR) . GoN <b>Employer:</b> Department of Hydrology, Meteorology, Ministry of Science, Technology and Environment, GoN ; <b>Location:</b> Kathmandu; <b>Position held:</b> Environment Safeguard Specialist; <b>Activities performed:</b> 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</p> <p><i>World Bank Group and the ESMF:</i> Carry out environmental screening of subprojects and activities, and help to prepare subproject or activity specific Environmental Management Plans (EMPs). Organize environmental orientation &amp; awareness, and training . Help commissioning and managing Initial Environmental Examination (IEE), if necessary and other special studies/ assessment such as hazardous &amp; 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><b>Name of the Assignment:</b> Preparation of Disaster Risk management Plan and Environmental Assessment Plan for the Reconstruction of The school Building at Sindhuapachok, Nuwakot and Kavrepalanchok District <b>Employer:</b> UNICEF, Nepal ; <b>Location:</b> Kathmandu . <b>Field Position held:</b> Disaster Risk Management and Environment Safeguard Specialist; <b>Activities performed:</b> Preparation of Disaster Risk management and Environment Assessment Plan for the School Building and Teaching Learning Center (TLC) for Sindhuapachok, Nuwakot and Kavrepalanchok Districts</p>
	<p><b>Name of the Assignment:</b> Preparation of Climate Risk and Disaster Management Plan for 4 Selected Roads for the Nepese Hilly Roads <b>Employer:</b> Asian Development Bank (Nepal Rural Roads Improvement Project), Nepal ; <b>Location:</b> Kathmandu . <b>Field Position held:</b> Climate Risk and Disaster Management Specialist; <b>Activities performed:</b> (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</p>

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	<p>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 and 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><b>Name of the Assignment:</b> Consulting Services for Project Preparatory Consultant 1 for Road Component (PPC1 - Road - approx. 900 KM) of Transport Project Preparatory Facility (TPPF); <b>Employer:</b> SILT Consultant Pvt Ltd. <b>Location:</b> Main Project features: <b>Position held:</b> Environmentalist; <b>Activities performed:</b> Transport Project Preparatory Facility (TPPF) with approx. 900 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 <b>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 EIA of 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.</b></p>
	<p><b>Name of the Assignment:</b> preparation of Tourism Master Plan; Year: <b>February 2011 to June 2012;</b> <b>Employer:</b> Tara Gaun Bikas Samiti Board, Ministry of Tourism, GoN; <b>Location:</b> Kathmandu; <b>Main Project features:</b> Preparation of the Tourism Master Plan for the Achham and Kavre District; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> Coordination on the <b>environmental and natural resource management</b> aspects during the preparation of Tourism Master Plan. Collection of the data related to the Natural resources. Identification of the possible environmental impacts during the preparation of the Tourism 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><b>Name of the Assignment:</b> <b>Initial Environment Examination (IEE)</b> of the proposed 400 kv Cross Boarder Transmission Line for Arun-3rd Project with Length 209 km; <b>Employer:</b> ERMC (P.) Ltd. <b>Location:</b> Sankhuwasabha, Bhojpur, Khotang, Udayapur, Dhanusha, Mahottari. <b>Position held:</b> Environmentalist. <b>Activities performed:</b> <b>Initial Environment Examination (IEE)</b> 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><b>Name of the Assignment:</b> Preparation of Scoping, ToR and Environmental Impact Assessment (EIA) of Num – Kimathavika (72 km) Road Project; Year: 2011 to 2012; <b>Employer:</b> ERMC Nepal. <b>Location:</b> Sankhuwasabha. <b>Position held:</b> Environmentalist/Team Leader. <b>Activities performed:</b></p>

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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.

**Name of the Assignment:** Initial Environment Examination (IEE) of the proposed project Upper Pilawa 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 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 Kathmandu;

**Position held:** Environmentalist/Team Leader; **Activities performed:** Coordination on Preparation and approval of Terms of Reference (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 Dolakha 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, Kathmandu, 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

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<p>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><b>Name of the Assignment:</b> Preparation of Scoping and Bheri- Babai Multipurpose Project with 50 MW at Surkhet District. <b>Year:</b> Jan 2011 To March 2012; <b>Employer:</b> Siddhartha Environmental Services, Nepal. <b>Position held:</b> Environmentalist; <b>Activities performed:</b> Coordination on Preparation of Scoping and ToR of Bheri- Babai Multipurpose Project Hydropower and Irrigation Component B. <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</b></p>
<p><b>Name of the Assignment:</b> preparation of Environmental Management Plan for 49.6 MW Hydropower at Dordi Khola of Lamjung District, Nepal, <b>Year:</b> May 2011 To October 2012; <b>Employer:</b> Peoples, Hydropower Pvt. Ltd, Anamnagar, Kathmandu; <b>Position held:</b> Environmentalist/Team Leader; <b>Activities performed:</b> 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.</p> <p><b>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.</b></p>
<p><b>Name of the Assignment:</b> Initial Environment Examination (IEE) of the Sustainable Sand, Gravel and stone collection from the Sell, Mad, Bhurjung and other rivers of Kaski District; <b>Year:</b> January to October 1998. <b>Employer:</b> District Development Committee Office, Kaski, Pokhara. <b>Position held:</b> Environmentalist/Team Leader; <b>Activities performed:</b> Prepare the Initial Environment Examination (IEE) of the Sustainable Sand, Gravel and stone collection from the Sell, Mad, 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.</p>
<p><b>Name of the Assignment:</b> Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechhap District. <b>Year:</b> June 2010 To Dec 2011; <b>Employer:</b> e-RG Nepal. <b>Position held:</b> Environmentalist; <b>Activities performed:</b> Coordination on Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechhap District.</p> <p><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 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</b></p>
<p><b>Name of the Assignment:</b> Scoping, ToR and EIA study for the Deumai Khola Medium Reservoir Hydropower Project, with 30 MW ; <b>Year:</b> November 2009 To November 2011; <b>Employer:</b> e-RG Nepal. <b>Position held:</b> Environmentalist. <b>Activities performed:</b> Coordination on Preparation and Approval of Scoping, ToR and EIA study for the Deumai Khola Medium Reservoir Hydropower Project, with 30 MW, Ilam.</p> <p><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 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.</b></p>
<p><b>Name of the Assignment:</b> Preparation and approval of EIA study of Upper Tadi Hydroelectric Project ; <b>Year:</b> Jan 2009 To April 2011; <b>Employer:</b> United Builders, Kathmandu, <b>Position held:</b> Environmentalist/Team Leader; <b>Activities performed:</b> Coordination on Preparation and approval of EIA study of Upper Tadi Hydroelectric Project Installed Capacity 11 MW at Nuwakot District. <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</b></p>

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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, Kathmandu, 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 Banega, 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,

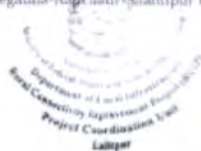
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<p>Nepal. Identification and preparation of scoping document for the proposed Hydropower Project. Collection of the baseline data for the Proposed Environmental Study. Identification of the impacts especially on the forest area of the proposed Hydropower 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><b>Name of the Assignment:</b> Bagmati Watershed Development Project; <b>Year:</b> February 2008 to June 2009; <b>Employer:</b> ERM Nepal  <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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 topsheet. 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 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><b>Name of the Assignment:</b> Environmental Impact Assessment Projects on different sectors; <b>Year:</b> January 2006 To January 2011.  <b>Employer:</b> e-RG Consultancy, Kathmandu, Nepal; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Environmental Impact Assessment (EIA) of Namarjuna Madi Hydropower (20 MW) Kaski, Nepal; <b>Year:</b> February 2009 To July 2010; <b>Employer:</b> Himalayan Hydropower Company Kathmandu, Nepal; <b>Position held:</b> Environmentalist;  <b>Activities performed:</b> Responsible for the Biological Environment of Environmental Impact Assessment (EIA) 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><b>Name of the Assignment:</b> Preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal; <b>Year:</b> February 2007 To January 2009; <b>Employer:</b> Nepal Jatabidhyut Prabardhan Company, Kathmandu, Nepal;  <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Projects Under Public Private Partnership For Urban Environment; <b>Year:</b> March 2005 To August 2005.  <b>Employer:</b> PPPUE/ MoLD/ UNDP; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Langtang National Park area; <b>Year:</b> February 2007 To January 2009; <b>Employer:</b> TRPAP/UNDP/MoTCA;  <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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>

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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 : [nayarakj@gmail.com](mailto:nayarakj@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.

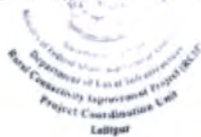
Name of Expert Nav Raj Pokharel

Signature

Date: 10<sup>th</sup> March 2021

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
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**FORM TECH-6B: CURRICULUM VITAE (CV) FOR INTERNATIONAL OR NATIONAL EXPERTS**

<b>1. Proposed Position:</b>	<b>Social Safeguard and Gender Expert</b>						
<b>2. Name of Firm:</b>	ITECO Nepal (P) Ltd.						
<b>3. Name of Expert:</b>	<b>Chinta Mani SHARMA</b>						
<b>4. Current Residential Address:</b>	Talchhikhel, Lalitpur						
<b>Telephone No.:</b>	9841395809						
<b>Fax No.:</b>	+977- 41 06 961						
<b>E-Mail Address:</b>	sharmachintamani@gmail.com						
<b>5. Date of Birth:</b>	February 19, 1975 <b>Citizenship:</b> Nepali						
<b>6. Education:</b>	<ul style="list-style-type: none"> <li>• <b>Master's Degree</b> in Humanities and Social Science, 2003, Tribhuvan University</li> <li>• <b>Bachelor's Degree</b> in Humanities and Social Science, 2000, Tribhuvan University / Patan Multiple Campus</li> </ul>						
<b>7. Membership in Professional Associations:</b>	<ul style="list-style-type: none"> <li>- General Member, Dynamic Society Nepal A Professional Organization Ktm, Since 2007</li> <li>- General Member, Community Forestry Supported Network Ktm Since 2006</li> <li>- General Member, Council for Social Development, New Delhi, India, Since 2006.</li> <li>- General Member, Nepal Geographical Society, Kathmandu, since August 2001.</li> <li>- General Member Integrated Bioscientific Research Group (BIOINT), since July 2003.</li> <li>- General member, Mountain Forum, Asia Pacific Region; Asia Pacific Mountain Network, ICIMOD, since July 2003.</li> </ul>						
<b>8. Other Trainings:</b>	<ul style="list-style-type: none"> <li>- Training conducted as a resource person on Networking within 6 districts and Entrepreneurship Development through Briquette production organized by FECOFUN - Parvat, supported by GTZ Germany from 19 to 22 May 2010</li> <li>- Training conducted as a resource person on Entrepreneurship Development through Briquette production organized by TRUST, supported by AEPC from 14 to 16 April 2009</li> <li>- Training session conducted as a resource person on Entrepreneurship Development through briquette production organized by RETSC, supported by AEPC in 2008.</li> <li>- Training on the production and use of beehive briquettes, Organized by LDF and Small and Cottage Industry Development Committee at Tahanu district from November. 15 to 30, 2007.</li> <li>- Training on Improving Charcoal Production Kiln and use of beehive briquettes, Organized Sungava Nepal funded by Biodiversity Sector Program for Terai and Siwalika (BISEP-ST/SNV), at Makawanpur district from July. 01 to 5, 2007</li> <li>- Training on the Production and use of beehive briquettes for tourist promotion, Organized Local Development Fund (LDF) at Manang district from October 01 to 15, 2006</li> <li>- Training on Improving Charcoal Production Kiln and use of beehive briquettes, Organized Sungava Nepal funded by Biodiversity Sector Program for Terai and Siwalika (BISEP-ST/SNV), at Makawanpur district from June. 01 to 15, 2006.</li> <li>- Training on Design and production of charcoal through mud and stone Kiln, in. Improving Charcoal Production Kiln and use of beehive briquettes, Organized Sungava Nepal funded by Centre for Rural Technology Kathmandu (CRT/N) at Dhading district from 1st to 15 January 2006.</li> </ul>						
<b>9. Countries of Work Experience:</b>	Nepal						
<b>10. Language</b>	<table border="1"> <thead> <tr> <th>Speaking</th> <th>Reading</th> <th>Writing</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Speaking	Reading	Writing			
Speaking	Reading	Writing					

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive I/V





Nepali	Mother tongue	Mother tongue	Mother tongue
English	Good	Good	Good
<b>Key Qualifications:</b>			
18+ years of experience in Road/ Infrastructure			
15+ years in Road Works			
8+ experience as Social Safeguard and Gender Expert			
5 projects with International Organizations			
<b>10. Employment Record:</b>			
<b>From:</b> June 2017		<b>To:</b> Till date	
<b>Employer:</b> ITECO Nepal (P) Ltd.			
<b>Positions held:</b> Social Development/Resettlement Expert			
<b>From:</b> September 2013		<b>To:</b> June 2017	
<b>Employer:</b> MMM Group Canada (Int'l Consultant) in association with ITECO Nepal, TMS and Material Test JV			
<b>Positions held:</b> Social Development Specialist/Resettlement Expert			
<b>From:</b> May 2011		<b>To:</b> August 2013	
<b>Employer:</b> DoLIDAR/RAIDP/Govt.			
<b>Positions held:</b> Social Development Consultant			
<b>From:</b> January 2010		<b>To:</b> April 2011	
<b>Employer:</b> UNDP/GEF/SGP, CDECF Support Office Sindhupalchok			
<b>Positions held:</b> Team Leader			
<b>From:</b> January 2009		<b>To:</b> February 2007	
<b>Employer:</b> SKAT-ERMC-MULTI-JV Consultant (Rural Reconstruction and Rehabilitation Sector Development Programme funded by ADB, SDC, DFID and OFID).			
<b>Positions held:</b> Resettlement Officer / Sociologist			
<b>From:</b> January 2007		<b>To:</b> December 2008	
<b>Employer:</b> ERMC-SILT-Full Bright JV			
<b>Positions held:</b> Sociologist/Resettlement Expert			
<b>From:</b> June 2005		<b>To:</b> December 2006	

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive J/V

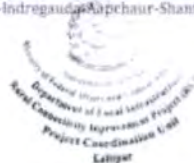
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<b>Employer:</b>	DHV Consultants	
<b>Positions held:</b>	Resettlement / Social Mobilization Supervisor	
	<b>From:</b> March 2003	<b>To:</b> April 2005
<b>Employer:</b>	ERMC (P) Ltd.	
<b>Positions held:</b>	Social Mobilization Supervisor	
	<b>From:</b> January 2000	<b>To:</b> December 2002
<b>Employer:</b>	RWSSFDB/World Bank	
<b>Positions held:</b>	Social Mobilization Supervisor	

12. Detailed Tasks Assigned:	13. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:
<ul style="list-style-type: none"> <li>▶ Document the social features and profile along the alignment for each road during transect walks;</li> <li>▶ prepare the record of community participation during the field visits to the project communities to assess whether the CPF requirements are generally met;</li> <li>▶ identify the project-affected persons based on techniques like rapid participatory appraisals (PRA), fully involving all stakeholders through community meetings, interviews of randomly selected affected persons with a set of questionnaires, secondary and other available data.</li> <li>▶ Identify all the land and structures that will be affected along the proposed alignment,</li> <li>▶ Prepare CPP and</li> </ul>	<p><b>Name of Assignment or Project:</b> Earthquake Emergency Assistance Project (EEAP)  <b>Year:</b> July 2017 to Till Date  <b>Location:</b> Nepal  <b>Client:</b> Department of Road/ (ADB Loan No. 3620-NEP)  <b>Main Project Features:</b> Construction Supervision of SRN Component of Earthquake Emergency Assistance Project  <b>Position Held:</b> Social Development / Resettlement Specialist  <b>Activities Performed:</b> Responsible for Up gradation / verification of original PAPs and RPs; Development of resettlement and rehabilitation (R&amp;R) according to the social safeguard policy and gender policy of ADB.; Assessment of compensation; Training and technology transfer; Access project affected areas; Explore high potential income generation activities; Provide trainings to PAPs for improving livelihood; Implementation of selected livelihood programs; Design, prepare and conduct HIV/AIDS and human trafficking awareness campaign; Prepare mitigation plans at Project influence areas; Preparing and reporting project monitoring framework; Design, prepare &amp; conduct HIV/AIDS &amp; human trafficking awareness campaign.</p> <p><b>Name of Assignment or Project:</b> Transport Project Preparatory Facility – Project Preparatory Consultant (PPC-2 Road) ADB Grant 0227-NEP. <b>Year:</b> October 2015 to June 2017  <b>Location:</b> Central &amp; Western Region of Nepal  <b>Client:</b> Department of Roads, ADB Project Directorate  <b>Main Project Feature:</b> Feasibility Study of 405 km – DBST Road &amp; Detailed Engineering Design of 403 km – DBST Road Feasibility Study and detailed engineering design of 450 km – DBST road (Bhairahawa-Lumbini 4- Laning, Lumbini-Taulihawa 2 Lane) including feasibility study and detailed engineering design of Kothyang Sisiya Khola Bridges will be designed as part of the 87 Bridges. Feasibility Study- 115 km (4-laning) – DBST Road and Detail Engineering design of 93 km-DBST road under the East – West Highway (Narayanghat-Butwal section) including 22km Daunne Hill Section; Feasibility Study and Detail Engineering Design of 90 km (4-laning) – DBST – Hill Road under the Prithvi Highway (Mugling-Pokhara) Total Project Cost: US\$ 500 Million  <b>Position Held:</b> Social Development Specialist/Resettlement Expert  <b>Activities Performed:</b> Design methodologies for carrying out social and poverty survey 900 km i.e., census survey, socio- economic</p>

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
 ITECO-Inclusive IJV





12. Detailed Tasks Assigned:	13. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:
<p>GESI reports, the detailed inventory of the land and affected structures same as using resettlement, census survey, covering 100% affected households along the alignment.</p> <p>▶ Based on the survey, prepare support/assistance provisions for the project affected persons with particular attention to the vulnerable groups.</p> <p>▶ Prepare reports for social and gender aspects.</p>	<p>baseline survey, focused group discussion and public consultation, assessment of project affected areas explore potential income generation activities. (ii) Responsible for preparing the reports of social and poverty status, and availing the safeguards clearances from concerned bodies along with development of Institutional mechanism for social and livelihood program implementation (iii) Existing gender analysis, and develop plan to reduce gender imbalance. (iv) Preparation HIV / AIDS programme and preparation of Resettlement Plan, Gender Action Plan and Social Action Plan. (v) Ensure the safeguard compliance of ADB to EA Preparation of GESI Plan, Social Action Plan and Resettlement Action Plan.</p>
<p><b>Name of Assignment or Project:</b> Road Sector Development Project -II (RSDP-AF) Design and Construction supervision of 444 km of hill roads, <b>Year:</b> September 2013 to July 2015 (23 MM)</p>	
<p><b>Location:</b> Mid-western and far western region of Nepal</p>	
<p><b>Client:</b> Department of Roads Finance by World Bank funded IDA Grant No.: H339-NP, IDA Credit No.: 4832-NEP</p>	
<p><b>Main Project Feature:</b> Land acquisition and compensation with resettlement activities, social mobilization, livelihood improvement and construction supervision of roads</p>	
<p><b>Position Held:</b> Social Development Specialist/Resettlement Expert</p>	
<p><b>Activities Performed:</b> Conduct monitoring social development and assist DoR in resettlement activities and preparing progress report, monthly monitoring report on progress of RAP and provide adequate support and information to external monitoring. Develop research tools for Socio-economic Baseline Study and Resettlement Action Plan Study. Provide research training to the local field staff. Monitor and supervise local field team. Public consultation for need identification. Prepare Resettlement Action Plan (acquisition compensation resettlement plan for road projects based on affected people/families). Prepare Resettlement Action Plan report and Support Prepare Socio-Economic Baseline Study report. Provide information to all relevant social matters related to the project as per WB guidelines of following roads Backed up with environmental component for Feasibility Study. Detail Design as well as Reviewed and Updated Existing Feasibility Study Report with regard to environmental perspective of screened roads under RSDP for World Bank' additional funding under RSDP:</p>	
<ul style="list-style-type: none"> <li>- Environmental Assessment of some 444 km of hill roads, Ottaseal selected under RSDP for six (6) roads leading to: Review and update of Existing IEEs – prepared under PIP and RSDP I:</li> <li>- i) Feasibility, Detail Design, cost estimate, rate analysis, preparation of bid document, IEE study, social study, construction supervision and quality control work, Narayanghat - Mugling Highway upgrading (33.3 KM Hill Road) and Resettlement Action Plan (RAP) under Nepal - India Regional Trade and Transport,</li> <li>- ii) Gokuleswore - Thakthali Road (38.4 km), ii) Khidkijeula - Manma Road (27.3 km), and iii) Kalangagad Bridge - Chainpur Road (50 km)</li> <li>- Study and preparation of Site-specific Environmental Management Action Plans (SS - EMAP) for: iii) Gokuleswore - Darchula Road (73 km), iv) Khidkijeula - Manma Road (27.3 km), v) Kalangagad Bridge - Chainpur Road (50 km), vi) Manma - Jumia Road (84.6 km)</li> <li>- Study and preparation of fresh Initial Environmental Examination (IEE) reports (inclusive of SS - EMAP) for: i) Manma - Jumia Road (84.6 km), vii) Thakthali - Darchula Road (32.4 km)</li> <li>- Ensure EMAP safeguard cost included as BoQ in Bid Documents</li> <li>- Review and ensure EMAP related clauses adequately addressed in contract documents</li> </ul>	

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive J/V

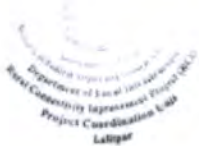


*[Handwritten signature]*



12. Detailed Tasks Assigned:	13. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:
<p><b>Name of Assignment or Project:</b> Individual Social Development Consultant (SDC) Rural Access Improvement and Decentralization Project (RAIDP)-Sarlahi District supported by World Bank Implementation and Supervision Social Safeguard instruction as per ESMF with help of Central Project Units, Karmalya – Hatowan Road (54KM), Kodena – Janakinagar Road (21.5KM), ICB Contact  <b>Year:</b> May 2011 to August 2013  <b>Location:</b> Sarlahi District  <b>Client:</b> GoN/ DoLIDAR/RAIDP/ World Bank  <b>Main Project Feature:</b> Social Screening/EIA/VDIMP &amp; Preparation and Implementation of Resettlement Plan of Road of the two road section, <b>Position Held:</b> <b>Social Development Consultant</b>  <b>Activities Performed:</b> Responsible for Social aspects of new sub-project appraisal such as Social Screening, Assessment and socio-economic Base line study, Compliance and assurance of social safeguards as required by the GoN and World Bank policy provisions according to ESMF, Formation of different level of Road users groups as per the ESMF, and other guidelines of DoLIDAR, Maintenance of records of affected families, vulnerable people and other socio-economic baseline data, of the selected sub project, Assist the DDC/DTO for organizing Cadastral survey of the purposed sub project, Prepare land acquisition/voluntary donation acceptance plan and preparation of voluntary Donation Impact Mitigation plan (VDIMP), Disclosure of the list of affected people in the public places and implements the plans as the per the principal and procedures describe in the ESMF, Social mobilization, monitoring and evaluation of the subproject during project implementation, Organize Community Base Performance Monitoring (CBPM) and submission of the report to the project, GESI Action Plan prepare and conduct HIV/AIDS and human trafficking awareness campaign for PAFs; <b>Client Reference:</b> Ashok Kumar Jha, Program Coordinator, RAIDP/DoLIDAR.</p>	
<p><b>Name of Assignment or Project:</b> Community Development and Environment Conversation Forum (CDECF) Supported Project by Global Environmental Facility (GEF)/Small Grant Project (SGP)/UNDP for Blacksmiths Up-liftment Programme in Sindhupalchowk districts  <b>Year:</b> January 2010 to April 2011  <b>Location:</b> Sindhupalchowk districts  <b>Client:</b> UNDP  <b>Main Project Feature:</b> Blacksmiths Upliftment VDC Namely: Bhotsipha – Jandikhaola – Chautara Rural Road (18KM Hill Road) and Sipaghat – Sipa Pokhare – Jamire Mane – Jhandi – Chautara VDCs Roads (23KM) under DDC Finance by RCiW/GTZ  <b>Position Held:</b> <b>Team Leader</b>  <b>Activities Performed:</b> Responsible for Conduct training in joint venture with communities and Cottage and Small Industrial Development Council Sindhupalchowk on Improving charcoal production and biomass briquette, Aware about welfare and equity basis plan for indigenous and back warded blacksmiths, Coordinate and conduct various types of entrepreneurs development through Coordinate and conduct DDC, GTZ, UNDP etc. <b>Client Reference:</b> Gopal Sherchan, Program Coordinator, (Small Grant) UNDP.</p>	
<p><b>Name of Assignment or Project:</b> Rural, Reconstruction and Rehabilitation Sector Development Program (RRRSDP) in Approx. total 70 km rural gravel road length), funded by the ADB, DFID, SDC, and OFID  <b>Year:</b> January 2009 to December 2009  <b>Location:</b> Project Coordination Unit, Lalitpur; Sindhupalchowk  <b>Client:</b> DoLIDAR, DTO  <b>Main Project Feature:</b> (i) rural roads, (ii) supplementary infrastructure, (iii) community empowerment, (iv) intitutional capacity development, (v) project management service  <b>Position Held:</b> <b>Resettlement Officer/Sociologist</b>  <b>Activities Performed:</b> Review the resettlement action plan, land acquisition, compensation and implementation plan and procedural guideline/manuals prepared for RRRSDP and assist to be concerned to apply in line with the Resettlement Framework (RF), Conduct central and regional level training workshops to MLD, DoLIDAR, DDC, and DTO staff. Prepare Resettlement Plan (RP), Indigenous People Development Plan (IPDP), Social Action Plan (SAP), and Gender action Plan (GAP) for sub-projects, Support and advice DDCs/DTOS to reach in agreement with Project Affected Persons (PAPs) over entitlements and voluntary donation of land, Monitoring the implementation of resettlement plans by respective DDCs, Resettlement Plan Implementation Verification and report preparation, Prepare and organize land acquisition and compensation rights awareness-raising and training activities, particularly for stakeholders in the districts, and Liaising with other programs and agencies to explore the potential for collaboration in strengthening the land acquisition and compensation capacities of the DDCs, and DoLIDAR, The above activities were conducted on design and implementation of followings roads: Siuhungo -</p>	

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
 ITECO-Inclusive J/V





12. Detailed Tasks Assigned:	13. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:
Texanpur road, Sindhupalchok district, 23.94 km, Chautara – Naubise –Melamchi Road (43KM) in Sindhupalchowk.	
<p><b>Name of Assignment or Project:</b> EIA of Outer Ring Road Development Project (72 km), DUDBC.  <b>Year:</b> January 2007 to December 2008  <b>Location:</b> Kavre District  <b>Client:</b> GoN/ DuDBC  <b>Main Project Features:</b> EIA &amp; Preparation of Resettlement Plan of Road  <b>Position Held:</b> Resettlement Assistant / Sociologist  <b>Activities Performed:</b> Responsible for Manage, mobilize and monitor to field assistants, Discussion with DoR, CDO, DFO, DDCs' officials, related district level I/NGOs, VDC representatives and local key informants and identify major issuers related with road services, Social survey for resettlement survey, Walkthrough observation and assess physical condition, transportation facilities and other accessibility on road section, Apply PRA and RRA tools (FGD, Mobility Map, Resource Map, Social map etc.) and prepare brief profile of affected VDCs, Identify problems and issues related to environment, women, disadvantage groups and potentiality of road accessibility, Preparation of resettlement plan &amp; it's implementation in plan and Report Preparation and Submission.</p>	
<p><b>Name of Assignment or Project:</b> Road Maintenance and Development Project (RMDP)/ Study for Sector Wide Road Program and Priority Investment Plan (SWRP &amp; PIP) and Resettlement action plan (Baseline survey of Sanfe - Mangalsen (15KM Hill Road), Sanfe - Martadi (42KM Hill Road) and Martadi - Kolti Road section (43KM Hill Road), Achham and Bajura districts, JCB Contacts  <b>Year:</b> December 2005 to December 2006  <b>Location:</b> Achham and Bajura districts  <b>Client:</b> Department of Roads (DoR),  <b>Main Project Features:</b> Socio-economic Survey &amp; Reporting,  <b>Position Held:</b> Resettlement Assistant / Sociologist  <b>Activities performed:</b> Managing, mobilize and monitoring to field assistants, Discussion with DoR, CDO, DFO, DDCs' officials, related district level I/NGOs, VDC representatives and local key informants and identified major issues related with road services, Social survey for Resettlement Action Plan; Conducting walkthrough observation across the field area to assess the physical condition of road, transportation facilities and other accessibility in the study area, Conducted PRA and RRA tools (FGD, Mobility map, KII, etc.) at project area in order to prepare brief profile of road affected VDCs, Identified major problems and issues related to women and disadvantaged groups participation in community base local organizations, Identified major environmental situation of the project area by applying the topographic map, Identification of the problems and issues related to access and potential of benefits to local people, Preparation of resettlement plan &amp; it's implementation, Collection of socio-economic and demographic data of the population under the study area to find out the living standard and source of income for surviving in the field areas, Report preparation and submission.</p>	
<p><b>Name of Assignment or Project:</b> Rural Access Program (RAP): Survey, Design and Construction Supervision of Ramghat – Thakhand + Singasin Rural Road (40 Km Hill Road), Dailekh District  <b>Year:</b> March 2003 to April 2005  <b>Location:</b> Dailekh District  <b>Client:</b> RAP / DFID Dailekh  <b>Main Project Features:</b> Social Mobilisation in Implementation of Road Project  <b>Position Held:</b> Social Mobilization Supervisor  <b>Activities Performed:</b> Conduct Mass Meetings to Motivate Beneficiaries in the Maint. of Built Infrastructures, Assist the Building Groups to Become as Cooperatives or CBO, Support Newly Formed Cooperatives/CBOs in Developing their Capacity, Prepare Household List of Beneficiaries, Base Line Survey and Beneficiary Awareness Campaigns to Prepare Labourers List, Conduct Awareness Raising Programs for Labourers at Construction Sites, Ensure and Facilitating to Labourers on Insurance Facilities, Facilitating to Use of Labour Cards, Develop Mechanisms and Implement to Maintain Transparency and Accountability, Plan and Implement Awareness Raising Programs to the Road Side Neighbors, Undertake District Community and Ward Level Social and Resettlement Surveys, GESI Action Plan and conduct HIV/AIDS and human trafficking awareness campaign for PAFs; Organize and Conduct Orientation Training, Maintain Constant Liaison with Key Stakeholders, CISC, PCU and National NGO. <b>Client Reference:</b> Shyam Gurung, Program Coordinator.</p>	
<p><b>Name of Assignment or Project:</b> RWSSFDB-III, Kavrepalanchowk District, Chauvar W/S</p>	

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
 ITECO-Inclusive I/V



12. Detailed Tasks Assigned:	13. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:
Schemes, Year: January 2000 to December 2002 Location: Kavre District Client: WSSFDB, World Bank Main Project Features: Community Mobilization in Water Supply Schemes, Implementation, Position Held: <b>Social Mobilization Supervisor</b>	Activities performed: Responsible for the coordination with the stakeholders, work closely with WUSC and consultants, monitor performance of motivator / enumerator, maintain record, prepare progress report, facilitation to collect upfront cash & kind contribution PAC, CAP & HHE activities, assist team leader during training session, assist to prepare various reports i.e. draft reports, field reports & final reports.

**14. 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 Executing or the Implementing Agency;
- (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 or temporarily suspended by ADB;
- (vi) I certify that I have been informed by the firm that it is including my CV in the Proposal for the Consulting Services for Detailed Project Report of Rural Connectivity Improvement Project (RCIP) Phase-2; ADB Loan No: 3620). 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.
- (vii) I as Authorized Representative of the firm submitting this proposal for the Consulting Services for preparation of Detailed Project Report of Rural Connectivity Improvement Project (RCIP) Phase-2; ADB Loan No: 3620) certify that I have obtained the consent of the named expert to submit his CV and that he will be available to carry out the assignment in accordance with the implementation arrangement and schedule set out in the proposal and confirm his compliance with paras (i) to (v) above.

I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Date: 10<sup>th</sup> March 2021

[Signature of expert or Authorized Representative of the Firm]

Full Name of Authorized Representative: Keshab Raj Acharya, Director ITECO Nepal (P) Ltd.





**Personal Background:**

Name:	Asha Laxmi Suwal
Date of Birth:	6 December 1983
Nationality:	Nepali
Home address:	Byasi -2, Bhaktapur, Nepal
Correspondence address:	Byasi-2, Bhaktapur, Nepal
Contact No.:	Home: 00977-01-6614543 Cell No.: 00977-9843559349 Office: 00977-1-4433477
Email:	ashalsuwal@gmail.com

**Academic Qualification:**

University	Degree	Passed Year	Division
Tribhuvan University / University of Bergen (Norway)	M.Sc. - Biodiversity and Environmental Management	2012	Grade B
Khowpa College	M.Sc. Environmental Science	2009	Distinction
Khowpa College	B.Sc. Environmental Science	2005	Second
Khowpa HSS	+2 Science	2002	Second
Basu Secondary School	SLC	2000	First

**Language Skill:**

Language	Speaking	Writing	Reading	Remarks
English	Good	Excellent	Excellent	
Nepali	Good	Excellent	Excellent	
Newari	Excellent	-	-	

**Work Experience, including consultancy service**

# 1

Employer Name:	Department of Hydrology and Meteorology
Funding Agency	World Bank
Job Title / Designation:	Environment Safeguard Associate

ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive IJV



Supervisor details:	Name: Navaraj Pokharel Contact No: 9851117882 Email: <a href="mailto:navarajp@gmail.com">navarajp@gmail.com</a>
Duration:	Ongoing from February 2018
Key responsibilities:	<ul style="list-style-type: none"> <li>• Visit and conduction of environment screening of hydrological-meteorological stations &amp; snow and glacier monitoring stations throughout the country.</li> <li>• Conduction of stakeholder consultation, interaction and meeting at station level and dissemination of project information</li> <li>• Collection the field based data on Physical and Biological aspects</li> <li>• Identification and reporting the potential environment impacts during the establishment and operation of the stations</li> <li>• Conduct Stakeholder Consultation for land authorization where ever necessary and facilitate to take Land certification</li> <li>• Assist in land purchasing, letters of clearance for the installation of hydro-met stations in different government lands wherever necessary</li> <li>• Assist in preparation of Environment and Social Safeguards plans</li> </ul>
Achievements:	<ul style="list-style-type: none"> <li>• Conducted environment screening of hydrological-meteorological stations throughout the country</li> <li>• Conducted stakeholder consultation, interaction and meeting at station level and disseminated project information</li> <li>• Collected field based data on Physical and Biological aspects</li> <li>• Identified and reported the potential environment impacts during the establishment and operation of the stations</li> <li>• Conducted Stakeholder Consultation for land authorization where ever necessary and facilitated to take Land certification</li> <li>• Assisted in land purchasing, letters of clearance for the installation of hydro-met stations in different government lands wherever necessary</li> <li>• Assisted in preparation of Environment and Social Safeguards plans</li> </ul>

# 2

Employer Name:	Green Planet Engineers Association Pvt Ltd
Funding Agency	Department of Road
Job Title / Designation:	Environmentalist
Supervisor details:	Name: Eng. Ranjan Suwal Contact No: 9851132404 Email: <a href="mailto:aar_yes@hotmail.com">aar_yes@hotmail.com</a>
Duration:	From July 2017 to December 2017
Key responsibilities:	<ul style="list-style-type: none"> <li>• Visit and conduction of environment survey of proposed road of various districts namely Dolkha, Sindhuli, Kavre, Sindhupalchowk, Baglung and Kathmandu</li> <li>• Collection of the field based data on Physical and Biological aspects</li> </ul>

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	<ul style="list-style-type: none"> <li>including forest area and the inhabited wild life</li> <li>• Identification of the potential environment impacts at various stages of project implementation and address their preventive and mitigation measures.</li> </ul>
Achievements:	<ul style="list-style-type: none"> <li>• Conducted environment survey of proposed road of various district</li> <li>• identified and reported the potential environment impacts along with their mitigative measures at various stages of road construction and road upgrading</li> </ul>

**# 3**

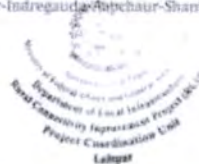
Employer Name:	Environmental Resources Institute Pvt Ltd
Funding Agency	Federation of Drinking Water and Sanitation Users Nepal (FEDWASUN)
Job Title / Designation:	Programme Officer
Supervisor details:	Name: Bishwa Nath Paudyal Email: bishwapaudyal@gmail.com
Duration:	From June 2016 to October 2016
Key responsibilities:	Data analysis and report preparation for the project 'Capacity gap analysis on risk reduction capacity of stakeholders for Disaster resilient WASH facilities in Bhaktapur, Dhading, Kavre, and Gorkha.'
Achievements:	Field data and secondary data were analyzed and prepared draft report for the post Earthquake

**# 4**

Employer Name:	Environmental Resources Institute Pvt Ltd
Funding Agency	Alternative Energy Promotion Centre (AEPC)
Job Title / Designation:	Programme Officer
Supervisor details:	Name: Bishwa Nath Paudyal Email: bishwapaudyal@gmail.com
Duration:	From November 2014 to February 2015
Key responsibilities:	Data (field data and secondary) analysis, report preparation and support in conducting workshops, seminar for the project entitled Preparing the District Climate and Energy Plan
Achievements:	Analyzed data (field data and secondary) analysis, prepared report and supported the workshops, seminar

**# 5**

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Employer Name:	Environmental Resources Institute Pvt Ltd
Funding Agency	FEDWASUN
Job Title / Designation:	Programme Officer
Supervisor details:	Name: Bishwa Nath Paudyal Email: <a href="mailto:bishwapaudyal@gmail.com">bishwapaudyal@gmail.com</a>
Duration:	From June 2014 to September 2014
Key responsibilities:	Data collection (field plus secondary), key informant interview, data analysis, report for 'Best Case Documentation of Drinking Water Supply Schemes in Nepal'
Achievements:	Collected data from primary and secondary sources, analyzed data analysis, and prepared report

# 6

Employer Name:	Environmental Resources Institute Pvt Ltd
Funding Agency	AEPC
Job Title / Designation:	Research Associate
Supervisor details:	Name: Bishwa Nath Paudyal Email: <a href="mailto:bishwapaudyal@gmail.com">bishwapaudyal@gmail.com</a>
Duration:	From December 2013 to June 2014
Key responsibilities:	Data collection (field plus secondary), facilitating and conducting focus group discussion, data analysis, literature review and report preparation for the project 'Impact Study of Micro Hydro Projects of Bajura, Gulmi, Baglung and Dhading from Gender Equality and Social Inclusion (GESI) Perspective'
Achievements:	Collected data from field and secondary sources, analyzed data analysis, and prepared report

# 7

Employer Name:	Forest Action
Funding Agency	Forest Action
Job Title / Designation:	Individual Consultant
Supervisor details:	Name: Bishwa Nath Paudyal Email: <a href="mailto:bishwapaudyal@gmail.com">bishwapaudyal@gmail.com</a>
Duration:	From January 2013 to April 2013
Key responsibilities:	Reviewing, reorganizing and finalizing the 'Self-monitoring Guideline for Good Governance in Community Forest' and 'Participatory Action Learning'

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and Translation into Nepali.

Achievements: Reviewed and finalized the documents and translated into Nepali

# 8

Employer Name:	University of Bergen, Norway
Funding Agency	University of Bergen, Norway
Job Title / Designation:	Research Assistant
Supervisor details:	Name: Ernst Nordtveit Email: <a href="mailto:Ernst.Nordtveit@jur.uib.no">Ernst.Nordtveit@jur.uib.no</a>
Duration:	From September 2013 to December 2013
Key responsibilities:	Data collection (field plus secondary), Conduct key informant interview and household survey, translate, transcribe and reporting for PhD Researcher for the project 'Himalines: Legal Frameworks for Conservation of Biodiversity and Ecosystem Services in the Himalayas (Annapurna Conservation Area, Panchase Protected Area, Chandragiri Forest, Manang)'
Achievements:	<ul style="list-style-type: none"> <li>Conducted field works, key informant interview, household survey</li> <li>Translated, Transcribed and reported the field survey</li> </ul>

# 9

Employer Name:	Environmental Resources Institute Pvt. Ltd.
Funding Agency	International Centre for Integrated Mountain Development
Job Title / Designation:	Project Coordinator
Supervisor details:	Name: Shambu Prasad Dangal Contact No: Email: <a href="mailto:aar_yes@hotmail.com">aar_yes@hotmail.com</a>
Duration:	From February 2013 to May 2013
Key responsibilities:	<ul style="list-style-type: none"> <li>Coordinate all the field activities</li> <li>Conduct leasehold forest boundary survey and document them in hard and soft copies</li> <li>Design and Conduct Forest Carbon inventory</li> <li>Analyse Forest carbon inventory data</li> <li>develop the capacity of DFO staff, local forest users group and communities</li> <li>prepare reports</li> </ul>
Achievements:	<ul style="list-style-type: none"> <li>Conducted leasehold forestry boundary survey,</li> </ul>

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- Designed and conducted forest carbon inventory, analysed the data and reported it
- Led the capacity building of DFO staff, local forest users group and communities

**Computer Skill:**

Skill	Excellent	Good	Fair	Remark
Word	√			
Spread sheet (Excel)	√			
Power point	√			
SPSS		√		
GIS		√		
Statistical package R		√		
Referencing and citing tool Endnote X4		√		

**Academic Award:** Norad's Programme for Master Studies (NOMA) Scholarship in 2010

**Publications:**

**International:**

Suwal AL, Bhuju DR & Mären IE 2014 Assessment of Forest Carbon Stocks in the Himalayas: Does Legal Protection Matter? Small-scale Forestry doi: 10.1007/s11842-014-9276-4

**National:**

Sujakhu et.al 2009 The Forest Biomass Estimation in the Recently Colonized Forest at Kumroj Community Forest Chitwan, Nepal: A Preliminary Study, Plant Resources (A Scientific Publication), GoN/MFSC/DFRS

Suwal et.al 2008 Forest Biomass Estimation in Kumroj Community forest, Chitwan", Poster Presentation, The Fifth National Conference on Science and Technology

**Participation:**

Fifth National Conference on Science and Technology held from 10-12 November 2008, organized by Nepal Academy of Science and Technology (NAST).

National Conference on Environment (NEC- 07/064) held from 22-24 June 2007, organized by CDES/TU and MoEST/GoN.

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**References:**

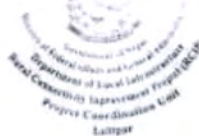
Mr. Navaraj Pokharel  
Environmental Expert  
Building Resilience to Climate-Related Hazards/Department of hydrology and  
Meteorology  
Contact No.: 9851117882  
Email: [navarajp@gmail.com](mailto:navarajp@gmail.com)

Eng. Ranjan Suwal  
Chair person  
Green Planet Engineer's Associate Pvt. Ltd, Kathmandu  
Contact No.: 9851132404  
Email: [aar\\_yes@hotmail.com](mailto:aar_yes@hotmail.com)

Dr. Inger Elisabeth Måren  
Associate Professor  
University of Bergen, Norway  
Contact No.: 004741285126  
Email: [inger.Maaren@geog.uib.no](mailto:inger.Maaren@geog.uib.no)

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**Curriculum Vitae**

**Personal Background**

Name	Sagun Maharjan
Date of Birth	14 Nov. 1987
Nationality	Nepalese
Address	Kirtipur-08, Kathmandu
Contact No.	+977 9843324318 / +977 9813819679
Email	sagunmaharjan95@gmail.com

**Academic Qualification**

University	Degree	Year	Division
TU (Goldengate International College)	Master's Degree	2010-2012	First
TU (Viswa Niketan Science Campus)	Bachelor's Degree	2006-2009	First
HSEB (Little Angel's College)	Higher Secondary Education Board	2004-2006	First
HMG (Pushpa Sadan Boarding School)	SLC	2003	First

**Training**

- ❖ Basic Computer Training ( MS Office )- Computer Training Institute
- ❖ GIS ( Basic Tool ) – Goldengate International College
- ❖ Two days Environment Management System - Ministry of Industry

**Experience Detail**

**Report on Initial Environmental Examination of Sand and Gravel of Gopi khola**

Proponent: Tamakoshi Rural Municipality  
 Institution: Research Enclave Pvt. Ltd  
 Role: Team Leader

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**Report on Initial Environmental Examination of Sand and Gravel of Likhu Khola**

Proponent: Khijiidemba Rural Municipality  
Institution: Research Enclave Pvt. Ltd  
Role: Team Leader

**Report on Initial Environmental Examination of Sand and Gravel of Arun River**

Proponent: Shadananda Municipality  
Institution: Research Enclave Pvt. Ltd  
Role: Team Leader

**Report on Initial Environmental Examination of Construction of Area Police Station, Chhaimale, Dakshinkali Municipality**

Proponent: Metropolitan Police Range, Teku  
Institution: Research Enclave Pvt. Ltd  
Role: Team Leader

**Report on Initial Environmental Examination of Construction of Traffic Post Office, Ramnagar, Chitwan**

Proponent: Police Headquarters, Naxal  
Institution: Research Enclave Pvt. Ltd  
Role: Team Leader

**Report on Initial Environmental Examination of Fatuwa Drinking Water Supply, Rajpur Municipality, Rautahat funded by Oxfam Nepal**

Institution: Siddhartha Environmental Services  
Role: Environmentalist

**Report on Initial Environmental Examination of Pidari Drinking Water Supply, Haripur Municipality, Sarlahi funded by Oxfam Nepal**

Institution: Siddhartha Environmental Services  
Role: Environmentalist

**SoRDeC-Nepal (Social Welfare Resource Development Centre)**

**Position:** Program Coordinator in Environmental Preservation through "Climate change Adaptation and Preservation of Biodiversity through Restoration of Eco-system" funded by Good Neighbors International.

**Station:** Parbat

**Since:** November 2012 to July 2015

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**Duties:** Prepare the overall plan and detail implementation plan (DIP) of the project in accordance project document, including the logical framework, budget and work plan, Program monitoring, supervision & Evaluation, Conduct training & workshops related to Disaster Risk Reduction, climate change, Technical Support& guidance in biodiversity conservation, Nursery Management, landslide Mitigation, Forest management and Agro forestry Promotion

**REFERENCE/S**

Name: Dr. Yogendra Raj Rijal  
Address: Kathmandu, Nepal  
Affiliation: SoRDeC-Nepal (Social Welfare Resource Development Centre)  
Position: Executive Director  
Email: yogendra4435@gmail.com  
Phone no: +977 9851117882

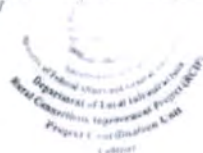
Name: Durga Prasad Dahal  
Address: Kathmandu, Nepal  
Affiliation: Research Enclave Pvt. Ltd  
Position: Executive Director  
Email: researchenclave@gmail.com  
Phone no: +977 9851097036





<b>11. Proposed Position:</b>	<b>Team Leader/ Senior Road Expert</b>		
<b>12. Name of Firm:</b>	Inclusive Consultants (P) Ltd.		
<b>13. Name of Expert:</b>	<b>Mr. Yagya Bahadur Mallia</b>		
<b>14. Residential Address:</b>	Dilli Bazar, Kathmandu Metropolitan City 33, Kathmandu, Nepal		
<b>Telephone No.:</b>	+977-9841 634300		
<b>Fax No.:</b>			
<b>E-Mail Address:</b>	yagyabmalla@hotmail.com		
<b>15. Date of Birth:</b>	22nd February 1955	<b>Citizenship:</b> Nepali	
<b>16. Education:</b>	<ul style="list-style-type: none"> <li>- M.Sc. in Highway Engineering from Byelorussian Polytechnic Institute, Minsk, USSR, 1989.</li> <li>- I. Sc. In Patan Multiple Campus, Lalitpur</li> </ul>		
<b>17. Membership in Prof. Associations:</b>	<ul style="list-style-type: none"> <li>- Member of Nepal Engineer's Council, Membership No. 117 "Category A"</li> <li>- Member of Nepal Engineer's Association, Membership No. 1531</li> <li>- Member of MitraKunj</li> </ul>		
<b>18. Other Trainings:</b>	<ul style="list-style-type: none"> <li>- Training on Basic Quality Control in Construction Works and Project Management, Upper Tamakoshi Hydro Electric Project, July - August, 2009 (5 weeks)</li> <li>- Training in Suspension Bridge conducted by Helvetius-Nepal/Department of Roads in 1992 (5 Days)</li> <li>- Training in Social Inclusion conducted by gtz (1 Week)</li> <li>- Training in Bio engineering conducted by gtz (3 days)</li> <li>- LRN Engineering course conducted by Rap 3 (6 Days)</li> <li>- Road safety assessment-practical low cost road safety conducted by Rap 3 (4 Days)</li> </ul> <p><b>As a Trainer:</b></p> <ul style="list-style-type: none"> <li>- Conduct RMG training (7 days for 4 times)</li> <li>- Conduct Bid submission training (2 days training for 4 times)</li> </ul>		
<b>19. Countries of Work Experience:</b>	Nepal, Russia, India		
<b>20. Language</b>	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
Nepali	Mother tongue	Mother tongue	Mother tongue
English	Good	Good	Good
Russian	Excellent	Good	Good
Hindi	Good	Good	Good
<b>Key Qualifications:</b>	30+ years of Experience 20+ years in Road Works 20+ years' experience in Road Projects as Transport Economist 20 projects with International Organizations		
<b>21. Employment Record:</b>			
	<b>From:</b> July 2017	<b>To:</b> Till date	
<b>Employer:</b>	GEC (P) Ltd		
<b>Positions held:</b>	Managing Director and Sr. Highway Engineer		
	<b>From:</b> December, 2015	<b>To:</b> 30 June 2017	
<b>Employer:</b>	ITECO Nepal (P) Ltd		
<b>Positions held:</b>	Team Leader/ Sr. Highway Engineer		
	<b>From:</b> April, 2015	<b>To:</b> November 30, 2015	

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<b>Employer:</b>	GEC (P) Ltd	
<b>Positions held:</b>	Highway Engineer stationing in GEC HO for different road works under taken by GEC	
	<b>From:</b> March, 2014	<b>To:</b> April, 2015
<b>Employer:</b>	GEC-SITARA JV	
<b>Positions held:</b>	Team Leader/Resident Engineer	
	<b>From:</b> June 2013	<b>To:</b> February 2014
<b>Employer:</b>	Group of Engineer's Consortium Pvt. Ltd. (GEC)	
<b>Positions held:</b>	Sr. Highway Engineer	
	<b>From:</b> July, 2012	<b>To:</b> June 2013
<b>Employer:</b>	Group of Engineer's Consortium Pvt. Ltd. (GEC)	
<b>Positions held:</b>	Managing Director/ Team Leader/Sr. Highway Engineer	
	<b>From:</b> May, 2012	<b>To:</b> June 2012
<b>Employer:</b>	ERMC (P) Ltd –GEC JV, Upper Tamakoshi Hydropower Access Road Project (35KM)	
<b>Positions held:</b>	Pavement Design Engineer	
	<b>From:</b> December, 2011	<b>To:</b> April 2012
<b>Employer:</b>	JICA Nepal	
<b>Positions held:</b>	Resident Engineer	
	<b>From:</b> November 2009	<b>To:</b> November 2011
<b>Employer:</b>	ERMC (P) Ltd –GEC JV	
<b>Positions held:</b>	Resident Engineer	
	<b>From:</b> January 2008	<b>To:</b> October 2009
<b>Employer:</b>	DDC, Palpa / RAIDP	
<b>Positions held:</b>	PDE/ Resident Engineer	
	<b>From:</b> September 2007	<b>To:</b> December 2007
<b>Employer:</b>	Group of Engineers' Consortium (P) Ltd. for DoR	
<b>Positions held:</b>	Team Leader/Highway & Design Engineer	
	<b>From:</b> September 2005	<b>To:</b> August 2007
<b>Employer:</b>	Group of Engineers' Consortium (P) Ltd. for DoR	
<b>Positions held:</b>	Resident Engineer/ Team Leader	

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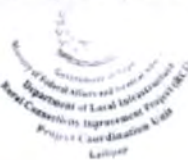
	<b>From:</b> December 2002	<b>To:</b> February 2004
<b>Employer:</b>	Snowy Mountain Engineering Corporation (SMEC), Australia, CEMAT and Group of Engineers' Consortium (P) Ltd.	
<b>Positions held:</b>	Assistant Resident Engineer	
	<b>From:</b> August 2002	<b>To:</b> November 2002
<b>Employer:</b>	CEMAT Consultants (P) Ltd. in association with SMEC, Australia	
<b>Positions held:</b>	Design Engineer	
	<b>From:</b> December 1998	<b>To:</b> July 2002
<b>Employer:</b>	Snowy Mountain Engineering Corporation (SMEC), Australia, CEMAT and Group of Engineers' Consortium (P) Ltd.	
<b>Positions held:</b>	Design Engineer cum Assistant Resident Engineer	
	<b>From:</b> December 1997	<b>To:</b> November 1998
<b>Employer:</b>	ITECO Nepal (P) Ltd, Scott Wilson Kirkpatrick and Co, Ltd.	
<b>Positions held:</b>	Assistant Resident Engineer	
	<b>From:</b> January 1996	<b>To:</b> November 1997
<b>Employer:</b>	ITECO Nepal (P) Ltd.	
<b>Positions held:</b>	Design Engineer/Team Leader	
<b>22. Detailed Tasks Assigned:</b>	<b>23. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:</b>	
<ul style="list-style-type: none"> <li>• Overall Management of the DPR of Consultant Team</li> <li>• Lead Team for Carrying Out DPR and Survey Works</li> <li>• Coordinate with RCIP/PIU/PCU DoLI IDO of Provincial Government</li> <li>• Organize Community Consultation</li> <li>• Coordinate, Feasibility Study, DPR, Social and Environmental Studies</li> <li>• Conduct Existing Pavement Conditions Survey.</li> </ul>	<p><b>Name of Assignment:</b> Survey, desing and preparation of Project DPR of Gaichhi – Trishuli-Betrawati Road Section under N-S Lok Marga, ACQMP, DOR 35.516 Km and Betrawati – Mailung – Syaphrubesi Road Section under N-S Lok Marga, ACQMP, DOR 31.134 Km</p> <p><b>Year:</b>December, 2015 to 30 June 2016</p> <p><b>Location:</b> Nuwakot and Rasuwa District <b>Client:</b> DoR, PMEJ</p> <p><b>Main Project Features:</b> Survey, desing and preparation of Project DPR.  <b>Activities Performed:</b>The entire task as stated in the TOR as a highway Engineer required for DPR of the assigned roads</p> <p><b>Name of Assignment:</b> Maintenance of Road Supervision Phase <b>Year:</b>April, 2015 to November 30<b>Location:</b> Sankhuwasabha district <b>Client:</b> Rural Access Program (RAP3), DFID, UK, Aid; Local Road Asset Management Support (LRAMS) Rural Access Programme, Phase3 Maintenance of Road Supervision Phase<b>Position Held:</b> Team Leader (National)<b>Main Project Features:</b> Maintenance of Road Supervision Phase. <b>Activities Performed:</b> Worked as a Resident Engineer/ Team leader, the supporting staff/ junior staff for preparing Annual Road Asset Management Plans using procedures set out in approved Guidelines (2013) acceptable to the Client/DDC/DTD, Assist the team for arrange works into packages, provide detailed Engineering Estimates, prepare procurement plans, assist in undertaking procurement of works (Contractor or UC) and fully supervise the works on site. Assist the client for tender preparing process, manage and supervise the programme of recruiting groups for the Routine and Recurrent Maintenance of the existing roads. Assist the client for Implementation of Improvement Projects. Client</p>	

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<p>Inventory, Mapping, and Prepare Road Structure Schedules as per ToR</p> <ul style="list-style-type: none"> <li>Organize Traffic Studies</li> <li>Organize Material Availability Survey</li> <li>Review existing traffic data, and extract data necessary for economic analysis.</li> <li>Assess the traffic generation potential and suitably utilized in project road traffic assessment and forecast.</li> <li>Assist on Conducting Studies of Various Component of Roads including Geotechnical and Hydrological Exploration</li> <li>Assist for Preparation of Detailed Drawings, Design and Estimate including various Deliverables as mentioned in work schedule</li> <li>Road Safety Audits, RSA, and Undertake additional task as required by ToR</li> <li>Estimate the saving in vehicle operating costs and time using the HDM model or similar approach.</li> <li>Research available studies and</li> </ul>	<p>Reference: Mr. Krishna saran Dhungana - District Team leader - RAP-3, Sankhuwasabha District; For references: Tel. 977-01-5543979 E-Mail: gec@mail.com.np; Mr. B. D. Gyawali, Chairman, GEC</p> <p><b>Name of Assignment or Project:</b> Detail Engineering Survey, DCP Test, Design of roads, Concise IEE study and preparation of DPR of Bhurigaun – Telpani Surkhet Road <b>Year:</b> June 2013 to February 2014 <b>Location:</b> Surkhet, Dang and Dadeidhura <b>Client:</b> DoR/ PMEU <b>Main Project Features:</b> Detail Engineering Survey, DCP Test, Design of roads, Concise IEE study and preparation of DPR <b>Positions Held:</b> Team Leader <b>Activities Performed:</b> The entire task as stated in the TOR as a highway Engineer required for DPR of the assigned roads</p> <p><b>Name of Assignment or Project:</b> Feasibility study for new road projects under Puspatal (Mid Hill) Highway Project and PMEUYear: July, 2012 to June 2013 <b>Location:</b> Nepalthok via Pokhara, Mustang, Surkhet, Jhapa and Jumla Districts <b>Client:</b> DoR/ Puspatal (Mid Hill) Highway Project and PMEU <b>Main Project Features:</b> Feasibility study for new road project <b>Positions Held:</b> Managing Director/ Team Leader/Sr. Highway Engineer <b>Activities Performed:</b> Involved as a Team Leader/Sr. Highway Engineer in feasibility study for new construction of the following roads:</p> <ul style="list-style-type: none"> <li>Nepalthok – Pokhara Sector 345 Km under DoR Puspatal (Mid Hill) Highway Project (Eastern Sector),</li> <li>Chale – Ghokar Road, Mustang 5.45 Km ; Surkhet City Ring Road, Surkhet 23.53Km</li> <li>Darbak Bazar Ring Road, Jhapa 37.78 Km</li> <li>Pantadi – Jumla – Khalanga Road, Jumla 41.39 Km and</li> <li>Chharka – Mustang Road, Mustang 88.88 Km under Planning &amp; Design Branch, Planning, Monitoring &amp; Evaluation Unit (PMEU)</li> </ul> <p>As a Team Leader, responsible for preparation of technical audit questionnaires, manuals and procedures, conduct technical audits of projects at various stages of implementation like feasibility study, detailed design and engineering, construction supervision etc. as well as preparation of technical proposals for different road project of DoR and DDC's. For references: Tel. 977-01-5543979; E-Mail: gec@mail.com.np; Mr. B. D. Gyawali, Chairman, GEC</p> <p><b>Name of Assignment or Project:</b> Upgrading of Dolakha – Singati Section (35 km Hill Road) of Access Road of Upper Tamakoshi Hydropower Project; <b>Year:</b> May, 2012 to June 2012; <b>Location:</b> Dolakha, Nepal; <b>Client:</b> Upper Tamakoshi Hydroelectric (P) Ltd. / NEA; <b>Main Project Features:</b> Construction Supervision and Management of Road Works; <b>Position Held:</b> Pavement Design Engineer <b>Activities Performed:</b> Responsible for Involved in pavement design works of Charikot – Dolakha Bypass road 4.453 km under for Upper Tamakoshi Hydroelectric Project, supervising material testing, pavement design work for sub grade, sub base, base and bituminous layer, identify the quarry site, selection of construction materials, preparation of design report; For references: Tel. 977-01-5543979; E-Mail: gec@mail.com.np; Mr. B. D. Gyawali, Chairman, GEC</p> <p><b>Name of Assignment or Project:</b> Traffic Survey in Kathmandu Valley; <b>Year:</b> December, 2011 TO April 2012</p> <p><b>Location:</b> Kathmandu <b>Client:</b> JICA Nepal; <b>Main Project Features:</b> Traffic Count Survey of Major Road Project in Kathmandu Metropolitan city; <b>Activities</b></p>
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<p>develop a methodology to quantify the increased agricultural production that can be attributed by improved rural road access</p> <ul style="list-style-type: none"> <li>Quantify the benefit from increased agricultural productivity for each road and included it in the economic analysis.</li> <li>Estimate the increased cost of transportation or loss due to non-motorable roads during the rainy season or other inclement weather for each road.</li> <li>Prepare sensitivity and risk analysis about changes in key parameters, and calculate switching values.</li> <li>Assess and quantify other quantifiable benefits such as benefit from increased access to medical and educational facilities</li> <li>Prepare a report on Economic Analysis in accordance with ADB's Guidelines for the Economic Analysis of Projects.</li> </ul>	<p><b>Performed:</b> Responsible for monitoring the traffic survey conducted such as Household Interview, Roadside Interview (OD) Survey (17 places), Traffic Count Survey (42 places), Screen Line Survey (13 places), Traffic Count Survey of Major Intersections (10 places), Travel Speed Survey (10 routes), Parking Survey (Along Ring Road), Bus Traffic Count Survey (2 terminals), Bus OD Survey (2 terminals), Bus Passenger Interview Survey (2,500 samples) and Public Transport Firm Interview Survey (100 firms) and verification, checking and analysis of the survey data.</p>
	<p><b>Name of Assignment:</b> Upgrading of Dolakha – Singati Section (35 km Hill Road) of Access Road of Upper Tamakoshi Hydropower Project; <b>Year:</b> November 2009 TO November 2011 <b>Location:</b> Dolakha <b>Client:</b> Upper Tamakoshi Hydropower Limited <b>Main Project Features:</b> Construction Supervision and Management of Road Works; <b>Position Held:</b> Resident Engineer <b>Activities Performed:</b> Responsible for construction supervision, contract administration and detailed design, design review, quality control of upgrading. Maintain close contact to Team Leader for smooth implementation of the contract package. Involved on design and modification as per site condition and suggest, Preparation of variation orders, preparation of monthly work progress, Process Interim payment certificated submitted by the Contractors, Preparation of Quality Assurance Plan, Construction Supervision Manual, Environmental Management &amp; Safety Plan. C Construction Supervision and design review of motorable Gumukhola RCC bridge (span-22m). Construction administration and supervision of access road viaducts works carried out by contractor as per FIDIC condition of contract (CoC) and quality control of earthworks, sub grade, sub-base, drainage, culverts and retaining structures base on specification with the works are executed in NCB contract packages for Upper Tamakoshi Hydroelectric Project, Construction Supervision of Upgrading of Dolakha – Singati Section Access Road Project (UTKHEP) - 35 km; For references: Tel. 977-01-4483064; E-Mail: uddabchaulagain@gmail.com</p> <p>Mr. Uddab Raj Chaulagain, MD, ERMC.</p>
	<p><b>Name of Assignment:</b> Rural Access Improvement and Decentralization Project (RAIDP) funded by World Bank IDA Grant: H171-NEP <b>Year:</b> January 2008 TO October 2009 <b>Location:</b> Palpa <b>Client:</b> DoLIDAR, The World Bank <b>Main Project Features:</b> Construction Supervision and Management of Road Works; <b>Activities Performed:</b> Responsible construction supervision and contract administration, frequent monitoring and co-ordination to the working team and suggest with appropriate, maintain close contact with the Client for smooth implementation of the project with the governments polices and objects. Responsible for Site verification, surveying and design modification in coordination with Resettlement Action Plan (RAP) and Environmental Management Action Plan (EMAP), the setting out off works, quality control of material and workmanship, verification of measurement and certification of interim payment certificate, preparation of monthly progress report and close monitoring of works carried out by contractor for the completion within the project period. As well as contract packaging based on Otta seal technology for the following roads: Arbhanyang –Rampur road, 14 km, Baspari-Jhabewa road, 8 km, Harthok-Chhahara road, 8 km (Total 30.00 Km). <b>Client References:</b> Tel. 98570 60491; Address: DDC Office Palpa District, Nepal; Mr. Bhimarjun Panday, Chief District Engineer, Palpa.</p>
	<p><b>Name of Assignment:</b> Detailed engineering survey Kaligandaki Corridor Road 26.5 Km, Package 1 (20.5) km &amp; Package 2 (6 Km) and Mirdi-Kyakmi-Bhimad</p>

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<p>(Darsing-Tahanu Boarder Section) - 22.90 km; <b>Year:</b> September 2007 TO December 2007; <b>Location:</b> Parbhat District; <b>Client:</b> Department of Road (DoR); <b>Main Project Features:</b> Detailed engineering survey, design, cost estimate, rate analysis of Roads; <b>Position Held:</b> Team Leader/Highway &amp; Design Engineer <b>Activities Performed:</b> Responsible for Detailed Survey and Design such as improvement of road geometric, alignment, cross section of the road and typical drawing of related structures, preparation of contract document, rate analysis and cost estimates for Kaligandaki Corridor Road 26.5 Km. Package 1 (20.5) km &amp; Package 2 (6 Km) and Mirdi-Kyakmi-Bhimad (Darsing-Tahanu Boarder Section) - 22.90 km; Client References: Tel. 977-01-5543979; E-Mail: gec@mail.com.np; Mr. B. D. Gyawali, Chairman, GEC.</p>
<p><b>Name of Assignment:</b> Rural Programme Nepal, Rural Community Infrastructure Works Programme; <b>Year:</b> September 2005 TO August 2007; <b>Location:</b> Dadeldhura District, Doti <b>Client:</b> CP10-NDIA, State of Qatar <b>Main Project Features:</b> GTZ <b>Position Held:</b> Resident Engineer/ Team Leader <b>Activities Performed:</b> Responsible for Rural Programme Nepal, Rural Community Infrastructure Works Programme, Dadeldhura (financed by GTZ), responsible for Detailed engineering survey, design, cost estimate, rate analysis, Social study, land acquisition and compensation with construction supervision and management, quality control of new road construction work, based on labour-based technology with environment friendly concept and community based organization in Doti - Dipayal to Daud 44.00 Km and Dipayal - Tikhatar - Chaurachautara road 31.70 km</p> <p><b>AND</b></p> <p>in Dadeldhura, Bagbazar-Bagarkot road 34.00 Km which starts from Bagbazar to Rupal VDC of Dadeldhura District, Pokhara-Belapur road 25.00 KM which starts from Koteli VDC and ends at Belapur VDC of Dadeldhura District, and Bhalkanda - Rel road 12.00 Km, which starts from Asigram to Kalipamandu VDC of Dadeldhura District. Client References: Kabindra Mana Pradhan, Project Coordinator, GTZ.</p>
<p><b>Name of Assignment or Project:</b> Road Maintenance and Development Project (RMDP) funded by World Bank; <b>Gorusinge - Sandhikharka Road Project (68.2 km Hill Road)</b> a Otta seal a new technology was introduced as Pilot Project) RMDP, Road Maintenance and Development Project /NRDUC/ICB-04, <b>Year:</b> March 2004 TO August 2005</p> <p><b>Location:</b> Western Region of Nepal; <b>Client:</b> Department of Roads / RMDP, ICB Contract Packages <b>Main Project Features:</b> Detailed engineering survey, design, quantity estimate, cost estimate, preparation of bid document, Social and IEE study with construction supervision, quality control works, Management of Road Construction; <b>Position Held:</b> Assistant Resident Engineer <b>Activities Performed:</b> Responsible for construction supervision of road maintenance works and responsible in all aspects of construction activities (survey, setting out works and supervision of construction works as per specification and drawing and contract administration &amp; management as per FIDIC documents and ICB contracts); maintained daily site records of all the events of the day including records of daily measurements, weather conditions, visits, specific problems encountered and reporting; ensured smooth execution of works and checking of method and quality of work, assisted to prepare regular report etc; inspection of quality control and quality assurance of workmanship and material, valuation of billings &amp; certification of payments etc.; main items of works under supervision are: Pavement Works (Otta Sealing works, Sand Sealing works, Penetration Macadam works, SBSO works), off-road structure works as well as construction of drainage structures and Bio-Engineering works. Ottaseal, a new technology was introduced as Pilot project; Road Maintenance and Development Project (RMDP): as per FIDIC documents and ICB Contracts construction and quality control of Hill Road.</p>

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<p><b>Name of Assignment:</b> Chameliya-Darchula Road Project (20km, New Construction), Road Maintenance and Development Project (RMDP) Contract NRDUC/CD/NCB/1-1 to NRDUC/CD/NCB/1-5 funded by World Bank <b>Year:</b> December 2002 TO February 2004 <b>Location:</b> Darchula District <b>Client:</b> Department of Roads / RMDP, ICB Contact Packages <b>Main Project Features:</b> Detailed engineering survey, design, quantity estimate, cost estimate, preparation of bid document, Social and IEE study with construction supervision, quality control works, Management of Road Construction; <b>Position Held:</b> Assistant Resident Engineer <b>Activities Performed:</b> Responsible for Site verification, surveying and design modification in coordination with Resettlement Action Plan (RAP) team and Environmental Management Action Plan (EMAP) team. Responsible for contract administration, check setting out off works, quality control of material and workmanship, verification of measurement and certification of interim payment certificate, preparation of monthly progress report and close monitoring of works carried out by contractor and CBO's for the completion within the project period; As well as contract packaging based on labor- based technology with environment friendly concept, award of work to Community Based Organization (CBO) and supervise them for Second Year Programme.</p>
<p><b>Name of Assignment:</b> Road Maintenance and Development Project (RMDP) preliminary design and cost estimate for road upgrading work of Mirchaiya – Katari-Okhaldhunga - 114 km <b>Year:</b> August 2002 TO November 2002 <b>Location:</b> Mirchaiya – Katari-Okhaldhunga, Nepal <b>Client:</b> Department of Roads; <b>Main Project Features:</b> Detailed engineering survey, design of road, cost estimate, preparation of bid document, preparation of quality control works;</p> <p><b>Position Held:</b> Design Engineer <b>Activities Performed:</b> Responsible for survey and design of Project road (preliminary design and cost estimate for road upgrading work of Mirchaiya – Katari-Okhaldhunga – 114 km) using field survey data (co-ordinate calculation and plotting of IP's, design of curve, pavement and other various road elements and design of drainage structures, retaining structures and assisted Bridge Engineer in design of Bridges), Assisted in quantity calculation of various items of works, Involved in the preparation of Drawings, Estimates and other documents.</p>
<p><b>Name of Assignment:</b> Road Maintenance and Development Project (RMDP) funded by World Bank, Surkhet-Kalikot Road upgrading (118.65 Km); Chameliya-Darchula new road construction (18.46 Km. <b>Year:</b> December 1998 TO July 2002 <b>Location:</b> Sanfebagar and Kathmandu, Nepal; <b>Client:</b> Department of Roads / RMDP, ICB Contact Packages <b>Main Project Features:</b> Detailed engineering survey, design, quantity estimate, cost estimate, preparation of bid document, Social and IEE study with construction supervision, quality control works, Management of Road Construction; <b>Position Held:</b> Design Engineer cum Assistant Resident Engineer <b>Activities Performed:</b> Responsible responsible for construction supervision and management, quality control of new road construction work, based on labour-based technology with environment friendly concept and community based organization for Sanfebagar- Martadi Road 10.008km from 20+000 to 30+000,</p> <p>In design phase as a Design Engineer, responsible for detail engineering survey, design and cost estimate and work packaging, based on labour base technology with environment friendly concept and community based organization for Surkhet-Kalikot Road upgrading (118.65 Km); Chameliya-Darchula new road construction (18.46 Km),</p>
<p><b>Name of Assignment:</b> Road Maintenance Rehabilitation Project (RMRP – B), RMRP/PM/NCB 2 and 3; Nepalgunj –Jethankhola (14 km) and Jethankhola – Guleria (20 km) total 34.00Km DBST Road under IDA funding. (Credit No. 2578-NEP). <b>Year:</b> December 1997 TO November 1998 <b>Location:</b> Banke <b>Client:</b> Department of Roads / RMDP, ICB Contact Packages <b>Main Project Features:</b> Mobilization of contractors, provision of accommodation and offices, construction survey and drawings, contract management and administration, construction supervision, quality monitoring and quantity surveying during construction supervision phase; <b>Position Held:</b> Team Leader/RE <b>Activities Performed:</b> Overall</p>

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construction management, coordination with team, contractors, client, project mission respected concern team and mobilization of contractors, provision of accommodation and offices, construction survey and drawings, contract management and administration with FIDIC procedures, quality monitoring with QA and QC as per specifications, control of resource planning and scheduling, quantity surveying and verification of contractor's invoices, conducting and preparation of minute of meetings, monthly progress reports and dealing with local conflicts.

**Name of Assignment:** Feasibility study of Budar Mill Chouraha – Dobato, Shribhwar – Purachaudighat, Sulichour – Twawang road and Salyan – Musikot Road **Location:** Salyan – Musikot District **Client:** Department of Road (DoR) **Main Project Features:** Detailed engineering survey, design, cost estimate, rate analysis of Roads

**Position Held:** Design Engineer/Team Leader **Activities Performed:** : Responsible for Detailed Survey and Design such as improvement of road geometric, alignment, cross section of the road and typical drawing of related structures, preparation of contract document, rate analysis and cost estimates for Feasibility study of Budar Mill Chouraha – Dobato, Shribhwar – Purachaudighat, Sulichour – Twawang road and Salyan – Musikot Road. **As a Team Leader** involved in baseline survey of Tansen – Tamghas Road and Baseline Survey of Tansen – Syangja Road.

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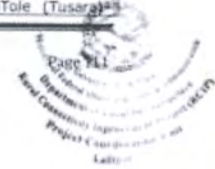
<b>24. Proposed Position:</b>	<b>Geotechnical Engineer</b>		
<b>25. Name of Firm:</b>	Inclusive Consultants (P) Ltd.		
<b>26. Name of Expert:</b>	<b>Mr. Manil Neupane</b>		
<b>27. Residential Address:</b>	Duradanda, Lamjung		
<b>Telephone No.:</b>	(+977) – 9841385667		
<b>Fax No.:</b>			
<b>E-Mail Address:</b>	neupane_manil@gmail.com		
<b>28. Date of Birth:</b>	11/04/1989	<b>Citizenship:</b> Nepal	
<b>29. Education:</b>	<ul style="list-style-type: none"> <li>- M.Sc. in Civil Engineering (Geotechnical Investigation as major subject) from California State University in 2017</li> <li>- B.E. in Civil Engineering Degree from Kantipur Engineering College in 2011</li> </ul>		
<b>30. Membership in Prof. Associations:</b>	- Nepal Engineering Council, Regd. No. 7075 "Civil" "A" Category		
<b>31. Other Trainings:</b>	<ul style="list-style-type: none"> <li>- Microsoft-Word/Microsoft-Excel, Windows 98/2000, Auto CAD 2000-2008 (2D &amp; 3D Modeling), Fortran Language, GIS, Land Development, Auto CAD etc,</li> <li>- Autocad</li> <li>- Total Station Training</li> <li>- SW Roads Training</li> <li>- Phase II software for landslide Modeling</li> </ul>		
<b>32. Countries of Work Experience:</b>	Nepal		
<b>33. Language</b>	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
Nepali	Mother tongue	Mother tongue	Mother tongue
English	Good	Good	Good
Hindi	Good	Good	Good
<b>Key Qualifications:</b>	<p>8+ years of Experience</p> <p>8+ years in Road Works</p> <p>8+ years' experience in Road Projects as Geotechnical Engineer</p> <p>6 projects with International Organizations</p>		
<b>34. Employment Record:</b>			
	<b>From:</b> Oct 2017,	<b>To:</b> Till Date	
	Inclusive Consultant P. Ltd		
<b>Positions held:</b>	Geotechnical Engineer		

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	<b>From:</b> August, 2011	<b>To:</b> August 2014
<b>Employer:</b>	Various	
<b>Positions held:</b>	Civil Engineer /Geotechnical Engineer	
<b>35. Detailed Tasks Assigned:</b>	<b>36. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:</b>	
<ul style="list-style-type: none"> <li>▶ Assist and Guide Field Teams</li> <li>▶ Detailed Design of Roads</li> <li>▶ Assist team Leader to Finalize Deliverables as per ToR</li> <li>▶ Undertake testing of construction materials to be used</li> <li>▶ Analyze geotechnical investigation reports of subprojects</li> <li>▶ Carry out necessary field testing on subprojects</li> <li>▶ Produce reports of material suitability to be used in subprojects</li> <li>▶ Prepare construction material survey report</li> <li>▶ Review quarry report and identify potential quarry sources</li> <li>▶ Undertake Other Task</li> </ul>	<p><b>Name of Assignment:</b></p> <p>Worked as Geotechnical Engineer for Detail Design of Road Projects according to the project standards in consultation with project manager, Calculation of Quantity and Cost, Preparation of Drawings, Procurement management and Construction Supervision</p> <ul style="list-style-type: none"> <li>• Detail Engineering Survey, Design and Report preparation of Salchaur-Puchhala-Nigalchaula Road in Salyan (20 Km)</li> <li>• Detail Engineering Survey, Design and Report preparation of Betini-Majkharka Rural Road in Udayapur (18 Km)</li> <li>• Detail Engineering Survey, Design and Report preparation of KhamlungkoKhungring-Thokulung-Chuhadanda-Chhatedhunga Ring Road in Terathum (26Km)</li> <li>• Detail Engineering Survey, Design and Report preparation of rural road Matedeval-Huwas-Luknhu Road in Parbat (33Km)</li> <li>• Detail Engineering Survey, Design and Report preparation of rural road Chisapani-Hatemaichowk-Wahabhanjyang-Barrachaur Road in Parbat (22.8 Km)</li> <li>• Detail Engineering Survey, Design and Report preparation of rural road Pathichaur-BhukadeuraliLespar Road in Parbat (20.7 Km)</li> <li>• Sunsari District: Inaruwa - Kaptanganj-Kauwakhoch 24 km, Pakali-Barahachhetra 43 km,</li> <li>• Dhankuta District: Hile-Uttarpani-Chhintang 26 km, Rajarani 6 no. Budhjabare 23 km, Trisule-Hattikharka-Arkhaule-Jitpur 20 km, Mude-Sanischara-Dandagaun-Chanuwa 15 km, Bihibare-Malbase-Madhuganga 15 km,</li> <li>• Chitwan District: ShaktikhorUpardanggadhi-KauleDarechowk 20 km, Bankatta-Bagae 30 km,</li> <li>• Sindhuli District: Khaniyakharka-Ratanchura-Bahuntilpun 38 km, Pipalbajyang – Amale – Bastipur – ShanteshworiKaldhunga (Kavre) 32 km,</li> </ul> <p>Detail Design of Bridge according to the project (DoR) standards in consultation with project manager, Calculation of Quantity and Cost, Preparation of Drawings, Procurement management and Construction Supervision of Motorable Bridges including Feasibility Study, Detailed Engineering Survey, Soil Investigation, Hydrological Study</p> <ul style="list-style-type: none"> <li>• Kabrabota bridge Arga-Sandhikharka-Deburang-Bhagwati road Arghakhanchi,</li> <li>• Bhumikasthan Bridge Bhumikasthan-Dhakaban, Arghakhanchi,</li> <li>• Tusar Bridge Sandhikharka-Khagdi-Jibe-Bahar-DurgaTole (Tusar)</li> </ul>	

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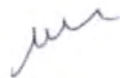
<p>as required by ToR, RCIP and PCU</p>	<p>Gaya-Palpa road, Arghakhanchi,</p> <ul style="list-style-type: none"> <li>• SishneKhola Bridge Palpa-Nigali-Neta-Dhatibang-DalleRaha-Ghumbi-Sandhikharka road, Arghakhanchi,</li> <li>• KanchanKhola Bridge Gorusinghe-Sandhikharka-Dhorpatan Road, Palpa,</li> <li>• DhungraKhola Bridge Gorusinghe-Sandhikharka-DhorpatanRoad, Arghakhanchi, BetiKhola Bridge Nandanagar-Patariya-Bashkor-road,</li> <li>• HarnoyeKhola Bridge Harkata-Parasi Road, Nawalparashi,</li> <li>• BanarahawaKhola Bridge Arga-Sandhikharka-Deburang-Bhagwati road , Arghakhanchi</li> <li>• Jamunne River Motorable Bridge along JanakpurJatahi 6 lane road</li> <li>• Jailad River Motorable Bridge along JanakpurJatahi 6 lane road</li> <li>• Dudhmati River Motorable Bridge along JanakpurJatahi 5 lane road</li> <li>• Bhighe River Motorable Bridge along JanakpurJatahi 2lane road</li> <li>• Bhurahi River Motorable Bridge along JanakpurJatahi 2 lane road</li> <li>• Hardi River Motorable Bridge , Dhanusha</li> <li>• JanghaKholaMotorable Bridge in Mahottari</li> <li>• KhayarmaraKholaMotorable Bridge, Mahottari</li> <li>• Ratu River Motorable Bridge in Mahottari</li> <li>• Soni River Motorable Bridge, Mahottari</li> <li>• BandarmudeKhola Bridge, Madi, Chitwan</li> </ul> <p>Design Engineer for Detail Structural Design of Mitigation Measures of different structure for Land Slide</p> <ul style="list-style-type: none"> <li>• Jure Land Slide, Sindhupalchowk for DWIDM, Chaikot, Dolakha</li> <li>• Sildujure Land Slide, Kaski, DWIDP, Shree Mahal, Pulchowk</li> <li>• Kerunge Land Slide, Nawalparashi for DWIDP, Shree Mahal, Pulchowk</li> <li>• Phulkharka Land Slide, Dhading, DWIDP, Shree Mahal, Pulchowk</li> <li>• LaharepauwaLanda slide, Rasuwa for WWF Nepal/ USAID</li> </ul> <p><b>Year:</b> Oct 2017 to date <b>Location:</b> Nepal <b>Client:</b> Various DDC, DTO and DoR and Municipality Offices Various <b>Position Held:</b> Geotechnical Engineer <b>Activities Performed:</b> - Hydrological Analysis for DPR preparation of Following Road and Bridge Projects</p> <p><b>Name of Assignment :</b></p> <p>1. Support and Assist Department of Local Development (DoLIDAR) for the Preparation of follow on Project of Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP)-2 (Prioritization of Road, Feasibility Study, SIA/IEE and Detailed Design, Cost Estimate, Preparation of Investment Plan and Preparation of Contract Documents and Project appraisal Documents for approx 1100 km roads and 35 bridges.. (2013-2014) (WB Funded Project)</p> <p><b>Employer:</b> ERHC Nepal P. Ltd.</p> <p><b>Year:</b> August 2011 to Aug 2014 <b>Dec Location:</b> 38 remote district of Nepal</p>
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ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive I/V



<p><b>Client:</b> RRRSDP II <b>Main Project Features:</b> Worked as Geotechnical Engineer for completion of the projects as per various ToR of implementing Agencies : <b>Position Held:</b> Civil Engineer ( Assist in Geotechnical investigation), (Intermittent Input) <b>Activities Performed:</b> -Hydrological analysis for Detailed Design of the project and assist team members.</p> <p>2. Dry Season Road Consultant, Feasibility Study, Detailed Design and Construction Supervision of Road (140 km) (IDA Grant No: H525-NEP&amp; Credit No.: 4664) (2011-2012) (WB Funded Project)</p> <p><b>Employer:</b>ERMC Nepal P. Ltd.</p> <p><b>Year:</b>August 2011 to Nov 2012 <b>DecLocation:</b> Nepal <b>Client:</b> RAIDP <b>Main Project Features:</b> Worked as hudrologist for completion of gthye projects as per various ToR of implementing Agencies : <b>Position Held:</b>: Civil Engineer ( Assist in Geotechnical investigation), (Intermittent Input) <b>Activities Performed:</b> -Geotechnical Investigation for Detailed Design of the project and assist team members.</p>
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ToR for IEE of Wamitaksar-Indregauda-Aapchaur-Shantipur Road, Lumbini Province  
ITECO-Inclusive I/V





**DECLARATION**

Title of the report: IEE study of Wamitaksar (Indregauda)- Aapchaur – Shantipur, Gulmi District

1. We have prepared the ToR professionally using acceptable and standard methodologies.
2. The content is correct to the best of our knowledge and has not altered in any manner.
3. We shall be accountable for misleading information in the part of this report related to our areas(s) of study.
4. We have read and checked the content of this report.

Team Members	Expertise/ Qualification	Experience	Signature
Mr. Navaraj Pokharel	Environmental Expert (Team leader, M.Sc Environmental Science)	15 years	
Mr. Sagun Maharjan	Environmentalist (M.Sc Environmental Science)	5 years	
Mrs. Aasha Suwal	Biodiversity Expert (Expert for Natural Resource Management/Forestry/Zoology/Botany) (M.Sc. Biodiversity )	5 years	
Mr. Chintamani Sharma	Sociologist, MA Sociology	15 years	
Mr. Yagya Bahadur Malla	Masters in Highway Engineering	20 years	
Mr. Manil Neupane	M.Sc. in Geology	5 years	



Comments incorporation sheet:

S.N	Comments	Correction
1	Declaration Letter	The declaration letters with expert signature are attached as an annex.
2	Rewrite Chapter 6 and 8	These chapters are reviewed and attached in chapter 6 and 7.
3	Correct and add the technical parts of Project Introduction	The project description chapter is amended as per the issues raised in chapter 2.1, page 7.
4	Rewrite the Rationality part of the project	The rationality is made aligned as per the legal document EPR in chapter 2.4, Page 8.
5	Re-write Relevancy of proposal	The relevancy (legal part as per the EPR, 2076) part is arranged and make correction in chapter 2.3, page 7.
6	Latest data from Municipality/RM rather than census	The data are updated as per the latest information in Chapter 2.8 (Social data) page 16.
7	Add the technical features in Salient Features	The salient features table is updated as per the discussion in Table 2.3.
8	Authorized approved Site	Corrected in page 16 chapter 2.9.
9	Direct Impact Area rather than Direct Impact Zone	Corrected in page 17 Chapter 2.11.
10	Remove F179 from the road alignment title	Removed the F179 in road title.
11	Include the geologist in study team member	Geologist is included in study team member Chapter 5.
12	Durg surrounded by Charra Region, include sharia related issue	This is mentioned in Page 15 Chapter 2.8 (Geology).
13	Include Regional scale Geological map of Nepal	Page 15 Chapter 2.8 Geology.
14	Include Chamage wise rock type, soil type and land type	Detail rock and soil type will be include in IEE report.
15	Please mention the site specific data in existing environment condition	Corrected in Physical, biological socio-economic impacts (chapter 2.8).
16	Mention the existing land use pattern in the road alignment	Mentioned in Table 2-1.
17	Starting and ending point and road connectivity in that point should be mentioned	The starting and end point are corrected (Salient Features Table no 2.3).



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





Annex 3: Public Hearing

a. Public Hearing Minutes

आज गिात २०६८०९/२८ गतेका दिन जसोका सडक लुम्बिनी  
 सुधार आयोजना (RCIP) अर्न्तगत गुल्मी जिल्लाको  
 काभ्रेदण्डमा सुर्खेत नगरपालिका र चन्द्रकोट गाउँपालिका  
 मा पर्ने काभ्रेदण्ड (इन्डिगाडा) आँचौर शान्तिपुर सडक  
 (२३.३२) कि मी को प्रारम्भिक वातावरणीय परीक्षण गर्ने  
 निदाेण सम्पन्नको लागि चन्द्रकोट गा पा का अध्यक्ष जो  
 शैल वहादुर रानी को अध्यक्षतामा र चन्द्रकोट गा पा  
 उपप्रमुख बाधिका अर्थात को विभिन्न आोत्थका र  
 कडा न १, २, ३, ४ का कडा अध्यक्ष सन्धी उपस्थितमा  
 र तपकोट वडाको उपस्थितमा चन्द्रकोट गा पा को  
 सभा हुन मा काभ्रेदण्ड (इन्डिगाडा, आँचौर, शान्तिपुर सडकको  
 प्रारम्भिक वातावरणीय परीक्षणको सविधनीक सुरुवाई भएको  
 सम्पन्न गरियो ।

उपस्थित

- शैल वहादुर रानी (चन्द्रकोट गा पा अध्यक्ष)
- बाधिका अर्थात (चन्द्रकोट गा पा उपप्रमुख)
- जोवेन्द्र बलाल (कडा अध्यक्ष चन्द्रकोट १)
- तन्त्र वहादुर रानी (कडा अध्यक्ष चन्द्रकोट २)
- मिरण खाड (कडा अध्यक्ष चन्द्रकोट ३)
- सरत लाल थापा (कडा अध्यक्ष चन्द्रकोट ४)
- रुकुमा सुर्खेत (गाउँपालिका सभा - चन्द्रकोट - ३)
- रुका सुर्खेत (गाउँपालिका सभा - चन्द्रकोट - ३)
- लक्ष्मण सुर्खेत (चन्द्रकोट - २ गुल्मी)
- रुका सुर्खेत (चन्द्रकोट - ३ गुल्मी)
- कुल कानुनी (चन्द्रकोट ३ सुर्खेत)
- रुद्रलाल गौतम
- सरस्वती कार्की
- रुद्रलाल सुर्खेत
- मिरण सुर्खेत
- सुर्खेत (चन्द्रकोट ४)
- सुर्खेत (चन्द्रकोट ३)





काशीरानी काशीरानी लिक चडा न १ चडा लक्ष्मण  
 नदीच नदीच शर्मा  
 गौरी चट्यापुर थापा चण्डकोट ४  
 रामु पल्लाल  
 सुरण सापकोटा  
 रिल क पुजा  
 लक्ष्मण कुमाल  
 काशीरानी काशीरानी सुवेदी चण्डकोट उगुली  
 सुरण जालम चण्डकोट २ उगुली  
 पुजुमा पुजुमा शर्मा  
 वल्लभ गौतम चण्डकोट २ उगुली  
 दुर्गा दुर्गा थापा " २ "  
 लिला लिला पल्लाल " ४ "  
 पुष्या पुष्या थापा " " "  
 कोपिला कोपिला गौतम चडा लक्ष्मण चडा न २  
 डिलपाराडा लिक  
 कुम्भकार कुम्भकार  
 कुम्भकार कुम्भकार  
 कुम्भकार कुम्भकार शर्मा  
 धनशमान गौतम चण्डकोट-४  
 सुरज खराल चण्डकोट-१  
 डिकारण डिकारण  
 खिलबाल खिलबाल  
 कबला कबला फौदार  
 हिमा हिमा थापा

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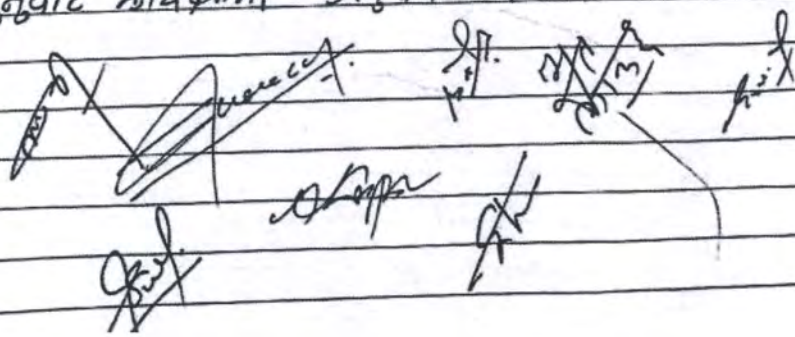
Government of Nepal  
 Ministry of Urban Development  
 Department of Local Infrastructure  
 Rural Connectivity Improvement Project (RCIP)  
 Project Coordination Unit  
 230 Lalitpur





तिर्णय

- १ सडक कटरडबलती गर्दा चिमो जाले चिमकाट किई खोला सभ्भ करीव ३०० मि सभ्भ पोहेले एकतरी रूपमा सडक बनाईएकोले अब चूप वारी बनाउदा कम्ती आगवाट उपविल उडाएट फ्लाउटु पते सर्ववदधत) बर तिर्णय गरियो ।
- २ सडक कटरडबलती गर्दा सडक किनासामा पाणिको कुम्होलेक भएकीले हाँगा, काँगा सिंचाई गरु पते ~~सर्ववदधत~~ प्राणित निकासीको नगो कलगाट, सिपईपु आणिको क्यवन्थापन गरियो पते जाले जफे पाछे सिंचाई मा कुम्होली अवरोध नहीव ।
- ३ सडक कटरडबलती गर्दा मैगीलेक अवस्थाको परियान गरी जमावेव र कम्पट एक निगाठा उछोदिनु पते
- ४ सडक तोकियोले सभ्भपता सुरु गरी तोकियोले सभ्भपता नै अरु इनुपते
- ५ यप सभ्भपतित सडक खडाग्या पते सा.व क्षेत्रवाट वारिन्थवा पोहेनेट र ति सभ्भ खतिरखिकोले कुतेपती वाधा अवरोध इनेईव भति सर्व सध्भतीवाट तिर्णय गरियो ।
- ६ विद्युत्का पेल सडकको सडकलेते क्यवन्थापन गरियोले पते
- ७ सडक किनासामा भएका खानेपावे का पाईप सडकमा छाने भएमा मीपत गरियोले पते ।
- ८ शातलोषर क्यारको पम्की बल देखा हरियाडु मञ्च्याड जाले चौकु सभ्भ करीव २०० मि गेव पोहेनेट र ति र बनाई कते पम्की र कुते कट्यी जाली निपणित भएकी यो भुमगाग्या र ति मा ते जाली निपणित गरी पिच गयोलेले भए वाधो इते विपयो भति गाडपालिकाको उपभो खगोतीर सभ्भपतिय वापो सभ्भके सभ्भते सर्ववदधतकोमा य खुनुवादि कथिकेमा अवरोध गरियो ।







आपन मिति २०६८/०५/२८ उतिहा दिन आश्रीत सडक  
 खोजल सघार आपनता (RIP) अवतगत मुलगी पिलवाडी  
 वापनसुवाइ इन्डिगोडा आपनौर शक्तिशर (इन्डिगोडा शक्तिशर  
 सडक (२२-३३) डि मि मि प्रामुमेक वातावरणीय वास-  
 परिक्षण गरी तिर्नापु सपुवतके लागि मुसिकोट नगरपालिका  
 का नं ४ को कापिलपु आपनौर मा वडा फाइलपु श्री  
 आश्रीतव्य बबरेल लुके प्रहसुतामा र दयातिप वाली  
 बापुनि बापुनीती प्लन प्रतिनिधी वृद्धिपुनी सडकके  
 इपनसुवाइ वापनसुवाइ इन्डिगोडा आपनौर शक्तिशर  
 सडकके प्रामुमेक वातावरणीय परिक्षणके सपुवतीत  
 सुनुवाइ कापुसुन सपुवत गरीयो ।

- उपनवेती**
- १) ~~शक्तिशर~~ आश्रीतव्य बबरेल (वडा फाइलपु गोसिकोट नं.पा
  - २) ~~शक्तिशर~~ गोविन्द शर्मा (वडा सपुवत मुसिकोट नं.पा
  - ३) ~~शक्तिशर~~ लालुमान लालुमान शर्मा " " "
  - ४) ~~शक्तिशर~~ C (शक्तिशर) शक्तिशर शक्तिशर डे.सी मु.नं.पा. २ प्रकाशित उपनवेति
  - ५) ~~शक्तिशर~~ ललाम - ललामगी खरल - " " "
  - ६) ~~शक्तिशर~~ शिवशरदुर डे.सी " " " "
  - ७) ~~शक्तिशर~~ खोशर खरल " " " "
  - ८) ~~शक्तिशर~~ रामशरदुर खरल " " " "
  - ९) ~~शक्तिशर~~ वापुनि लालुमान खरल
  - १०) ~~शक्तिशर~~ शक्तिशर शक्तिशर शक्तिशर
  - ११) ~~शक्तिशर~~ ललाम ललाम शक्तिशर
  - १२) ~~शक्तिशर~~ शक्तिशर शक्तिशर " " "
  - १३) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - १४) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - १५) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - १६) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - १७) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - १८) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - १९) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - २०) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - २१) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "
  - २२) ~~शक्तिशर~~ शक्तिशर शक्तिशर खरल " " "



23	मुसुवा पाडोस	नेका 3 सुनरागफडादी	मुसुवा
24	मुसुवा पाडोस	विष्णुका मण्डलाक	विष्णु
25	"	श्रीमल केवडी	विष्णु
26	"	अमोदी अमनाल खोल	विष्णु
27	"	अमोदी अमनाल खोल	विष्णु
28	"	अमोदी अमनाल खोल	विष्णु
29	"	अमोदी अमनाल खोल	विष्णु
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46	"	अमोदी अमनाल खोल	विष्णु
47	"	अमोदी अमनाल खोल	विष्णु
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54	"	अमोदी अमनाल खोल	विष्णु
55	"	अमोदी अमनाल खोल	विष्णु
56	"	अमोदी अमनाल खोल	विष्णु
57	"	अमोदी अमनाल खोल	विष्णु
58	"	अमोदी अमनाल खोल	विष्णु
59	"	अमोदी अमनाल खोल	विष्णु
60	"	अमोदी अमनाल खोल	विष्णु
61	"	अमोदी अमनाल खोल	विष्णु
62	"	अमोदी अमनाल खोल	विष्णु
63	"	अमोदी अमनाल खोल	विष्णु
64	"	अमोदी अमनाल खोल	विष्णु
65	"	अमोदी अमनाल खोल	विष्णु

निर्णय

1. सडक स्तर उन्नत गरी खा व मित्र पहेनेने एजेन्सको सडक कापण मैसकेने इनाले नुर्तपती कए विस्वा काहुनु नपने मणिले खा व मित्र बोरो निर्माण गर्ने कुर्तपती अक्के अक्षीष नरहेने सक्षमता वाट निर्णय गरियो ।
2. सडक स्तर उन्नत गरी खिचईका कुला इम किरोएमा सुवकले नै मणित गनेरिनु पर्ने ।
3. अशीतोका अवस्थानो परिचान गरी आबयत परिडी ठुठु कककट गरीरिनु पर्ने अफेने गरी खिचईका घडे नुर्तपने सप्तह्या नहीस अति सक्षमता मा निर्णय गरियो ।
4. सडकको नाम परिवर्तन गरी इन्ड्रेगाडा, आपचौर श्रिडः शान्तिपुर बाबेरनु पर्ने निर्णय गरी अक्के सक्षमतामा आपीपनालड अनुरीष गरियो ।







Annex 4: Public Notice and Recommendation Letter

a. Letter of Notice Pasting



श्री ग्रामीण सडक सञ्जाल सुधार आयोजना,  
आयोजना समन्वय इकाइ  
श्रीमहल पुलचोक, ललितपुर।

विषय : सूचना टाँस गरिएको सम्बन्धमा।

आज मिति २०७८/०९/०७ गतेका दिन श्री ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ-श्रीमहल पुलचोक, ललितपुर प्रस्तावक रहेको "वामीटक्सर (इन्द्रेगौडा)-आपचौर-शान्तिपुर" 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 प्रतिनिधिद्वारा यस चन्द्रकोट गाउँपालिका कार्यालयको सूचना पाटीमा टाँसेको व्यहोरा प्रमाणित गरिन्छ।



नेपाल सरकार

संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय

स्थानीय पूर्वाधार विभाग

ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ

श्रीमहल पुलचोक, ललितपुर

वामीटक्सर (इन्द्रेगौडा) – आपचौर – शान्तिपुर सडक आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयारी सम्बन्धि सार्वजनिक सूचना

( प्रकाशित मिति - २०७९/०९/०८ )

लुम्बिनी प्रदेश, गुल्मी जिल्ला, मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा 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 पुलचोक, ललितपुर फोन : ०१-५५३८३०६ ईमेल: rcippcu@gmail.com वेबसाइट: http://www.doli.gov.np/rcip/
प्रस्तावको व्यहोरा	"वामीटक्सर (इन्द्रेगौडा) – आपचौर – शान्तिपुर" सडक निर्माण तथा स्तरोन्नती बाट २२.३३२ कि.मि. सडक कालोपत्रे स्तरमा स्तरोन्नतीभई स्थानीय स्तरमा सहज यातायातको सुविधा उपलब्ध हुनेछ।
प्रभाव पर्ने सबै जिल्ला न.पा. / गा. पा. र वडाहरू	गुल्मी जिल्ला मुसिकोट नगरपालिका वडा नं. ५ र चन्द्रकोट गाउँपालिका वडा नं. १, २, ३ र ४





पत्र संख्या :  
कलसानी नं. ८

चन्द्रकोट गाउँपालिका  
गाउँ कार्यपालिकाको कार्यालय  
शान्तिपुर, लुम्बिनी  
लुम्बिनी प्रदेश, नेपाल



माथि उल्लेखित प्रस्तावित आयोजनाको वातावरणीय अध्ययन प्रतिवेदन तयारी गर्ने क्रममा त्यस क्षेत्रको प्राकृतिक भौतिक प्रणाली, वैश्विक प्रणाली, सामाजिक प्रणाली, सांस्कृतिक प्रणाली र आर्थिक प्रणाली विच के कस्तो प्रभाव पर्दछ भनी यकिन गर्न सो स्थानको स्थानिय तह र वडाहक तथा त्यस क्षेत्रका बिद्यालय, अस्पताल स्वास्थ्य चौकी तथा सरोकारवाला व्यक्ति वा संस्थाको लिखित राय सुझाव लिन आवश्यक भएकोले यो सार्वजनिक सूचना प्रकाशन भएको मितिले सात दिन (७) भित्र आशुम्ने 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 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

सूचना टाँसेको प्रमाणित गर्ने पदाधिकारीको नाम : इन्द्र बहादुर क्षेत्री

पद : प्रमुख प्रशासकीय अधिकृत

दस्तखत :

इन्द्र बहादुर क्षेत्री  
प्रमुख प्रशासकीय अधिकृत



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







“कृषि, पर्यटन, पूर्वाधार र रोजगार, समृद्ध मुसिकोट नगरपालिकाको आधार”  
**मुसिकोट नगरपालिका/Musikot Municipality**

५ नं. वडा कार्यालय Office of Ward No.5,

आपचौर, गुल्मी Aapchaur, Gulmi



च.नं./Ref. No.: १०६०  
प.सं./Des. No.: २०७९/०७९

लुम्बिनी प्रदेश, नेपाल  
Lumbini Province, Nepal

मिति २०७९/०१/१९

श्री ग्रामिण सडक सञ्जाल सुधार आयोजना  
आयोजना समन्वय इकाई  
श्रीमहल पुल्चोक, ललितपुर ।

विषय : सूचना टाँस गरिएको सम्बन्धमा ।

आज मिति २०७९/०१/१९ गतेका दिन, ग्रामिण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई- श्रीमहल पुल्चोक, ललितपुर प्रस्तावक रहेको “वामीटक्सार (इन्द्रेगौडा) – आपचौर – शान्तिपुर” सडक खण्ड निर्माण आयोजनाको प्रारम्भिक वातावरणीय परिक्षण गर्ने कार्यको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयार गर्ने शिलशिलामा निम्न बमोजिमको प्रारम्भिक वातावरणीय परिक्षण तयारी सम्बन्धी, प्रस्तावकले प्रमाणित गरेको, निम्न बमोजिमको सार्वजनिक सूचना परामर्शदाताका प्रतिनिधीले यस वडा कार्यालयको सूचना पाटीमा तोकिएको ब्यहोरा प्रमाणित गरिन्छ ।

नेपाल सरकार

संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय

स्थानीय पूर्वाधार विभाग

ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई

श्रीमहल पुल्चोक, ललितपुर

वामीटक्सार (इन्द्रेगौडा) – आपचौर – शान्तिपुर सडक आयोजनाको प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन तयारी सम्बन्धि सार्वजनिक सूचना  
(प्रकाशित मिति - २०७९/०१/०६)

लुम्बिनी प्रदेश, गुल्मी जिल्ला, मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई द्वारा निम्न बमोजिमको प्रस्ताव कार्यान्वयन गर्न लागिएको छ ।

प्रस्तावकको नाम/ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाई ठेगाना: श्रीमहल, पुल्चोक, ललितपुर फोन : ०१-५५३८३०६ इमेल: rcippea@gmail.com वेबसाइट: <a href="http://www.doli.gov.np/rcip/">http://www.doli.gov.np/rcip/</a>
प्रस्तावको ब्यहोरा	“वामीटक्सार (इन्द्रेगौडा) – आपचौर – शान्तिपुर” सडक निर्माण तथा स्तरोन्नती बाट २२.३३२ कि.मि. सडक कालोपत्रे स्तरमा स्तरोन्नतीभई स्थानीय स्तरमा सडक यातायातको सुविधा उपलब्ध हुनेछ ।
प्रभाव पर्न सक्ने जिल्ला न.पा. / गा. पा. र वडाहरू	गुल्मी जिल्ला मुसिकोट नगरपालिका वडा नं. ५ र चन्द्रकोट गाउँपालिका वडा नं. १, २, ३ र ४

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 यकिन गर्न सो स्थानको स्थानिय तह र वडाहरू तथा

E-mail: [mp5gulmi@gmail.com](mailto:mp5gulmi@gmail.com)

Web-site: [www.musikotmungulmi.gov.np](http://www.musikotmungulmi.gov.np)

क.वा. अध्यक्ष



Government of Nepal  
Ministry of Urban Development  
Department of Local Infrastructure  
Rural Connectivity Improvement Project (RCIP)  
Project Coordination Unit  
Lalitpur 237

नेपाल सरकार  
संघीय मामिला तथा सामान्य प्रशासन विभाग  
विश्वेश्वर, काठमाडौं

“कृषि, पर्यटन, पूर्वाधार र रोजगार, समृद्ध मुसिकोट नगरपालिकाको आधार”

**मुसिकोट नगरपालिका/Musikot Municipality**

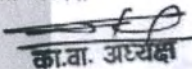
५ नं. वडा कार्यालय / Office of Ward No.5,  
आपचौर, गुल्मी Aapchaur, Gulmi

लुम्बिनी प्रदेश, नेपाल  
Lumbini Province, Nepal

च.नं./Ref. No. : १६४०  
प.सं./Des. No. : २०७८/०७९

त्यस क्षेत्रका बिद्यालय, 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 प्रत्रचार गर्न वा ईमेल पठाउन सकिने छ ।

प्रस्तावक को नाम/ ठेगाना	कार्यालयको नाम: ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ ठेगाना: श्रीमहल पुलचोक, 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

सूचना टाँसेको प्रमाणित गर्ने पदाधिकारीको नाम : गोविन्द खरेल  
पद : का.वा. अध्यक्ष  
दस्तखत :   
का.वा. अध्यक्ष

E-mail: [mn5gulmi@gmail.com](mailto:mn5gulmi@gmail.com) Web-site: [www.musikotmungulmi.gov.np](http://www.musikotmungulmi.gov.np)

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

238

  
नेपाल सरकार  
नगरीय विकास तथा सडक निर्माण विभाग  
दिल्ली, भारत

  
RCIP P.C.U. STAMP





b. Letter of Recommendation



मिति: २०७९/०९/२३

विषय: राय सुझाव सहित सिफारिस गरिएको बारे ।

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

प्रस्तुत विषयमा प्रस्तावक श्री ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ- श्रीमहल पुलचोक, ललितपुर को मिति २०७९/०९/०६ गतेको प्रकाशित सूचना अनुसार कार्यान्वयन हुने सुम्बिनी प्रदेश, गुल्मी जिल्ला, मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा कार्यान्वयन हुने 'वामीटक्सार (इन्द्रेगौडा) – आपचौर – शान्तिपुर सडक निर्माण तथा स्तरोन्नती' आयोजनाको प्रारम्भिक वातावरणीय परीक्षणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा 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 कार्यान्वयन गर्न मिल्ने व्यहोरा सिफारिस साथ अनुरोध छ ।

पदाधिकारीको :

दस्तखत:

नाम: द्रोण बहादुर खत्री

पद: अध्यक्ष

द्रोण बहादुर खत्री  
अध्यक्ष







पत्र संख्या : २०७९/०७९  
चलानी नं. : ४९८

# चन्द्रकोट गाउँपालिका १ नं. वडा कार्यालय

दिपायल, गुल्मी  
लुम्बिनी प्रदेश, नेपाल



मिति: २०७९/०९/२३

श्री ग्रामिण सडक सन्जाल सुधार आयोजन

आयोजना समन्वय इकाइ,

श्रीमहल, पुलचोक ललितपुर ।

विषय : राय सुझाव सहित सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा प्रस्तावक श्री ग्रामिण सडक सन्जाल सुधार आयोजना, आयोजना समन्वय इकाइ श्रीमहल, पुलचोक ललितपुरको मिति २०७९/०९/०६ को प्रकाशित सूचना अनुसार कार्यान्वयन हुने लुम्बिनी प्रदेश, गुल्मी जिल्ला, मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा कार्यान्वयन हुने "बामीटक्सार (इन्द्रेगौडा)-आपचौर-शान्तिपुर सडक निर्माण तथा स्तरोन्नति" आयोजनाको प्रारम्भिक वातावरणीय परिक्षण गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रको निम्नानुसारको वातावरणीय प्रभाव पर्न जाने देखिन्छ ।

क) सकारात्मक प्रभावहरू

ख) नकारात्मक प्रभावहरू

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



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

का.वा. वडा अध्यक्ष



**चन्द्रकोट गाउँपालिका**

**२ नं. वडा कार्यालय**

**विशुखर्की गुल्मी**

सुम्बिनी प्रदेश/चीपौत

पत्र संख्या : ०६८/०६६  
संमानी नं. : ३६५

मिति ०६८/११/२२

श्री ग्रामिण सडक समन्वय समिति सडक कार्यक्रम आयोजना  
समन्वय टोलाड श्रीमहाल पुनकोक शान्तिपुर

विषय : मिश्रित सडकको सम्बन्धमा ।

उपरोक्त विषयमा प्रस्तावित सडक ग्रामिण सडक समन्वय समिति सडक कार्यक्रम अन्तर्गत यस मुल्यो  
जिल्लाको शान्तिपुर नगरपालिका र चन्द्रकोट गाउँपालिका पर्ने सडक खण्ड इन्द्रमौडा आषधीर शान्तिपुर  
सडकको प्राथमिक योजनागत परियोजनाको रूपमा सरकारको प्राथमिकतामा चन्द्रकोट  
गाउँपालिका वडा नं. ०२ विकासमा सावधानिक अनुदान गरी प्रस्तावित सडक निर्माण कार्य गराउन  
कने बाडा सधन व्यहोरा तमी मिश्रित सडक जस्तो छ ।

०६८/११/२२  
रमेश शर्मा  
वडा अध्यक्ष

रमेश शर्मा  
वडा अध्यक्ष





**चन्द्रकोट गाउँपालिका**  
**३ नं. वडा कार्यालय**  
**हराचौर, गुल्मी**  
**लुम्बिनी प्रदेश, नेपाल**

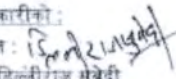
पत्र संख्या : ०५०/१५९  
बनानी नं. : ६०९

मिति : २०७५/०३/१३

विषय : राप सुकाव सहित सिफारिस गरिएको बारे ।

श्री ग्रामिण सडक संजाल सुधार आयोजना,  
आयोजना समन्वय एकाई  
श्रीमहल पुल्चोक, ललितपुर।

प्रस्तुत विषयमा प्रस्ताव श्री ग्रामिण सडक संजाल सुधार आयोजना आयोजना समन्वय एकाई श्रीमहल पुल्चोक, ललितपुर को मिति २०७५/०१/०६ गतेको प्रकाशित मुकता अनुसार कार्यान्वयन हुने लुम्बिनी प्रदेश गुल्मी जिल्ला मुनिकोट नगरपालिका र अन्द्रकोट गाउँपालिका साउँठपालिकामा कार्यान्वयन हुने वामीटणमार (इन्द्रेचौडा)-आपचौर-शान्तिपुर सडक निर्माण तथा पारोखनि आयोजनाको प्रम्बिक बातावरणीय परिश्रणको गर्ने बातावरणीय परिश्रणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा नकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्यूनीकरण गर्ने बातावरणीय आवम्भापनको योजना कार्यान्वयन गर्दा उल्लेखित प्रस्तावको नकारात्मक प्रभाव नकारात्मक प्रभावभन्दा कम हुने देखिएकाले उल्लेखित प्रस्ताव कार्यान्वयन गर्ने मिल्ने आँडोका सिफारिस साथ अनुरोध छ।

प्रदाधिकारीको :  
दस्तावेज :   
नाम : दिलीराज सुबेदी  
पद : वडा अध्यक्ष  
दिलीराज सुबेदी  
वडा अध्यक्ष



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पत्र संख्या : २०७९/०३  
चलानी नं. : १०५३

चन्द्रकोट गाउँपालिका  
४ नं. वडा कार्यालय  
शान्तिपुर, गुल्मी  
लुम्बिनी प्रदेश, नेपाल



मिति:-२०७९/०३/१४

विषय:-राय सुझाव सहित सिफारिस गरिएको बारे।

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

प्रस्तुत विषयमा प्रस्तावक श्री ग्रामीण सडक सञ्जाल सुधार आयोजना, आयोजना समन्वय इकाइ,  
श्रीमहल पुल्चोक, ललितपुरको मिति २०७९/०१/०६ गतेको प्रकाशित सूचना अनुसार कार्यान्वयन  
हुने लुम्बिनी प्रदेश, गुल्मी जिल्ला, मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा कार्यान्वयन  
हुने "वामीटक्सार (इन्द्रेगौडा)-आपचौर-शान्तिपुर सडक निर्माण तथा स्तरोन्नती" आयोजनाको  
प्रारम्भिक वातावरणीय परीक्षण गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा सकारात्मक प्रभाव  
अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्यूनीकरण गर्ने वातावरणीय व्यवस्थापनको योजना कार्यान्वयन  
मर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव नकारात्मक प्रभाव भन्दा कम हुने देखिएकोले  
उल्लेखित प्रस्ताव कार्यान्वयन गर्न मिल्ने व्यहोरा सिफारिस साथ अनुरोध छ।

०६/०३/१४

(बल बहादुर बस्नेत)

वडा अध्यक्ष  
बल बहादुर बस्नेत  
वडा अध्यक्ष



Government of Nepal  
Ministry of Urban Development  
Department of Local Infrastructure  
Rural Connectivity Improvement Project - RCIP  
Project Coordinator  
Lalitpur

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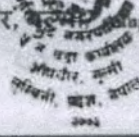
“कृषि, पर्यटन, पूर्वाधार र रोजगार, समृद्ध मुसिकोट नगरपालिकाको आधार”  
**मुसिकोट नगरपालिका/Musikot Municipality**

५ नं. वडा कार्यालय / Office of Ward No.5,

आँपचौर, गुल्मी Aapchaur, Gulmi

ब.नं./Ref. No.: १२३९

प.सं./Des. No.: २०७८/०७९




लुम्बिनी प्रदेश, नेपाल  
Lumbini Province, Nepal

मिति: २०७९/०१/२२

बिषय :- राय सुझाव सहित सिफारिस गरिएको बारे ।

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

प्रस्तुत विषयमा प्रस्तावक श्री ग्रामीण सडक सञ्जाल सुधार आयोजना आयोजना समन्वय इकाइ श्रीमहल पुलचोक ललितपुर को मिति २०७८/०१/०६ गतेको प्रकाशित सूचना अनुसार कार्यान्वयन हुने लुम्बिनी प्रदेश गुल्मी जिल्ला मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा कार्यान्वयन हुने “वामीटक्सार(इन्द्रेगौडा )आँपचौर-शान्तिपुर सडक निर्माण तथा स्तरन्नोती आयोजनाको प्रारम्भिक वातावरणिय परीक्षणको गर्ने कार्यको विषयको प्रस्तावबाट यस क्षेत्रमा सकारात्मक प्रभाव अभिवृद्धि गर्ने र नकारात्मक प्रभाव न्यूनिकरण गर्ने वातावरणीय व्यवस्थापनको योजना कार्यान्वयन गर्दा उल्लेखित प्रस्तावको सकारात्मक प्रभाव नकारात्मक प्रभावभन्दा कम हुने देखिएकोले उल्लेखित प्रस्ताव कार्यान्वयन गर्न मिल्ने ब्यहोरा सिफारिस साथ अनुरोध छ ।

  
अधिवर अर्याल  
वडा अध्यक्ष

अधिवर अर्याल  
वडा अध्यक्ष

E-mail: [mn5gulmi@gmail.com](mailto:mn5gulmi@gmail.com)

Web-site: [www.musikotmugulmi.gov.np](http://www.musikotmugulmi.gov.np)





श्री अजम्बरा सामुदायिक वन उपभोक्ता समूह

च.नं. ०९  
प.सं. २०७८/०७५  
प्राप्त पत्र संख्या र मिति :



मिति : २०७८/११/१६मा

विषय : सहमति दिईएको बारे ।

श्री ग्रामिण सडक संजाल सुधार कार्यक्रम  
आयोजना समन्वय ईकाइ  
श्रीमहलपुल्चोक, ललितपुर

उपरोक्त संबन्धमा गुल्मी जिल्ला मुसिकोट नगरपालिका वडा नं ५ देखि चन्द्रकोट गाउँपालिका वडा नं ५ शान्तिपुर सम्मको मोटरबाटो स्तरबृद्धि गरी कालोपत्रे गर्ने सम्मको आयोजना संचालन हुवाँ मु.पा. ५ औपचौर खण्डमा अजम्बरा सामुदायिक वन क्षेत्र भित्र पर्दछ । त्यस वनक्षेत्रमा पहिले देखिनै आवश्यक ट्रेक तयारभई संचालनमा आएको, अव विस्तारमा समेत यसक्षेत्र भित्र रुख विरुवालाई कुनै क्षति नहुने हुवाँ उक्त सडकलाई स्तरबृद्धिमा लैजान सहमति दिने समितिको निर्णय समेत भएको निवेदन सहित जानकारी मराउदछु ।

श्रीमराज अर्याल

अजम्बरा सामुदायिक वन उपभोक्ता समिति  
अध्यक्ष

मो.नं ९८६७५२००८०



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







दिव्रुङ्ग अर्जेवा सामुदायिक वन उपभोक्ता समुह  
ध, गुल्मी

चलानी नं. : १७

पत्र संख्या : २०७८/११/१८



मिति : २०७८/११/१८

श्री ग्रामिण सडक संजाल सुधार कार्यक्रम

आयोजना समन्वय ढुंकाड

श्रीमहल, पुल्चोक, ललितपुर ।

विषय :- सिफारिस गरिएको सम्बन्धमा ।

उपरोक्त सम्बन्धमा प्रस्तावित सडक ग्रामिण सडक संजाल कार्यक्रम अन्तर्गत यस गुल्मी जिल्लाको मुसिकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा पर्ने सडक खण्ड इन्द्रे गौडा-आपचौर शान्तिपुर सडकको प्रारम्भिक वातावरणीय परिक्षणको क्रममा मिति २०७८/०९/२८ गतेका दिन सरोकारवालाहरुको उपस्थितिमा चन्द्रकोट गा.पा. सभाहल -०४ मा सार्वजनिक सुनुवाई गरी प्रस्ताविक सडक निर्माण कार्य गराउन कुनै बाधा नपर्ने व्यहोरा सिफारिस साथ अग्रुोध छ ।

(दुर्गादत्त खरेल)

अध्यक्ष

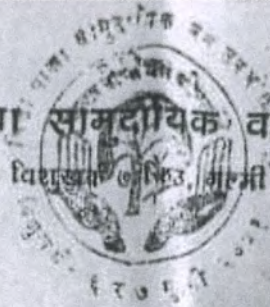
अध्यक्ष





क.सं. -  
प.सं. -

### श्री चिसापाखा सामुदायिक वन उपभोक्ता समिति



मिति २०७५ [११] २१

विषय ~~सिफारिस गरिएको~~ सन्वयमा

श्री ग्रामीण सडक सञ्जाल सुधार कार्यक्रम  
आयोजना कार्यान्वयन इकाई  
श्री प्रहल काठमाडौं ।

प्रस्तुत विषयमा प्रस्तावित सडक ग्रामीण सडक सञ्जाल सुधार कार्यक्रम अन्तर्गत यस गुल्मी जिल्लाको चुलीकोट नगरपालिका र चन्द्रकोट गाउँपालिकामा पर्ने सडकखण्ड इन्द्रेगौडा आपचौर शान्तिपुर सडकको प्रारम्भिक वला-वरीय परिश्रमको क्रममा सरोकारवालाहरूको क्रमसमा प्रपिष्टतिमा चन्द्रकोट गा.पा. वडा नं. १ विशुखर्कमा पर्ने चिसापाखा सामुदायिक वनमा हाल सडकको चौडाई १०मी भएको र अत्र सडक विस्तारको क्रममा कुनैपनि कश्व कशान नहुने भएको हुदा सडक निर्माण कार्य गर्दा कुनै बाधा नपर्ने गरी छिफारिस साथ अनुरोध इ।

यज्ञश्रुति रबरेल

अध्यक्ष  
यज्ञश्रुति रबरेल






c. Publication of Notice on Newspaper

40 BISHOP CORNER  
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सुदूरपश्चिम प्रदेश

# मध्याह्न


राष्ट्रिय दैनिक



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## राजनीतिक कोर्स नबदलिए थप संकट

असन्तुष्ट  
फकाउने गाह्रो



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जना छोरा छन् । परिवारको एक मात्र सहारा शिवमंगलको मृत्यु पश्चात उनकी श्रीमती जशोदा देवीलाई छोरीहरुको लालनपालन गर्ने हम्मेहम्मे परिरेको छ । उनले जेनतेन गरेर छोरीहरुको पढाई र घर खर्च जुटाउँदै आएकी छिन् ।

रुपमा ५१ हजार रुपैयाँ सहयोग गरेका छन् । यस्तै, सुखारी पटेल र जोगिन्द्र पटेलले पनि विवाह सम्पन्न गर्नका लागि ५/५ हजार रुपैयाँ सहयोग गरेका छन् । बडा अध्यक्ष पटेल एक शालिन, भद्र र सामान्य रहन सहनमा रमाउने युवा नेता हुन् ।

**नेपाल सरकार ।**

**संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय**  
**स्थानीय पूर्वाधार विभाग**  
**प्राथमिक सडक संजाल सुधार आयोजना श्रीमङ्गल, ललितपुर**

प्रस्तावित सडक खण्डहरूको प्रारम्भिक वातावरणीय परिक्षण प्रतिवेदन तयारी सम्बन्धि सार्वजनिक सूचना

**प्रकाशित मिति: २०७९/०१/१०**

नेपाल सरकार, संघीय मामिला तथा सामान्य प्रशासन मन्त्रालय, स्थानीय पूर्वाधार विभाग, प्राथमिक सडक संजाल सुधार आयोजना श्रीमङ्गल, ललितपुरद्वारा लुम्बिनी प्रदेशमामात्र बमोजिम प्रस्ताव कार्यान्वयन गर्ने लागिएको छ ।

<p>प्रस्ताव १ को व्यहोरा / प्रभाव पर्ने सक्ने जिल्ला (सा.पा. / न.पा.)</p>	<p>रुपन्देही जिल्लाको रोहिणी गाउँपालिका बगवानपुर बाट सुरु भद्र देवदह नगरपालिकाको खैरेनी मा अन्त्य हुने बगवानपुर-धकचुई-खैरेनीसडक खण्ड (२२.८२ कि.मि.) (क्षेत्रीयकार केन्द्र रेखाबाट दायिबायाँ दुवैतर्फ १०/१० मि. गरि जम्मा २० मि.) कार्यापत्र सडक स्तरोन्नति भई सुविधा प्रदान गर्ने ।</p> <p>रुपन्देही जिल्ला रोहिणी गाउँपालिका बाई नं. २, ३, आभसलिया गाउँपालिका बाई नं. ५, ६, ७ र देवदह नगरपालिका बाई नं. १, २, ३, ४, ५, ७, ८, ११ र १२ ।</p>
<p>प्रस्ताव २ को व्यहोरा / प्रभाव पर्ने सक्ने जिल्ला (सा.पा. / न.पा.)</p>	<p>बाइ जिल्लाको धौलागढ उप-महानगरपालिका विजौरी बाट सुरु भद्र तुलसीपुर उप-महानगर पालिकाको कोडागढी अन्त्य हुने विजौरी-बायदवाग-जाम्नी-तुलसीपुर-दक्षिण कुरिया-बाज्यावर-कोडागढी सडकखण्ड (१२.५८० कि.मि.) (क्षेत्रीयकार केन्द्र रेखाबाट दायिबायाँ दुवैतर्फ १०/१० मि. गरि जम्मा २० मि.) कार्यापत्र सडक स्तरोन्नति भई सुविधा प्रदान गर्ने ।</p> <p>बाइ जिल्लाधौलागढी उप-महानगरपालिका बाई नं. ५ र तुलसीपुर उप-महानगरपालिका बाई नं. १२, १६ र १८ ।</p>
<p>प्रस्ताव ३ को व्यहोरा / प्रभाव पर्ने सक्ने जिल्ला (सा.पा. / न.पा.)</p>	<p>गुल्मी जिल्लाको मुसिकोट नगरपालिका बामीटक्सार (इन्वेन्ट्री)बाट सुरु भद्र चन्द्रकोट गाउँपालिकाको शालिपुरमा अन्त्य हुने बामीटक्सार-आपथीर-शालिपुर सडक खण्ड (२२.३३२ कि.मि.) (क्षेत्रीयकार केन्द्र रेखाबाटदायाँबायाँ दुवैतर्फ १०/१० मि. गरि जम्मा २० मि.) कार्यापत्र सडक स्तरोन्नति भई सुविधा प्रदान गर्ने ।</p> <p>गुल्मी जिल्ला मुसिकोट नगरपालिका बाई नं. ५ र चन्द्रकोट गाउँपालिका बाई नं. ४ ।</p>

साथि उल्लेखित प्रस्तावको प्रारम्भिक वातावरणीय परिक्षण तयारी गर्ने क्रममा यो क्षेत्रको प्राकृतिक, भौतिक, जैविक, सांस्कृतिक र आर्थिक प्रणालीबीच के कस्तो प्रभाव पर्नेछ भनि यकिन गर्न स्रो स्थानको नगरपालिका, वडा कार्यालय, विद्यालय, समुदायक बन, अस्पताल, स्वास्थ्य चौकी, सरकारीबाला व्यक्ति, सस्थाको लिखित राय सुन्काव विन आवश्यक भएकाले यो सार्वजनिक सूचना प्रकाशन भएको मितिले ७ दिन भित्र निम्न ठेगानामा आइपुग्ने गरि लिखित राय सुन्काव उपलब्ध गराइयिनु हुन अनुरोध गरिन्छ ।

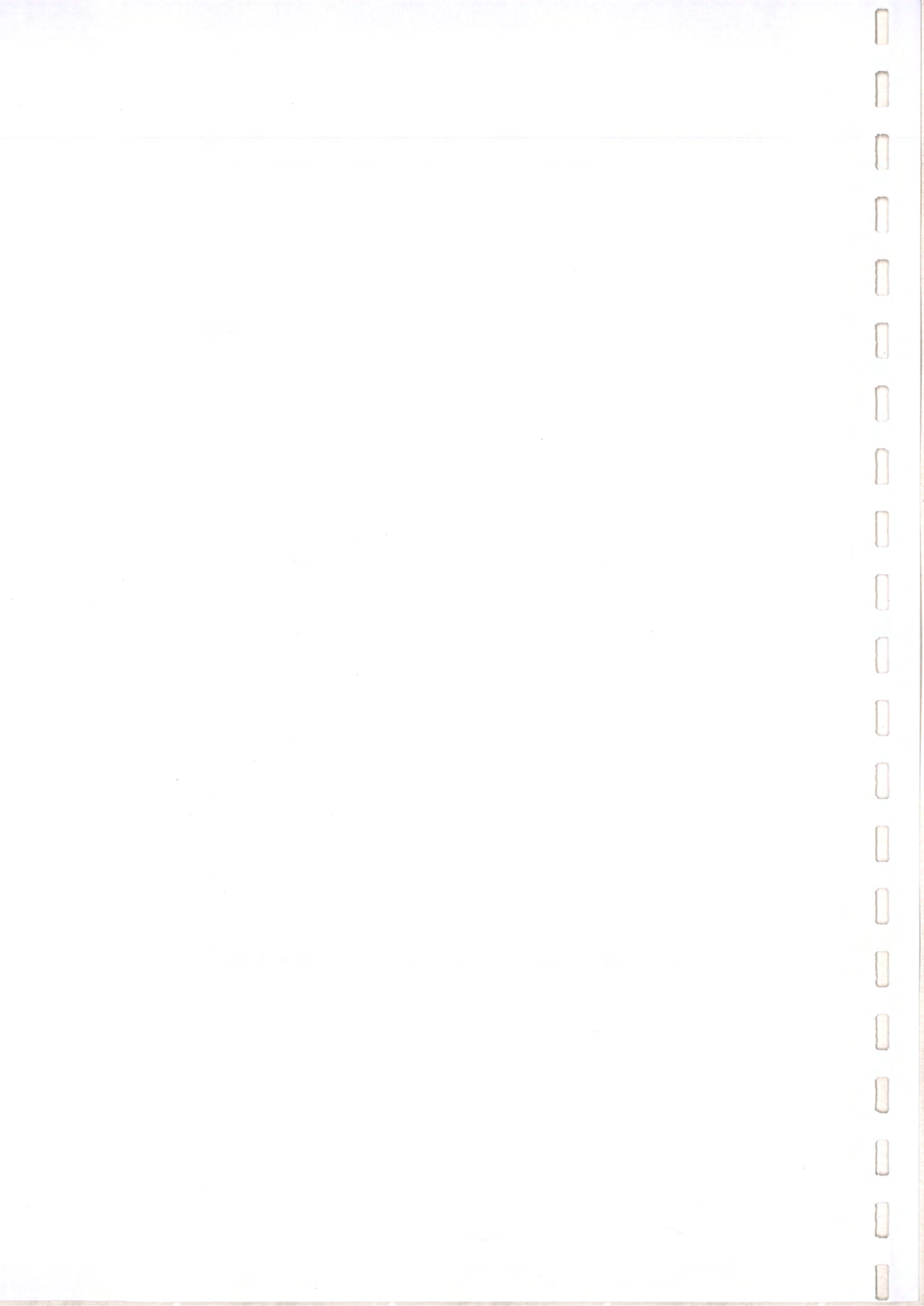
**राय सुन्कावको लागि पत्राचार गर्ने ठेगाना**

<p><b>प्रस्तावकर्ताको नाम र ठेगाना:</b> प्राथमिक सडक संजाल सुधार आयोजना आयोजना समन्वय इकाई स्थानीय पूर्वाधार विभाग श्रीमङ्गल, मुल्कोट, ललितपुर फोन: ०१-५२६०५०५</p>	<p><b>परामर्शदाताको नाम र ठेगाना:</b> IFECO Nepal and Inclusive J.V सीतापाइला, काठमाडौं, नेपाल फोन: ०१-५२६१०१६ इमेल: iteco.inclusive@gmail.com</p>
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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 Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
1	0+020	Yagya Lal Bhandari	Aapchaur -6		3m		2m	Land
2	0+030	Krishna Lal Bhandari	Aapchaur -6		3m	2m		Land
10	0+100	Dip Jyoti Boarding School	Aapchaur -6		4m		2m	Land
4	0+060	Tara Prasad Kharal	Aapchaur -6		3m	2m		Land
5	0+230	Pabitra Kharal	Aapchaur -6		3m	2m		Land
6	0+500	Dhirendra KC, Gita KC	Aapchaur -6	206, 525	3m		2m	Land
7	0+520	Khadka Bahadur Kharal	Aapchaur -6		3m		2m	Land
8	0+540	Chandra Kanta Bhandari	Aapchaur -6		3m		2m	Land
9	0+550	Tika Ram Aryal	Aapchaur -6		4m		1.5m	Land
11	0+10	Khimananda	Aapchaur -6		4m	1.5m		Land
12	0+150	Kusmakhar Kharel	Aapchaur -6		4m	2m		Land
13	0+150	Dilaram Kharal	Aapchaur -6		4m		1.5m	Land
14	0+150	Taman Giri	Aapchaur -6		4m		1.5m	Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
15	0+150	Ramprasad Bhandari	Aapchaur -6		4m		1.5m	Land
16	0+150	Khimlal Kharal	Aapchaur -6		4m	1.5m		Land
17	0+150	Khageswor Kharal	Aapchaur -6		3.5m	2m		Land
18	0+150	Susma Kharal	Aapchaur -6		3m		2m	Land
19	0+150	Runnata Kharal	Aapchaur -6		3m		2m	Land
20	0+150	Khimanda Dharendra Pitambar	Aapchaur -6		3m		2m	Land
21	0+150	Yogprasad Bhandari	Aapchaur -6		4m		1.5m	Land
22	0+620	Isworiprasad Kharal	Aapchaur -6		3.5m	2m		Land
58	3+700	Loknath Aryal	Aapchaur-1	222, 229, 266, 267	4m	1.5m		Land
59	3+710	Ganpati Kharel	Aapchaur-3	1083	4m	1.5m		Land
23	3+745	Keshavraj Aryal	Aapchaur-4	259	4m		1.5m	Land
24	3+760	Public Pauwa	Aapchaur-4		4m	1.5m		Land
25	0+150	Maya Aryal	Aapchaur-4		4m		1.5m	Land
26	0+150	Durga Aryal	Aapchaur-4		4m		1.5m	Land
27	0+150	Tikaram Aryal	Aapchaur-4		4m		1.5m	Land
28	0+150	Chhabilal Kharel	Aapchaur-1	938, 939	4m	1.5m		Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
29	0+150	Chandrakanta Bhandari	Aapchaur-4	212, 266	4m		1.5m	Land
30	0+150	Govinda Aryal	Aapchaur-4		4m		1.5m	Land
31	0+150	Padampani Aryal	Aapchaur-4		4m		1.5m	Land
32	0+150	Lila Chandra Aryal	Aapchaur-4		4m		1.5	Land
33	0+150	Aanandi Aryal	Aapchaur-1	805	4m		1.5	Land
34		Dundiraj Tiwari	Aapchaur-4	815, 660	4m		1.5	Land
35		Bodhsali Tiwari	Aapchaur-1	543,514	4m		1.5	Land
36		Jhabilal Aryal	Aapchaur-4		4m	1.5		Land
37		Khimananda Kharal	Aapchaur-2		4m		1.5	Land
38		Rishiswor Aryal	Aapchaur-1	69	4.5m	1.5m		Land
39		Dil Bahadur GC	Aapchaur – 2	182	4.5m	1.5m		Land
40		Purnabhadr Sapkota	Aapchaur-4	713	4m		1.5m	Land
41		Loknath Aryal	Aapchaur-1		4m		1.5 m	Land
42		Lekhnath Aryal	Aapchaur-1		4m	1.5 m		Land
43		Keshshavraj Aryal	Aapchaur-4		4m		1.5 m	Land
44		Pitambar Bhandari	Aapchaur – 2		4m		1.5m	Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
45					4m			Land
46		Premprasad Kharel	Aapchaur-2		4.5m		1.5m	Land
47		Dundiraj Kharel	Aapchaur-2		4m		1.5m	Land
48		Tikaram Kharel	Aapchaur-1	38	4m		1.5m	Land
49		Jivalal Kharel	Aapchaur-1		4m		1.5	Land
50		Baburam Aryal	Aapchaur-1		3.7m		1.7	Land
51		Ramprasad Aryal	Aapchaur-1		4.5m		1.5m	Land
52	4=140	Bhagirath Kharel	Aapchaur-4	396	4.5m		1.5m	Land
53		Sheskanta Kharel	Aapchaur-2		4.5m	1.5m		Land
54		Yubraj Kharel	Aapchaur-2		4.5m	1.5m		Land
55		Pitambar Bhandari	Aapchaur-2	179	4.5m		1.5	Land
56		Premprasad Kharel	Aapchaur-1		4.5m	2m		Land
57		Lekhnath Aryal	Aapchaur-1		4m	2m		Land
61		Arjun Gautam	Dibrung – 6		3m	2m		Land
62		Himlal Sapkota	Dibrung – 6		3m	2m		Land
63		Homnath Aryal	Dibrung – 6		3m		2m	Land
64		Dilnath Sapkota	Dibrung – 6		3m	2m		Land
65		Rikhiram Sapkota	Dibrung – 6		3m	2m		Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
66		Toplal Kharel	Dibrung – 6		3m	2m		Land
67		Yamkala Kharel	Dibrung – 6		3m	2m		Land
68		Sheskanta Gautam	Dibrung – 6		3m	2m		Land
69		Khum Prasad	Dibrung – 6		3m		2m	Land
70		Balkrishna Kharel	Dibrung – 6		3m		2m	Land
71		Hit Kumar Kharel	Dibrung – 6		3m	2m		Land
72		Devidanta Kharel	Dibrung – 6		3m	2m		Land
73		Durga Datta Kharel	Dibrung – 6		3m		2m	Land
74		Saraswoti Kharel	Dibrung – 6		3m		2m	Land
75		Devi Prasad Kharel	Dibrung – 6		3m		2m	Land
76		Baburam Kharel	Dibrung – 6		4m		2m	Land
77		Bikram Kami	Dibrung – 6		4m	1.5m		Land
78		Himlal Kharel	Dibrung – 6		4m	1.5m		Land
79		Rudra Prasad Kharel	Dibrung – 6		4m		1.5m	Land
80		Kaladhar Kharel	Dibrung – 6		4m		1.5m	Land
81		Yadav Kharel	Dibrung – 6		4m	1.5m		Land

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S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
82		Dilram Gautam	Dibrung – 6		4m	1.5m		Land
83		Topkala	Dibrung – 6		4m	1.5m		Land
84		Harikala Kharel	Dibrung – 6		4m		1.5m	Land
85		Himlal Gautam	Dibrung – 6		3.5m	1.5m		Land
86		Dilram Kharel	Dibrung – 6		4m	1.5m		Land
87		Rabilal Aryal	Dibrung – 6	382, 383	4m		1.5m	Land
88		Rishiram Devkota	Dibrung – 6	81	4m		1.5m	Land
89		Shyam Bahadur BK	Dibrung – 6		4m	1.5m		Land
90		Jit Bahadur BK	Dibrung – 6	149	4m	1.5m		Land
91		Shanta BK	Dibrung – 6	188	4m		1.5m	Land
92		Krishna Lal Kharel	Dibrung – 6	88,176	4m		1.5m	Land
93		Prem Bahadur BK	Dibrung – 6	604, 646	4m	1.5m		Land
94		Devi Ram Aryal	Dibrung – 6		4m	1.5m		Land
95		Chet Narayan Aryal	Dibrung – 6	181	4m	1.5m		Land
96		Ganga BK	Dibrung – 6		4m	1.5m		Land
97		Khimananda Aryal	Dibrung – 6	350,351	4m	1.5m		Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
98		Ghan Shyam Kharel	Dibrung – 6		4m	1.5m		Land
99		Karna Bahadur BK	Dibrung – 6		4m	1.5m		Land
100		Homnath Sapkota	Dibrung – 6	195	4m	1.5m		Land
101		Sumanta Sapkota	Dibrung – 6	191	4m		1.5m	Land
102		Khimananda Aryal	Dibrung – 6	189	4m		1.5m	Land
103		Dhani Kharel	Dibrung – 6	4, 10, 129	4m		1.5m	Land
104		Nanda Ram Kharel	Dibrung – 6	2	4m		1.5m	Land
105		Prakash Kharel	Dibrung – 6		4m	1.5m		Land
106		Devi Prasad Kharel	Dibrung – 6		4m		1.5m	Land
107		Kul Chandra	Dibrung – 6		4m		1.5m	Land
108		Laxmi Kharel	Dibrung – 6		4m		1.5m	Land
109		Tek Bahadur BK	Dibrung – 6	353, 354	4m		1.5m	Land
110		Kamala BK	Dibrung – 6		4m		1.5m	Land
111		Dandapani Aryal	Dibrung – 6		4m	1.5m		Land
112		Khom Prasad Gautam	Dibrung – 6		4m	1.5m		Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
113		Devi Prasad Kharel	Dibrung – 6		4m	1.5m		Land
114		Dilaram Kharel	Dibrung – 6		4m		1.5m	Land
115		Dinanath Sapkota	Dibrung – 6		4m		1.5m	Land
116		Gokarna Aryal	Dibrung – 6		4m		1.5m	Land
117		Rikhi Ram Sapkota	Dibrung – 6		4m	1.5m		Land
118		Durga Kharel	Dibrung – 6	11, 15	4m	1.5m		Land
119								Land
120		Dil Bahadur Pun	Biskharka-4	1516	5m	1.5m		Land
121		Durga Bahadur Pun	Biskharka-4	1515	5m	1.5 m		Land
122		Chitra Bahadur Kumal	Biskharka-4	995	4m		1.5m	Land
123		Kashinath Subedi	Biskharka-4		4m		1.5m	Land
124		Ved Prakash Aryal	Biskharka-4	1771	4m	1.5m		Land
125		Bishnu Pun	Biskharka-4	1681	4m	1.5m		Land
126		Iswori Prasad Subedi	Biskharka-4		4m		1.5m	Land
127		Kul Bahadur Pulami	Biskharka-4	523, 526	4m	1.5m		Land



S. N	Tentative Chain age	Name of Land owner	Address	Parcels No.	Existing Land width (m)	Additional Land Required (m)		Impacted type
		(As per consultation)				LHS	RHS	
128		Tilak Raj Aryal	Biskharka-4	1706	4.5m		1.5m	Land
129		Laxman Subedi	Biskharka-4	537	4.5m	1.5m		Land
130								Land
131		Kishan BK	Chandrakot-2		4m	1.5m		Land
132		Janajyoty Primary	Chandrakot-2		4.5m	1m		Land
133		Mitralal Gautam	Chandrakot-2		4m	1.5m		Land
134		Dil Rana	Chandrakot-2		4m	1.5m		Land
135		Dilliraj Sharma	Chandrakot-2		4m		1.5m	Land



## Annex 6: Demographic Information of Local Unit of Proposed Road Alignment

TABLE 30: POPULATION OF LOCAL LEVEL

Sn.	Local Level	Ward No.	Household	Population		
				Total	Male	Female
1.	Musikot Municipality	1	1,088	5,236	2,328	2,908
		2	857	4,033	1,730	2,303
		3	720	3,290	1,441	1,849
		4	1,009	4,762	2,032	2,730
		5	915	3,900	1,639	2,261
		6	708	3,112	1,317	1,795
		7	747	3,567	1,573	1,994
		8	576	2,792	1,202	1,590
		9	455	2,110	947	1,163
<b>Total</b>			<b>7,075</b>	<b>32,802</b>	<b>14,209</b>	<b>18,593</b>
Sn.	Local Level	Ward No.	Household	Total	Population	
					Male	Female
2.	Chandrakot Rural Municipality	1	451	2,082	899	1,183
		2	537	2,413	1,042	1,371
		3	444	1,829	797	1,032
		4	910	3,865	1,710	2,155
		5	504	2,329	989	1,340
		6	436	1,869	798	1,071
		7	878	3,518	1,446	2,072
		8	961	3,922	1,714	2,208
<b>Total</b>			<b>5,121</b>	<b>21,827</b>	<b>9,395</b>	<b>12,432</b>
<b>Total</b>	<b>Musikot Municipality + Chandrakot Rural Municipality</b>		<b>12,196</b>	<b>54,629</b>	<b>23,604</b>	<b>31,025</b>

(Source: [https://cbs.gov.np/wpcontent/uploads/2018/12/Population\\_Ward\\_Level\\_753\\_Local\\_Unit.pdf](https://cbs.gov.np/wpcontent/uploads/2018/12/Population_Ward_Level_753_Local_Unit.pdf))

TABLE 31: POPULATION OF PROJECT-AFFECTED WARDS

Sn.	Local Level	Ward No.	Household	Population			Major Settlements in alignments	Major Caste/ Ethnicity
				Total	Male	Female		
1.	Musikot Municipality	5	915	3,900	1,639	2,261	Indregauda, Thumki, Aapchaur	Brahman, Kshetri, Dalit
2.	Chandrakot Rural Municipality	1	451	2,082	899	1,183	Dibrung, Arjewa, Sarang	Brahman, Kshetri, Janajati, Dalit



Sn.	Local Level	Ward No.	Household	Population			Major Settlements in alignments	Major Caste/ Ethnicity
				Total	Male	Female		
3.	Chandrakot Rural Municipality	2	537	2,413	1,042	1,371	Banjyang, Kihu, basdanda,	Brahman, Kshetri, Dalit
4.	Chandrakot Rural Municipality	3	444	1,829	797	1,032	Dhaba,	Brahman, Kshetri, Dalit
5.	Chandrakot Rural Municipality	4	910	3,865	1,710	2,155	Shantipur, nayabasti	Brahman, Kshetri, Dalit
<b>Total</b>			<b>3257</b>	<b>14,089</b>	<b>6,087</b>	<b>8,002</b>		

(Source: [https://cbs.gov.np/wpcontent/uploads/2018/12/Population\\_Ward\\_Level\\_753\\_Local\\_Unit.pdf](https://cbs.gov.np/wpcontent/uploads/2018/12/Population_Ward_Level_753_Local_Unit.pdf))

#### Annex 7: Health and Education Status

S.n	Rural Municipality/ Municipality and wards	Healthpost/ Sub- Healthpost	Education status		
			Basic/ Primar y	Second ary	Camp us
1	Musikot Municipality- ward no.- 5	1	5	2	0
2	Chandarkot Rural Municipality- ward no.- 1	1	4	1	0
1	Chandarkot Rural Municipality- ward no.- 2	1	6	1	0
4	Chandarkot Rural Municipality- ward no.- 3	1	5	1	0
5	Chandarkot Rural Municipality- ward no.- 4	1	6	2	1
<b>Total</b>		<b>5</b>	<b>26</b>	<b>7</b>	<b>1</b>

(Source: Field Survey, CPP, 2078)



## Annex 8: Average Daily Traffic in Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (As per Traffic Count on September)

Seven days traffic count was performed from September 16 to September 22, 2020 at Indregauda (0+000) and Shantipur (20+250). Summary of the traffic count has been shown in table below.

SN	Vehicle Type	ADT of Station-1	ADT of Station-2	ADT
		Indregauda	Shantipur	
1.	Motorcycle	17.00	35.00	26.00
2.	Car/Van	0.00	6.00	3.00
3.	Jeep	4.00	7.00	6.00
4.	Pickup	7.00	13.00	10.00
5.	Bus	0.00	0.00	0.00
6.	Mini-bus	0.00	13.00	7.00
7.	Microbus	0.00	0.00	0.00
8.	Truck	0.00	6.00	3.00
9.	Mini-truck	2.00	11.00	7.00
10.	Tractor	17.00	32.00	25.00
11.	Pedestrians	98.00	148.00	123.00
12.	Porters	5.00	10.00	8.00
13.	Bullock Cart	0.00	0.00	0.00
14.	Bicycle	0.00	0.00	0.00
15.	Auto Rickshaw	0.00	0.00	0.00





Annex 9: Details of existing utilities

**a. Electric Pole and existing utility data**

S. N	Name of public utilities	(Chainage)	Number
1.	Electric poles	0+000 to 22+300	40
2.	Transmission line	2+600, 3+300, 7+450, 14+700	3
3.	Hume pipe culvert	0+882, 2+341, 2+620, 3+820, 4+003, 4+158,	6
4.	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+300	23
5.	Bridge	16+550	1
6.	Mandir	5+400, 8+550, 15+650	3



**b. Summary of Impacts on Structures (Private/Public)**

S.N	Name of Land owner	Address	Impacted type	Loss
1	Premprasad Kharal	Musikot Municipality ward no. 5	Res. Structure-kachhi	Partial
2	Lekhnath Aryal	Musikot Municipality ward no. 5	Res. Structure-kachhi	Partial
3	Arjun Gautam	Chandrakot RM ward no. 1	Res. Structure-kachhi	Partial
4	Himlal Sapkota	Chandrakot RM ward no. 2	Res. Structure-kachhi	Partial
5	Himlal Gautam	Chandrakot RM ward no. 3	Res. Structure-kachhi	Partial
6	Khimananda Aryal	Chandrakot RM ward no. 3	Res. Structure-kachhi	Partial
7	Dil Bahadur Pun	Chandrakot RM ward no. 4	Res. Structure-kachhi	Partial
8	Chitra Bahadur Kumal	Chandrakot RM ward no. 4	Res. Structure-kachhi	Partial
9	Kishan BK	Chandrakot RM ward no. 4	Res. Structure-kachhi	Partial

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

  
 नेपाल सरकार  
 शान्तिपुर, काठमाडौं

  
 Inclusive Consultants Pvt. Ltd.



Annex 10: Change in Land use

From Chainage	To Chainage	RoW Length	Area of RoW with 10m width of road in (Hecter)	Area of existing road with width of 4.25 m in (Hecter)	Area of Required Road with Formation Width 5.25m in (Hecter)	Additional Land area required (1m Width) of road in (Hecter)	Land Use in Left	Ha.	Land Use in Right	Ha.
0+000	0+600	600.00	0.600	0.255	0.315	0.060	Indregauda Settlement Area	0.030	Indregauda Settlement Area	0.030
0+600	0+750	150.00	0.150	0.064	0.079	0.015	Cultivated Land	0.008	Barren Land	0.008
0+750	0+950	200.00	0.200	0.085	0.105	0.020	Barren Land	0.010	Barren Land	0.010
0+950	1+190	240.00	0.240	0.102	0.126	0.024	Barren Land	0.012	Barren Land	0.012
1+190	1+315	125.00	0.125	0.053	0.066	0.013	Barren Land	0.006	Kharbang khola	0.006
1+315	1+335	20.00	0.020	0.009	0.011	0.002	Kharbang khola	0.001	Kharbang khola	0.001
1+335	3+300	1965.00	1.965	0.835	1.032	0.197	Forest CF	0.098	Forest CF	0.098
3+300	5+550	2250.00	2.250	0.956	1.181	0.225	Aapchaur Settlement	0.113	Aapchaur Settlement	0.113
5+550	6+855	1305.00	1.305	0.555	0.685	0.131	Private Forest	0.065	Private Forest	0.065
6+855	6+865	10.00	0.010	0.004	0.005	0.001	Gidikhola	0.001	Gidikhola	0.001
6+865	7+600	735.00	0.735	0.312	0.386	0.074	Gidikhola	0.037	Gidikhola	0.037
7+600	8+900	1300.00	1.300	0.553	0.683	0.130	Private Forest	0.065	Private Forest	0.065
8+900	9+500	600.00	0.600	0.255	0.315	0.060	Private Barren Land	0.030	Private Barren Land	0.030
9+500	9+900	400.00	0.400	0.170	0.210	0.040	Arjewa Kendra Settlement	0.020	Arjewa Kendra Settlement	0.020
9+900	11+700	1800.00	1.800	0.765	0.945	0.180	Forest CF	0.090	Forest CF	0.090
11+700	13+700	2000.00	2.000	0.850	1.050	0.200	Sarang Settlement	0.100	Sarang Settlement	0.100
13+700	14+150	450.00	0.450	0.191	0.236	0.045	Barren Land	0.023	Barren Land	0.023
14+150	14+700	550.00	0.550	0.234	0.289	0.055	Bhanjyang Settlement	0.028	Bhanjyang Settlement	0.028
14+700	15+100	400.00	0.400	0.170	0.210	0.040	Forest CF	0.020	Forest CF	0.020
15+100	15+650	550.00	0.550	0.234	0.289	0.055	Forest CF	0.028	Forest CF	0.028
15+650	15+900	250.00	0.250	0.106	0.131	0.025	Forest CF	0.013	Forest CF	0.013



From Chainage	To Chainage	RoW Length	Area of RoW with 10m width of road in (Hecter)	Area of existing road with width of 4.25 m in (Hecter)	Area of Required Road with Formation Width 5.25m in (Hecter)	Additional Land area required (1m Width) of road in (Hecter)	Land Use in Left	Ha.	Land Use in Right	Ha.
15+900	16+230	330.00	0.330	0.140	0.173	0.033	Bishukharka Settlement	0.017	Bishukharka Settlement	0.017
16+230	16+300	70.00	0.070	0.030	0.037	0.007	Khaharekhola	0.004	Khaharekhola	0.004
16+300	16+550	250.00	0.250	0.106	0.131	0.025	Forest CF	0.013	Forest CF	0.013
16+550	16+750	200.00	0.200	0.085	0.105	0.020	Kyudanda Settlement	0.010	Kyudanda Settlement	0.010
16+750	17+250	500.00	0.500	0.213	0.263	0.050	Kyudanda Settlement	0.025	Kyudanda Settlement	0.025
17+250	18+500	1250.00	1.250	0.531	0.656	0.125	Forest CF	0.063	Forest CF	0.063
18+500	19+155	655.00	0.655	0.278	0.344	0.066	Shantipur Settlement	0.033	Cultivated land	0.033
19+155	19+160	5.00	0.005	0.002	0.003	0.001	Kyukhola	0.000	Kyukhola	0.000
19+160	19+800	640.00	0.640	0.272	0.336	0.064	Cultivated land	0.032	Cultivated land	0.032
19+800	20+290	490.00	0.490	0.208	0.257	0.049	Shantipur Settlement	0.025	Shantipur Settlement	0.025
0+000	0+220	220.00	0.220	0.094	0.116	0.022	private barren land	0.011	private barren land	0.011
0+220	0+500	280.00	0.280	0.119	0.147	0.028	Cultivated Land	0.014	Barren Land	0.014
0+500	0+850	350.00	0.350	0.149	0.184	0.035	Cultivated land	0.018	Barren Land	0.018
0+850	1+500	650.00	0.650	0.276	0.341	0.065	Cultivated land	0.033	Private Barren Land	0.033
1+500	1+750	250.00	0.250	0.106	0.131	0.025	Arjewa Settlement	0.013	Cultivated land	0.013
1+750	2+010	260.00	0.260	0.111	0.137	0.026	Arjewa Settlement	0.013	Arjewa Settlement	0.013
<b>Total</b>		<b>22300.00</b>	<b>22.30</b>	<b>9.48</b>	<b>11.71</b>	<b>2.23</b>		<b>1.115</b>		<b>1.115</b>



Annex: 11 Quarry site of Construction Materials

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

S.n.	Location	Material	Grain Size Distribution			AIV (%)	ACV (%)	LAA (%)	Compaction		CBR (%)	Estimated Quantity (m <sup>3</sup> )
			Gravel (%)	Sand (%)	Silt+Clay %				OMC (%)	MDD (g/cc)		
1	Badigad Khola Gulmi	Sub Base	55.93	38.82	5.25	20.31	19.24	24.11	6.12	2.07	67.23	Sufficient



Annex 12: Photographs



PHOTOGRAPH 4 PUBLIC HEARING



PHOTOGRAPH 5 INTERACTION WITH STAKEHOLDER



PHOTOGRAPH 6 LOCAL PEOPLE GIVING THEIR OPINION ABOUT PROJECT



PHOTOGRAPH 7 DELIBERATION OF INFORMATION ABOUT PROJECT





Photograph 8 Causeway at chainage 1+317



Photograph 9 at chainage 3+613



Photograph 10 at chainage 2+640



Photograph 11 at chainage 4+920 canal crossing



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







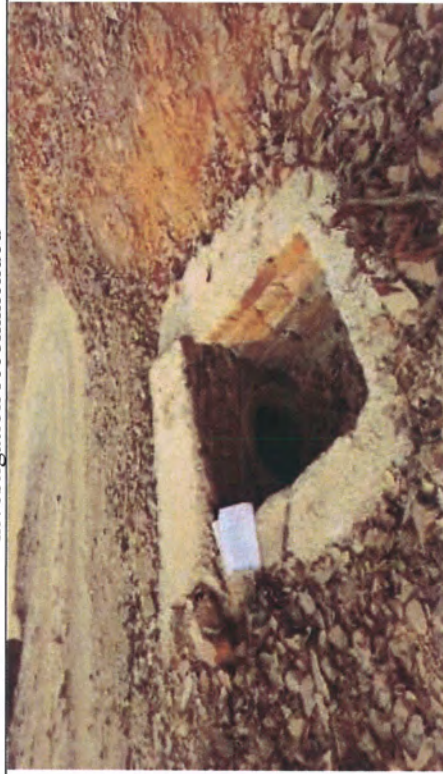
Photograph 12 at chainage 6+830



Photograph 13 Khaharekhola at chainage 16+560 further investigation recommended



Photograph 14 at chainage 1+560 link road



Photograph 15 at chainage 17+360



Annex 13: Curriculum Vitae of Expets

**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 19<sup>th</sup> 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=IwAR1Lup2kfdNf7afq19AW5bwsB4ek51OAbDMABIY1UbrSyZ8P1pMXBv3EvE>
- 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



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<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 , 22<sup>nd</sup> July, 2013 [http://myrepublica.com/portal/index.php/twb/?action=news\\_details&news\\_id=58172](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](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

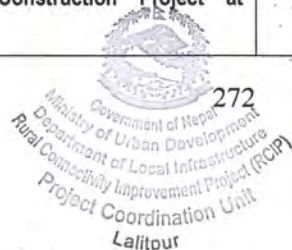
#### EMPLOYMENT RECORD RELEVANT TO THE ASSIGNMENT:

Period	Employing organization and your title/position.	Country	Summary of activities Performed Relevant to the Assignment
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January 2016 onwards	<b>Employer; Multi Disciplinary Consultant P. Ltd</b>  <b>Position: Team Leader / Environment Safeguard Specialist</b>	Nepal	Overall responsibility for the EIA Report Preparation of DPR , IEE and EIA works under the firm
December, 2013 to December, 2016	<b>Employer: Department of Hydrology and Meteorology, Government of Nepal. (Pilot Programme of Climate Resilience, Building Resilience to Climate Related Hazards (BRCH)</b>  <b>Kathamandu, Nepal</b>  <b>Position: Environment Safeguard Specialist</b>	Nepal	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.  Preparation of Climate Disaster Management Plan for various Climate induced Disasters including the Floods, Landslides Cloud Burst and their Financial Analysis etc.
March , 2018 to June , 2018	<b>Employer: Asian Development Bank, Manila, TA Strengthening Capacities to Design and Implement Smart Urban Infrastructure - (49378-001)</b>  <b>Position Held: Climate Change and Disaster Risk (CRVA) Specialist</b>	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	<b>Employer: Asian Development Bank,</b>  <b>ADB TA-9245 Regional Capacity Building for Integration of Environmental SDGs into National Policy and Planning</b>  <b>Position: National Coordinator</b>	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	<b>Employer; UNICEF, Nepal</b>  <b>Post: Environment Specialist for School Construction Project at</b>	Nepal	Preparation of the Disaster Management Plan for the Community and Public School while construction of the Teaching Learning Center (TLC) and Environmental



	<b>Nuwakot, Kavrepalanchok and Sindhupalchok District , Nepal</b>		Assessment. This includes the Scientific, Environmental and Financial Assessment.
September, 2016 to December, 2016(Intermittent)	<b>Asian Development Bank, Manila</b> <b>Position Held: Climate Risk and Disaster Risk Specialist (46470-001)</b> <b>Nepal Rural Road Project</b>	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	<b>EMPLOYER:</b> SILT Consultant Pvt. Ltd <b>POSITION HELD: Environment Safeguard and Disaster Specialist</b>	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 <b>Environment Assessment (Social, Cultural and Financial Assessment), environment Screening, Preparing Environment Management plans especially for 5 subprojects of Mid Hills.</b>
April, 2013 to September, 2013	<b>EMPLOYER:</b> Adel Al-Obaid Engineering Consultants with Hamza Associates and in association with Multi Disciplinary Consultants (P)Ltd. and Total Management Service Pvt Ltd(Nepal <b>POSITION HELD: Environment Safeguard Specialist</b>	Nepal	Consulting Services for Sitapaila Dharke Road. 26 KM of Detail Design Study Road, <b>OPEC Fund</b> , Department of Roads, Foreign Department.Responsible for <b>environment examination(Ecological, Social and Financial assessment), environment Screening ,Preparing Environment Management plans.</b>  <b>Beneficial Population: 1,600,000</b>
November 2011 To April , 2013	<b>EMPLOYER:</b> 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



	Component (PPC1 - Road – approx. 900 KM) of Transport Project Preparatory Facility (TPPF)  <b>POSITION HELD: Environmental Safeguard Specialist</b>		more than 900 KM Feasibility Study of Road, ADB Grant No. 0227 – NEP, Department of Roads, Project Directorate (ADB).Responsible for <b>environment examination(Ecological, Social and Financial Assessment), environment Screening ,Preparing Environment Management plans.</b>
February 2011 to December 2012	<b>EMPLOYER:</b> Tara Gaun Bikas Samiti Board, Ministry of Tourism, GoN  <b>POSITION HELD:</b> Environmentalist/Climate Expert	Nepal	<b>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.</b>
August 2009 to November 2011	<b>EMPLOYER:</b> ERMC (P.) Ltd  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	<b>Initial Environment Examination (IEE) of the proposed 400 kv Cross Border 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).</b>
2011 to 2012	<b>EMPLOYER:</b> ERMC (P.) Ltd  <b>POSITION HELD:</b> Environmentalist/Team Leader	Nepal	<b>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.</b>  <b>Total Cost;US\$ 18000</b>  <b>Beneficial Population: 250,000</b>
January 2011 to 2013	<b>EMPLOYER:</b> Menchhiyam Hydropower Company	Nepal	Menchhiyam Menchhiyam Hydropower Company, Ltd. Itahari, Coordination on



	<b>POSITION HELD:</b> <b>Environmentalist/Team Leader</b>		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.  <b>Total Cost;US\$ 45000 (Detail Design)</b>  <b>Beneficial Population: 100,000</b>
January 2012 to August 2012	<b>EMPLOYER:</b> Nepal Health Care Co-operative Ltd Kathamandu  <b>POSITION HELD:</b> <b>Environmentalist/Team Leader</b>	Nepal	Coordination on Preparation and approval of Terms of References (TOR) <b>and Initial Environment Examination (IEE)</b> of the Manamohan Memorial Eastern Regional Hospital, with 100 beds capacity, in Jhapa.
January 2012 to August 2012	<b>EMPLOYER:</b> Energy Venture Pvt. Ltd  <b>POSITION HELD:</b> <b>Environmentalist/Team Leader</b>	Nepal	Coordination on Preparation and approval of Scoping, ToR and <b>Environmental Impact Assessment (EIA) study reports</b> of the Lapche Khola Hydropower Project in Dolkaha with installed capacity of 99 MW.  <b>Total Cost;US\$ 115000 (Detail Design)</b>  <b>Beneficial Population: 500,000</b>
January, 2011 to March,2012	<b>EMPLOYER:</b> Siddhartha Environmental Service, Nepal  <b>POSITION HELD:</b> Environmentalist	Nepal	Preparation of <b>Scoping and ToR for Bheri-Babai Multipurpose Diversion Project component B</b> , Dol, Nepal  <b>Total Cost;US\$ 5000</b>  <b>Beneficial Population: 100,000</b>
December 2011 To February 2013	<b>EMPLOYER:</b> Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal  <b>POSITION HELD:</b> <b>Environmentalist/Team Leader</b>	Nepal	Suri Khola Hydropower Company, Dhumbahari, Kathamandu, Nepal. Coordination on Preparation of Scoping, ToR and <b>Environmental Impact Assessment Study Report</b> 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. <b>Total Cost;US\$ 65000 (Detail Design)</b> <b>Beneficial Population: 100,000</b>
May 2011 To October 2012	<b>EMPLOYER:</b> Peoples, Hydropower Pvt. Ltd, Anamnahgar, Kathamandu  <b>POSITION HELD:</b> <b>Environmentalist/Team Leader</b>	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.  <b>Total Cost;US\$ 95000 (Detail Design)</b> <b>Beneficial Population: 100,000</b>
December 2007 To July 2011	<b>EMPLOYER:</b> District Development Committee Office, Kaski, Pokhara  <b>POSITION HELD:</b> <b>Environmentalist/Team Leader</b>	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.  <b>Total Cost;US\$ 10000</b> <b>Beneficial Population: 400,000</b>
June 2010 To Dec 2011	<b>EMPLOYER:</b> e-RG Nepal  <b>POSITION HELD:</b> Environmentalist	Nepal	Coordination on Preparation of Scoping and ToR of Tamakoshi -1 Hydropower Project with 100 MW at Ramechaap District.  <b>Total Cost;US\$ 10000</b> <b>Beneficial Population: 50,000</b>
November 2009 To November 2011	<b>EMPLOYER:</b> e-RG Nepal  <b>POSITION HELD:</b> 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. <b>Total Cost;US\$ 7000</b> <b>eneficial Population: 50,000</b>
Jan 2009 To April 2011	<b>EMPLOYER:</b> e-RG Nepal <b>POSITION HELD:</b> Environmentalist	Nepal	Coordination on Preparation and approval of <b>EIA study</b> of Upper Tadi Hydroelectric Project installed Capacity 11 MW at Nuwakot District. <b>Total Cost;US\$ 75000 (Detail Design)</b> <b>eneficial Population: 50,000</b>
April 2009 To May 2010	<b>EMPLOYER:</b> e-RG Nepal <b>POSITION HELD:</b> Environmentalist	Nepal	Preparation Of Tor And <b>IEE Study</b> Of Puwa Khola Small Hydropower Project With 2.4 Mw, Ilam. <b>Total Cost;US\$ 35000 (Detail Design)</b> <b>eneficial Population: 50,000</b>
2010	<b>EMPLOYER:</b> Finland Consulting Group, ERMC Nepal <b>POSITION HELD:</b> Environmental Specialist	Nepal	Handle all environment aspects of the Pre-Project Technical Assistance of the <b>Community Irrigation Project</b> , funded By Asian Development Bank (ADB) with Department of Irrigation, GoN. <b>Total Cost;US\$ 20,000 (Detail Design)</b> <b>eneficial Population: 100,000</b>
January 2010 to March 2012	<b>EMPLOYER:</b> Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB) <b>POSITION HELD:</b> 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





			<p><b>Total Cost;US\$ 85000 (Detail Design)</b></p> <p><b>Beneficial Population: 150,000</b></p>
January 2010 to March 2012	<p><b>EMPLOYER:</b> Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)</p> <p><b>POSITION HELD:</b> Environmentalist</p>	Nepal	<p>Social Impact Assessment (SIA) of Kavre Valley Integrated Water Supply and Sewerage Project (KVIWSSP) Project By, Asian Development Bank (ADB)</p> <p><b>Total Cost;US\$ 85000 (Detail Design)</b></p> <p><b>Beneficial Population: 150,000</b></p>
February 2008 to June 2009	<p><b>EMPLOYER:</b> Himalayan Hydropower Company, Nepal</p> <p><b>POSITION HELD:</b> Environmentalist</p>	Nepal	<p>Responsible for the Biological aspects of Environmental Impact Assessment (EIA) of Super Madi Hydropower (44 MW) Kaski, Nepal.</p> <p><b>Total Cost;US\$ 20000 (Detail Design)</b></p> <p><b>Beneficial Population: 100,000</b></p>
June 2007 To August 2007	<p><b>EMPLOYER:</b> ERM (P) Ltd</p> <p><b>POSITION HELD:</b> Environmentalist</p>	Nepal	<p>Environmental data collection for the Bagmati Watershed Development Project from <i>various districts of Bagmati Watershed</i></p> <p><b>Total Cost;US\$ 25000 (Detail Design)</b></p> <p><b>Beneficial Population: 600,000</b></p>
January 2006 To January 2011	<p><b>EMPLOYER:</b> e-RG Consultancy, Kathmandu, Nepal</p> <p><b>POSITION HELD:</b> Environmentalist</p>	Nepal	<p>Partial inputs for various Environmental Impact Assessment Projects on different sectors.</p>
February 2009 To July 2010	<p><b>EMPLOYER:</b> Himalayan Hydropower Company Kathmandu, Nepal</p> <p><b>POSITION HELD:</b> Environmentalist</p>	Nepal	<p>Responsible for the Biological Environment of <b>Environmental Impact Assessment (EIA)</b> of Namarjuna Madi Hydropower (20 MW) Kaski, Nepal.</p>



February 2007 To January 2009	<b>EMPLOYER:</b> Nepal Jalabidhyut Prabhardhan Company, Kathmandu, Nepal  <b>POSITION HELD:</b> Environmentalist	Nepal	Coordination on preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal as Biological Aspects.  <b>Total Cost;US\$ 3000</b>  <b>Beneficial Population: 50,000</b>
February 2007 To January 2009	<b>EMPLOYER:</b> UNDP  <b>POSITION HELD:</b> Environmentalist	Nepal	Support on the various <b>urban environment related projects under Public Private Partnership</b> for Urban Environment, UNDP Supported Project. This Project was Working on the Management of <b>urban environmental problems through Public private Partnership</b> mechanism in 10 municipalities of Nepal
March 2005 To August 2005	<b>EMPLOYER:</b> TRPAP/UNDP/MoTCA  <b>POSITION HELD:</b> Environmentalist	Nepal	Collection of the environmental data from Langtang National Park area on environmental and forest based data.
2003 to 2005	<b>EMPLOYER:</b> The Earth Preservation a magazine  <b>POSITION HELD:</b> 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	<b>Environmental Science Lecturer for College of Applied Sciences, Nepal</b>	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:**

	<u>Speaking</u>	<u>Reading</u>	<u>Writing</u>
<b>Nepali</b>	<b>Mother Tongue</b>		
<b>English</b>	Excellent	Excellent	Excellent
<b>Hindi</b>	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><b>Name of the Assignment:</b> Various <b>Employer:</b> Multi Disciplinary Consultants Pvt. Ltd ; <b>Location:</b> Kathamandu , Field;<b>Position held:</b> 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. <b>Name of Project Involved :</b></p> <ul style="list-style-type: none"> <li>• Master Plan and Detailed Engineering Design of Shopping Complex at Rupakot Municipality, Diktel, Khotang June 2018 Dec 2019</li> <li>• Master Plan and Detailed Engineering Design of Multipurpose Building at Lalitpur Metropolitan City, Lagankhel June 2018 Feb 2020</li> <li>• 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</li> <li>• Study, Design and Construction Supervision of Four Regional Markets (Contract ID PACT / S - AF 20.a/2013)             <ul style="list-style-type: none"> <li>❖ Fruit and Vegetable Wholesale Market, Kathari,</li> <li>❖ Biratnagar</li> <li>❖ Livestock Poultry Wholesale Market, Damak, Jhapa</li> <li>❖ Fruit and Vegetable Wholesale Market, Butwal,</li> <li>❖ Rupandehi,</li> <li>❖ Livestock and Poultry Wholesale Market,</li> <li>❖ Mahendrangan, Dhanusha Dec 2014 to Dec 2018</li> </ul> </li> <li>• Feasibility Study and Master Plan and Detailed Engineering of Regional Bus park Project in Pokhara- Lekhnath Metropolitan City, Pokhara July 2018 January 2020</li> <li>• 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</li> </ul>

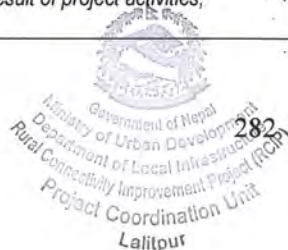


	<ul style="list-style-type: none"> <li>• <i>Topographical Survey, Soil Investigation, Master Plan, Preparation and Cost Estimate for Rolpa Polytechnic Institute, Liwan, Rolpa (Contract No. CTEVT/TEVT Exp 069/70/AED-01) August 13 to April 2014</i></li> <li>• <i>Feasibility Study and Detail Engineering 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</i></li> <li>• <i>Master Plan and Detailed Engineering Design of Bus park July 2016 April 2017</i></li> <li>• <i>Study, Design and Construction Supervision of Four Regional Markets (Contract ID PACT / S - AF 20.a/2013)</i></li> <li>• <i>Detailed Design and Construction Supervision of Administrative Building of Lumbini development Scared Garden at Lumbini, Rupandehi July 2013 Nov 2015</i></li> <li>• <i>Local Road Asset Management Support (LRAMS) {Package: RAP3/2013/011 Achham District} Feb 2014 to Jan 2016</i></li> <li>• <i>Environmental Impact Assessment (EIA) of Seti-Lok-Marga Package No. GESU/SLM-01/067-68 Jan 2012 to Nov 2016</i></li> <li>• <i>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</i></li> <li>• <i>"Master Planning and Detailed Project Report (DPR) Preparation of Buddha Statue (World's Tallest Buddha Statue)" July 2016 to Feb 2017</i></li> <li>• <i>Construction of Technical Cum Administrative Building Complex of NTC June 2005 to June 2015</i></li> <li>• <i>Design and Supervision Consultant's Services in Melamchi Water Supply Project/ Melamchi Diversion Scheme/ Contract MDS/DT/01 July 2008 to May 2015</i></li> <li>• <i>Detailed Engineering Survey, Design and Cost Estimate for Banchare Danda Long-Term Sanitary Landfill Site July 2014 to July 2015</i></li> <li>• <i>Initial Environmental Examination (IEE) of Infrastructure Development Project of Hile Weekly Market August 2014 to March 2014</i></li> <li>• <i>Preparation of Detailed Engineering Design of Land Development Programme (DPR) of Biratnagar Ring Road Oct 2014 to July 2016</i></li> <li>• <i>Detail Engineering Survey, Design and Report Preparation of Road of (i) Kaptangaunj Pawo Simar, (Sima)Nayahatiya-Paschim Devgunj</i></li> <li>• <i>Kandhyaharshahi-Thana –Ramnagar-Bhutaha Chaprahi-Narshing-Janta Choke</i></li> <li>• <i>MRM SUnari. (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</i></li> <li>• <i>(4.5km),(vi) Shubachwok Dhanushadham Dharapani Section of Jatahi Shubachwok</i></li> <li>• <i>Dhanushadham Dharapani Sadak, Dhanusha (11.7km) Contract ID:</i></li> <li>• <i>PMEU/337159/073/74 DPR 17 2018</i></li> <li>• <i>Topographical Survey, Soil Investigation, Detailed Architectural and Engineering Design and Detailed Water Supply Survey and Design of Dhaulegiri Polytechnic Institute at Balewa, Baglung District July 2013 April 2014</i></li> <li>• <i>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</i></li> <li>• <i>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</i></li> <li>• <i>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</i></li> <li>• <i>Detailed Engineering Survey, DCP Test, Design of</i></li> <li>• <i>Roads, Concise IEE Study and Cost Estimate &amp;</i></li> <li>• <i>Preparation of Detailed Project Report (DPR) of</i></li> <li>• <i>Sahajpur – Bogtan Dipayal Road in Doti District June 2013 to August 2015</i></li> </ul> <p><b>Name of the Assignment:</b> Supporting Implementation of Environment-Related Sustainable Development Goals in Asia and the Pacific <b>Employer:</b> Asian Development Bank, Manila ; <b>Location</b></p>
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	<p><b>Kathamandu</b> <b>Position held:</b> National Coordinator for Environmental SDGs (Nepal) (50158-001)</p> <p><b>Activities performed:</b> 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.</p> <p>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.</p> <ol style="list-style-type: none"> <li>i. Liaise with ADB Resident Mission, government ministries, and development partners to fill in the identified stocktaking gaps.</li> <li>ii. Prepare a Stocktaking Report of Nepal</li> <li>iii. Assist liaising with the workshop participants and helping them prepare presentation.</li> </ol>
	<p><b>Name of the Assignment:</b> Building Resilience to Climate Related Hazards, (BRCH) a project by Pilot Programme on Climate Resilience (PPCR), GoN <b>Employer:</b> Department of Hydrology, Meteorology, Ministry of Science, Technology and Environment, GoN ; <b>Location:</b> Kathamandu; <b>Position held:</b> Environment Safeguard Specialist; <b>Activities performed:</b> 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 &amp; awareness, and training , Help commissioning and managing Initial Environmental Examination (IEE), if necessary and other special studies/ assessment such as hazardous &amp; 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><i>Monitor potential collaboration with specific key stakeholders, such as Ministry of Science, Technology and Environment, Department of Wildlife and National Parks, Department of Forest,</i></p>
	<p><b>Name of the Assignment:</b> Preparation of Disaster Risk management Plan and Environmental Assessment Plan for the Reconstruction of The school Building at Sindhupalchok, Nuwakot and Kavrepalanchok District <b>Employer:</b> UNICEF, Nepal ; <b>Location:</b> Kathamandu , Field ; <b>Position held:</b> Disaster Risk Management and Environment Safeguard Specialist; <b>Activities performed:</b> Preparation of Disaster Risk management and Environment Assessment Plan for the School Building and Teaching Learning Cetner (TLC) for Sindhupalchok, Nuwakot and Kavrepalanchok Districts.</p>
	<p><b>Name of the Assignment:</b> Preparation of Climate Risk and Disaster Management Plan for 4 Selected Roads for the Neplese Hilly Roads <b>Employer:</b> Asian Development Bank(Nepal Rural Roads Improvement Project), Nepal ; <b>Location:</b> Kathamandu , Field ; <b>Position held:</b> Climate Risk and Disaster Managemnet Specialist; <b>Activities performed:</b> (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><b>Name of the Assignment:</b> Consulting Services for Project Preparatory Consultant 1 for Road Component (PPC1 - Road – approx. 900 KM) of Transport Project Preparatory Facility (TPPF); <b>Employer:</b> SILT Consultant Pvt Ltd; <b>Location:</b> ; <b>Main Project features:</b> ; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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</i></p>





	<p><i>separately. Preparation of IEE and EIA of 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><b>Name of the Assignment:</b> preparation of Tourism Master Plan; <b>Year:</b> February 2011 to June 2012; <b>Employer:</b> Tara Gaun Bikas Samiti Board, Ministry of Tourism, GoN; <b>Location:</b> Kathamandu; <b>Main Project features:</b> Preparation of the Tourism Master Plan for the Achham and Kavre District; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Initial Environment Examination (IEE) of the proposed 400 kv Cross Boarder Transmission Line for Arun-3rd Project with Length 209 km; <b>Employer:</b> ERMC (P.) Ltd; <b>Location:</b> Sankhuwasabha, Bhojpur, Khotang, Udayapur, Dhanusha, Mahottari; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Preparation of Scoping, ToR and Environmental Impact Assessment (EIA) of Num - Kimathanka (72 km) Road Project; <b>Year:</b> 2011 to 2012; <b>Employer:</b> ERMC Nepal.; <b>Location:</b> Sankhuwasabha; <b>Position held:</b> Environmentalist/Team Leader; <b>Activities performed:</b></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>



**Name of the Assignment:** Initial Environment Examination (IEE) of the proposed project Upper Piluwa 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 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..

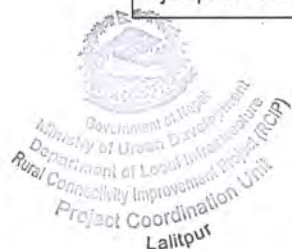
**Name of the Assignment:** *Initial Environment Examination (IEE)* of the Manamohan Memorial Eastern Regional Hospital, with 100 beds capacity; **Year:** January 2012 to August 2012; **Employer:** Nepal Health Care Co-operative Ltd Kathamandu

; **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, ERMC 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.





<p><b>Name of the Assignment:</b> Bagmati Watershed Development Project; <b>Year:</b> February 2008 to June 2009; <b>Employer:</b> ERMC Nepal <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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 Muchulkas from the all of the project affected VDCs and DDCs. Discussion about the requirements and availability of the various water resources on the project 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><b>Name of the Assignment:</b> Environmental Impact Assessment Projects on different sectors; <b>Year:</b> January 2006 To January 2011; <b>Employer:</b> e-RG Consultancy, Kathmandu, Nepal; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> <i>Environmental Impact Assessment (EIA)</i> of Namarjuna Madi Hydropower (20 MW) Kaski, Nepal; <b>Year:</b> February 2009 To July 2010; <b>Employer:</b> Himalayan Hydropower Company Kathmandu, Nepal; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Preparation of ToR and Initial Environmental Examination (IEE) of Middle Modi Hydropower (20 MW) Parbat, Nepal; <b>Year:</b> February 2007 To January 2009; <b>Employer:</b> Nepal Jalabidhyut Prabardhan Company, Kathmandu, Nepal; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> 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><b>Name of the Assignment:</b> Projects Under Public Private Partnership For Urban Environment; <b>Year:</b> March 2005 To August 2005; <b>Employer:</b> PPPUE/ MoLD/ UNDP; <b>Position held:</b> Environmentalist; <b>Activities performed:</b> Support on the identification of the possible Public Private Partnership project on the various urban areas. (10 Municipalities).</p>





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.

**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.

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](mailto: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.

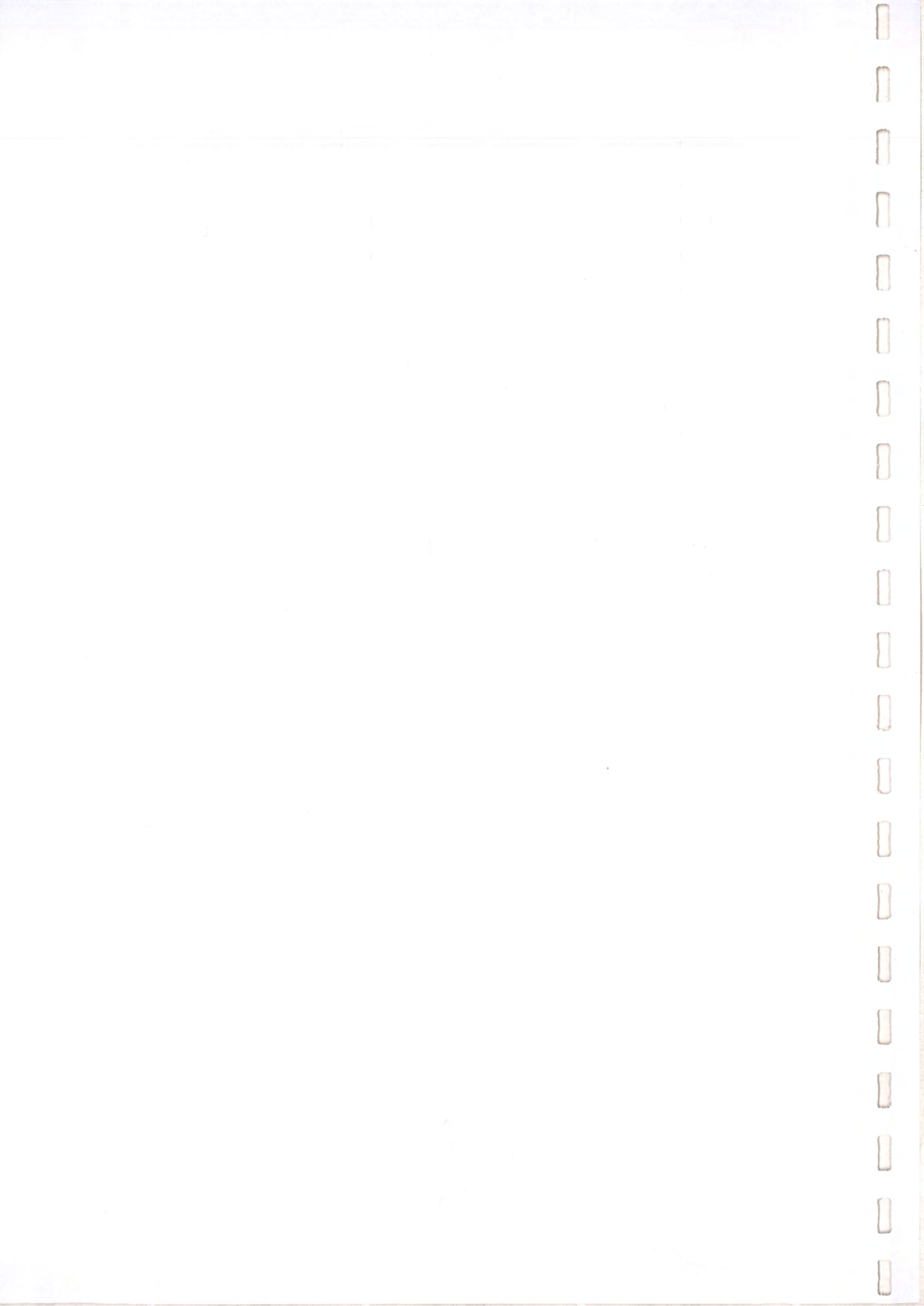
I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.



Name of Expert Nav Raj Pokharel

Signature







**CURRICULUM VITAE (CV)**

<b>Position Title and No.</b>	<b>Road/ Highway Engineer</b>
<b>Name of Firm:</b>	<b>Inclusive Consultant P. Ltd</b>
<b>Name of Expert:</b>	Ranjan Suwal
<b>Date of Birth:</b>	25 <sup>th</sup> May, 1978
<b>Country of Citizenship/ Residence:</b>	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	<b>Employer :</b> Green Planet Engineers Associate Pvt. Ltd.  <b>Position :</b> Highway Design Engineer  Ref: Mr. Bipin Shakya/MD  Tel: +977- 1- 4468885  Email: greenplanet.aso@gmail.com	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><b>Employer</b> : Green Planet Engineers Associate Pvt. Ltd.</p> <p><b>Position</b> : 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><b>Employer</b> : Green Planet Engineers Associate Pvt. Ltd.</p> <p><b>Position</b> : 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><b>Roads Lists:</b></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	<b>Employer</b> : Green Planet Engineers Associate Pvt. Ltd.  <b>Position</b> : Highway Design Engineer  Ref: Mr. Bipin Shakya/MD  <i>Tel:</i> +977- 1- 4468885  <i>Email:</i> greenplanet.aso@gmail.com		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	<b>Employer</b> : Green Planet Engineers Associate Pvt. Ltd.  <b>Position</b> : Highway Design Engineer  Ref: Mr. Bipin Shakya/MD  <i>Tel:</i> +977- 1- 4468885  <i>Email:</i> greenplanet.aso@gmail.com	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><b>Employer</b> : Green Planet Engineers Associate Pvt. Ltd.</p> <p><b>Position</b> : 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	TPPF-2, Design Drawing and Cost Estimate of Narayanghat-Butwal Six lane Road(115 Km)
Feb, 2011 - May, 2015	<p><b>Employer</b> : ERMC Pvt. Ltd.</p> <p><b>Position</b> : Highway Engineer/Senior Design Engineer</p> <p>Ref: Hem Nidhi Sharma/Director of ERMC;</p> <p>Mob: 9851102437;</p> <p>Email: ermc@ermcnepal.com</p>	Nepal	<p><b>Nov, 2013 - May2015, Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP).</b></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><b>Oct, 2011 - Oct2013, Transport Project Preparatory Facility (TPPF),ADB funded.</b><i>Involved in inventory survey, Detailed Design, cost estimate and report preparation of various road and bridge projects</i></p> <p><b>July, 2012 - Sept 2012, Rural Access Improvement and Decentralization Project (RAIDP) funded by World</b></p>





Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
			<p><b>Bank.</b> Responsible for Checking of detail design and cost estimate including contract packaging works</p> <p><b>Feb, 2011 - Sept, 2011, Decentralized Rural Infrastructure &amp; Livelihood Programme (DRILP).</b> 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 &amp; local contractor. Provide actual lines &amp; layout for construction work and supervise the quality of work .Check attendance record of labours &amp; certify payment measurement &amp; 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. <b>Dhungagade Arughat (35 Km)</b>
April, 2010 - June, 2010	<p><b>Employer:</b>MMM Group Ltd.(Formerly ND Lea Inc.) Canada in association with CEMAT Consultant Pvt. Ltd., Soil Test Pvt. Ltd. &amp; TMS</p> <p><b>Position :</b> Design Engineer (Intermittent input)</p> <p>Ref: Ravi Raj Bhandari/Director of Cemat; Tel: 01-5520243; Email: cemat@wlink.com.np.</p>	Nepal	Involve in a inventory survey, Check day to day Survey works, Detail Design, Drawing and cost estimation including contract packaging work.
Feb, 2009 - Jan, 2011	<p><b>Employer:</b> ERMC – GEC JV</p> <p><b>Position :</b> Design Engineer/Assistant Resident Engineer</p>		<b>Upper Tamakoshi Hydroelectric Project (UTHEP).</b> 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: ermc@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 <b>Construction Supervision of Dolakha Singati Section of Access road - 35 km</b> 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-

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



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><b>Employer:</b> DFID</p> <p><b>Position :</b> 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><b>Rural Access Program-2(RAP-2).</b> <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><b>Employer :</b> ERMC Pvt. Ltd.</p> <p><b>Position : Design Engineer</b></p> <p>Ref: Hem Nidhi Sharma/Director of ERMC;</p> <p>Mob: 9851102437;</p> <p>Email: ermc@ermcnepal.com</p>	Nepal	<p>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</p>





Period	Employing Organization and Title / Position. Contact Information for References	Country	Summary of Activities Performed Relevant to the Assignment
Aug, 2006 - Sept, 2007	<b>Employer : Softwel Private Limited.</b>  <b>Position : Highway Engineer/ Road Designer, AutoCAD Expert</b>  Ref: Mr. Prashant Malla/MD  Tel: +977- 1- 4104307  Email: support@softwel.com.n	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	<b>Employer: Charumati Builders</b>  <b>Position : Civil Engineer</b>  Ref: Purshotam Dangol/ MD of Charumati Builders;  Mob:9851070082;  Email: dr.dangolp@gmail.com	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	<b>Employer : Bhaktapur Municipality</b>  <b>Position : Junior Engineer</b>	Nepal	<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"> <li>The understanding of the project principles, concept, strategy, procedures, work-norm etc.</li> </ul>







**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>Mr. Suwal, as Road/Highway Engineer, will be responsible to carry out the following tasks:</p> <ul style="list-style-type: none"> <li>• Work under the guidance of the Team Leader.</li> <li>• Conduct field survey for the access road connecting the bridges.</li> <li>• Assess social effect due to the proposed road works if any and focus to minimize the impact during design</li> <li>• Responsible for the engineering Design of road.</li> <li>• Responsible for the access road study for the bridges and assist TL to prepare Reports as specified in TOR.</li> </ul>	<p><b>From June, 2015 : To Till Date</b></p> <p><b>Employer</b> : Green Planet Engineers Associate Pvt. Ltd.</p> <p><b>Position</b> : Highway Design Engineer/Quantity Engineer</p> <p><b>Activities Performed</b> :</p> <p><b>Road Projects –TPPF PPC-1, Jumla Road DPR of RAP Project, TPPF PPC-2.</b> 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><b>From Nov, 2013 : To May, 2015</b></p> <p><b>Employer</b> : ERMV Pvt. Ltd.</p> <p><b>Position</b> : Highway Engineer/Senior Design Engineer</p> <p><b>Activities Performed</b> :</p> <p><b>Rural Reconstruction and Rehabilitation Sector Development Program (RRRSDP).</b> 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><b>Panchthar: Phidim-Nagin - Sidin - Prangbung - Falot Road (Phidim - Ludintar Sector ) – 35 Km;</b> 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](mailto: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 ofHile-Leguwighat (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, PreliminaryDesign, 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 –Dhunkharka(18 KM)**. Ref: Hem Nidhi Sharma/Director of ERMC; Mob: 9851102437; Email: [ermc@ermcnepal.com](mailto: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)







Ref: Hem Nidhi Sharma/Director of ERM; Mob: 9851102437; Email: erm@ermnepal.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.** *Involve in a inventory survey, Check day to day Survey works, Detail Design, Drawing and cost estimation including contract packaging work.*

- 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** : ERM – GEC JV

**Position** : Highway Engineer/ Design Engineer/Assistant Resident Engineer

**Activities Performed** :

**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





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 ERMC; Mob: 9851102437; Email: [ermc@ermcnepal.com](mailto: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](mailto:rap3@rapnepal.com).

**From Oct 2007 : To Oct 2008**

**Employer : ERMC 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 ERMC; Mob: 9851102437; Email: [ermc@ermcnepal.com](mailto:ermc@ermcnepal.com).

**From Aug, 2006 : To Sept, 2007**



<b>Employer</b>	: Softwel Private Limited.
<b>Position</b>	: Highway Engineer/ Road Designer, AutoCAD Expert
<b>Activities Performed</b>	: 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
<b>From Dec, 2005</b>	: <b>To July, 2006</b>
<b>Employer</b>	: Charumati Builders
<b>Position</b>	: Civil Engineer
<b>Activities Performed</b>	: 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.dangol@gmail.com
<b>From Oct, 1998</b>	: <b>To Sept, 2001</b>
<b>Employer</b>	: Bhaktapur Municipality
<b>Position</b>	: Junior Engineer
<b>Activities Performed</b>	: <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"> <li>• The understanding of the project principles, concept, strategy, procedures, work-norm etc.</li> <li>• Co- ordination of the mobilization of the required resources</li> </ul>



Phone: 9851132404





**Expert's**            **Contact**            **E-mail:**  
**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 RCIP
- (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 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).

I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.





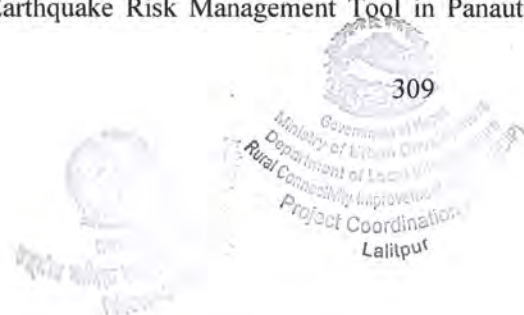




- As a trainee “Interactive Training Program for Micro Hydro Design Engineers and Technicians” March 16-18, 2004 conducted by Alternative Energy Promotion Centre (AEPIC)/Energy Sector Assistance Program (ESAP)
- Two months (4 hrs/day) training on Geographic Information System (GIS) from HEET Consult 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., Bhochhibhoya 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-Jadibuti
- 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-Antalingseshwor 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 Sanischara – Arjunthara – 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**

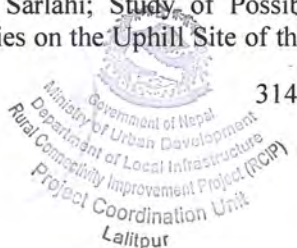
**Consulting Geologist**, IDRS, Responsible for the **IEE and Feasibility study of the Bhatauli Khola bridge**, Ramechhap District, Central Nepal.

**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 Cofferdam & 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**

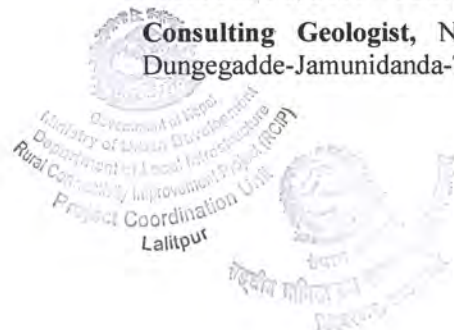
**Geologist**, HEET Consults (P) Ltd., Nepal Culturer Village Resort (P) Ltd. And China International Corporation, KTM (client) Responsible for Environmental geological and geotechnical assessment of the Nepal Cultural Village, at its project site Sundarijal-Gokarna area, Kathmandu.

**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 March 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- 5 <sup>th</sup> 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



<b>Hetauda School of Management and Social Sciences Makawanpur</b>	<b>Lecturer of Sociology/ Anthropology Jan 2005– Sept 2011</b>
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<b>Summary of Consulting Activities Completed</b>		
<b>Date</b>	<b>Name of activity/ Project/ Funding Agency</b>	<b>Role and Activities undertaken Consultant</b>
<b>24 to 29 December 2019</b>	Emergency Preparedness and Response Plan (EPRP) of Mahila Ekta Samanj Kathmandu	<ul style="list-style-type: none"> <li>• Orientation of office body on EPRP/Conduct office VCA</li> <li>• Prepare EPRP and handed over</li> </ul>
<b>04 to 09 September 2019</b>	Training on VCA training process to Change Agent of FORWARD Nepal Siraha funded by WHH Nepal	<ul style="list-style-type: none"> <li>• Content and schedule development</li> <li>• Training facilitation 3 days</li> </ul>
<b>25 to 17 August 2019</b>	Training on VCA training process to social mobilizer of Homenet Nepal in Dhulikhel funded by Homenet Nepal	Design content and facilitate training
<b>16 to 27 June 2019</b>	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.	<b>Lead Facilitator</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>10 to 12 May 2019</b>	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.	<b>Lead Facilitator</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>21 April to 3 May 2019</b>	Lead Facilitator for the training on Mainstreaming DRR into development	<b>Lead Facilitator</b> <ul style="list-style-type: none"> <li>• Design content</li> </ul>





	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"> <li>Facilitate training</li> </ul>
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.	<b>Consultant Facilitator</b> <ul style="list-style-type: none"> <li>Design content</li> <li>Facilitate training</li> </ul>
26 February to 10 <sup>th</sup> 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.	<b>Consultant Facilitator</b> <ul style="list-style-type: none"> <li>Design content</li> <li>Facilitate training</li> </ul>
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.	<b>Consultant Facilitator</b> <ul style="list-style-type: none"> <li>Design content</li> <li>Facilitate training</li> </ul>
16 to 17 January 2019	Consultant to facilitate peer learning on LDCRP to chief of Local Government of Province seven in Dadheldhura	<b>Consultant Facilitator</b> <ul style="list-style-type: none"> <li>Design content</li> <li>Facilitate training</li> </ul>
10 to 30 December 2018	Preparation of DRRM Act of Godabari Municipality Lalitpur organized by Homenet Nepal and Funded by Action Aid.	<b>Consultant</b> <ul style="list-style-type: none"> <li>Assessment</li> <li>Discussion and facilitate plan formulation</li> </ul>
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	<b>Consultant</b> <ul style="list-style-type: none"> <li>Need assessment</li> <li>Meeting and orientation</li> </ul>

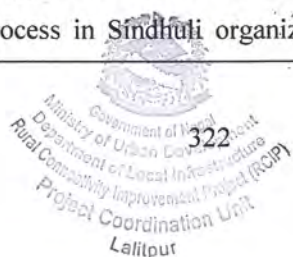


	and Bidur Municipality- Nuwakot Funded by GIZ CD-Mun project.	<ul style="list-style-type: none"> <li>• Recommend collection</li> <li>• Field observation</li> </ul>
<b>22 to 29 November 2018</b>	Safe school training to local representatives and SMC representatives of in Kurintar and Kakani organized by NDRC and funded with UNICEF.	<b>Consultant Facilitator</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>25 to 29 September 2018</b>	Safe school training to local representatives and SMC representatives of earthquake affected 14 district in Godabari organized by NDRC and funded with UNICEF.	<b>Consultant Facilitator</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>14 to 21 October 2018</b>	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.	<b>Trainer</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>19 to 20 August 2018</b>	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	<b>Trainer</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>12 to 13 August 2017</b>	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	<b>Trainer</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>
<b>11 to 13 July 2018</b>	Training facilitator For the training on local emergency preparedness and response plan preparation to local elected people representatives of Modi Rural Municipality	<b>Training Facilitator</b> <ul style="list-style-type: none"> <li>• Design content</li> <li>• Facilitate training</li> </ul>

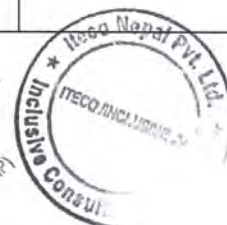




	of kaski district organized by urban development training centre (UDTC) and Modi Rural Municipality	
<b>05 to 08 June 2018</b>	Training facilitator For the training on Disaster Risk Reduction to local elected people representatives and chief administrative officers of Yashok Rural Municipality of Pachthar district organized by RDTC and Yashok Rural Municipality	<ul style="list-style-type: none"> <li>• Designed training module</li> <li>• Developed training materials and facilitate training</li> </ul>
<b>29 May to 03 June 2018</b>	Conducted VCA review workshop in six community Based Disaster Risk Management committee of Siraha Municipality siraha district	<ul style="list-style-type: none"> <li>• Prepared and finalized VCA tools</li> <li>• Conducted VCA training</li> </ul>
<b>27 and 28 May 2018</b>	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"> <li>• Designed training module and curriculum</li> <li>• developed training materials and delivered training</li> </ul>
<b>6 April to 9 April 2018</b>	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"> <li>• , Design content</li> <li>• Facilitate training</li> </ul>
<b>10 to 13 April 2018</b>	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
<b>18 to 21 April 2018</b>	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 25th 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.
<b>6<sup>th</sup> to 18<sup>th</sup> January 2017</b>	“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
<b>22 to 28 December 2016</b>	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.
<b>13 to 16 Dec. 2014</b>	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
<b>25 to 29 September 2014</b>	Community Base Disaster Risk Management Project	Resource person for training on 4CA for School teacher in Sunsari.
<b>05 to 07 September 2014</b>	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
<b>18 May to 1 June 2014</b>	“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
<b>April 17 to 21 2014</b>	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.
<b>Jan 24 to March 24 2014</b>	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.
<b>from 8-24 poush 2070</b>	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. .
<b>November 16 to Dec. 24, 2013</b>	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)	
<b>Involvement in Environmental Assessment Study</b>		
<ul style="list-style-type: none"> <li>• IEE for Establishment of Herbs Processing Distillation Unit in Jajarkot, HPPCL-Jadibuti</li> <li>• IEE for Establishment of Industrial Village at Tarakhola Rural Municipality, Baglung</li> <li>• 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</li> <li>• IEE Study of Babiya-Birta Road Upgrading (9.3 km), Morang, Province 1</li> <li>• Initial Environmental Examination (IEE) of Upgrading of Puspupal Chowk-Gachhiya Road (23.7km); Morang, Province 1</li> </ul>		
<b>Details of References</b>		
Name Dr. Dhruba 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

*Bhuyang*







*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)



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- 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,

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[kedarenv@yahoo.com](mailto:kedarenv@yahoo.com), 9841372943

Prof. Dr. Madan Koirala

Central Department of Environmental Science, Tribhuvan University (TU) [mkoirala@cdes.edu.np](mailto:mkoirala@cdes.edu.np),  
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Dr. Dinesh Raj Bhujju

Climate change and ecosystem resilience expert

Resources Himalaya

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Mr. Guru Prasad Subedi

Programme Manager, EFLGP

Under- Secretary, Ministry of Federal Affairs and Local Development (MoFALD)

[guru.subedi@hotmail.com](mailto:guru.subedi@hotmail.com), 9851063605

Mr. Pabitra Dahal

Environmental Officer





Upper Tamakoshi, Dolakha

9841865173

Harry Kent

Deputy Operations Director

Tel: +44 (0) 1903708300

Mob: +27 (0) 794390014

Skype: harrykent1

[harrykent@projectsabroad.co.uk](mailto:harrykent@projectsabroad.co.uk)

Navaraj Pokhrel

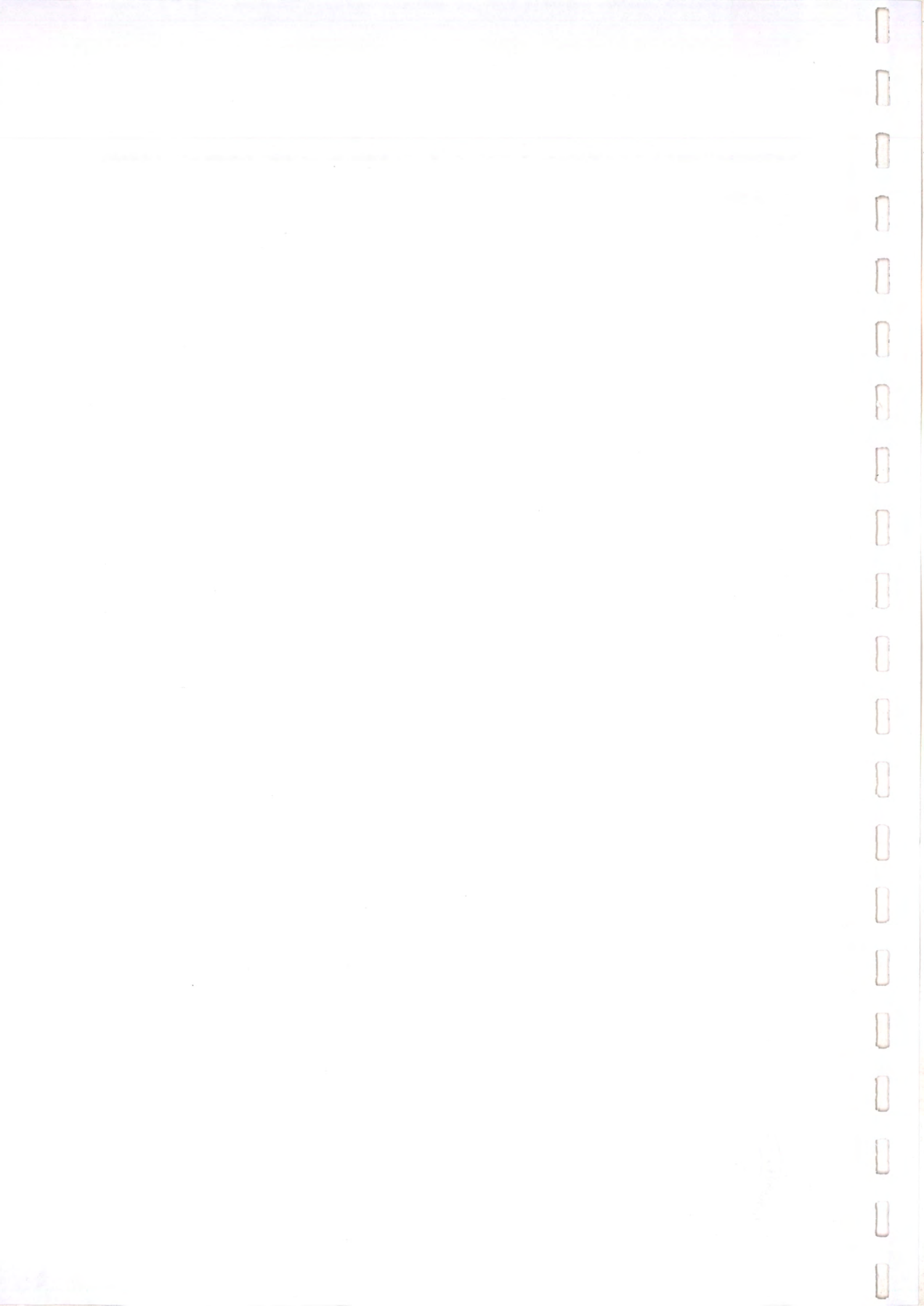
Environmentalist

Mob: +9779851117882

[navarajp@gmail.com](mailto:navarajp@gmail.com)

*Prakash*







## Curriculum Vitae

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, Biostatics 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), Shukratara 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 Alian 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  
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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.



Bhawani Bhandari. [Bhawanibhandari46@gmail.com](mailto:Bhawanibhandari46@gmail.com)

Mobile no. 9841420862





<b>Name</b>	Bijaya Rai
<b>Address</b>	Permanent: Dhankuta-4, Dhankuta Temporary: kadhagari , Kathmandu
<b>Mobile/Email</b>	+977-9825371330 / <a href="mailto:bijaya.rai2047@gmail.com">bijaya.rai2047@gmail.com</a>
<b>Date of Birth</b>	3 <sup>rd</sup> October 1990
<b>Nationality</b>	Nepali
<b>Profession</b>	Researcher / Field Enumerator
<b>Working Experience</b>	5 years
<b>Performance Expertise</b>	Field Facilitation & Team Coordination,
<b>Hobby and Interest</b>	Travel, trekking and photography

### Education

<b>Institution</b>	<b>Degree(s) obtained:</b>
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

Position held : Field officer

Location of Assignment : Kathmandu, Lallitpur

Major donors : SPLASH

Activities performed : Drinking water quality test in government school of Kathmandu valley

**Languages**

<b>Mother tongue(s)</b>	<b>Nepali</b>				
<b>Foreign language(s)</b>	<b>Understanding</b>		<b>Speaking</b>		<b>Writing</b>
	<b>Listening</b>	<b>Reading</b>	<b>Spoken interaction</b>	<b>Spoken production</b>	
<b>English</b>	<b>Excellent</b>	<b>Excellent</b>	<b>Excellent</b>	<b>Excellent</b>	<b>Excellent</b>

**Certification:**



I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience



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### Curriculum Vitae

Name **Annan Shrestha**

Address Permanent: Myanglung-1-Tehrathum  
Temporary: Nayabazar-17-Kathmandu

Email shresthaannan@gmail.com

Date of Birth 25<sup>th</sup> 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](mailto:eerc2016@gmail.com)

Rabin Raj Niraula  
Hiefer Nepal  
[robin.niraula@gmail.com](mailto: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**

<b>Date of Birth:</b>	23 <sup>rd</sup> April, 1996	<b>Permanent Address:</b>	Khandbari Municipality, Ward No. 01, Sankhuasabha, Province 1, Nepal
<b>Citizenship:</b>	Nepalese	<b>Mobile No.:</b>	+ 977 9843764615
<b>Languages:</b>	Nepali – native English – fluent	<b>E-mail:</b>	<a href="mailto:alinashrestha225@gmail.com">alinashrestha225@gmail.com</a>

**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**

<b>Field of Expertise</b>	<ul style="list-style-type: none"> <li>➤ Water Quality Analysis</li> <li>➤ Pollution Control</li> <li>➤ Disaster Risk Reduction (DRR)</li> </ul>
<b>Software Knowledge</b>	<ul style="list-style-type: none"> <li>➤ ArcGIS, R Studio, IBM SPSS, Diagramme, DIPS, Origin, and MS Office</li> </ul>



<b>EXPERIENCE</b>
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"> <li>➤ Field work (Spring mapping &amp; Sampling)</li> <li>➤ Laboratory analysis of spring water</li> <li>➤ Data analysis</li> <li>➤ Report writing</li> </ul>
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
<b>CONFERENCE AND WORKSHOP PRESENTATION</b>
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.
<b>AWARDS</b>
Third position in poster presentation, 2018. A conference on Environmental problems and Role of Education in its Solution, November 29-30, Lalitpur, Nepal.
<b>RESEARCH PUBLICATIONS</b>
➤ Chauhan, R., <b>Shrestha, A.</b> , & 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., & <b>Shrestha, A.</b> (2022). Delineation of groundwater potential zones in a slope unit-scale by means of naïve Bayes classifier. Water Resources Research and Development Centre. DOI: <a href="https://doi.org/10.13140/RG.2.2.31484.41605">10.13140/RG.2.2.31484.41605</a>
<b>WEBINAR</b>





<ol style="list-style-type: none"> <li>1. International web-conference on 1<sup>st</sup> international web conference on Policy Dialogues-2020, September 5 &amp; 6, 2020.</li> <li>2. Technical webinar on Role of Road Safety Audits In Improving Traffic Safety, November 8-10, 2020.</li> </ol>
<b>PROFESSIONAL ORGANIZATIONS</b>
<ol style="list-style-type: none"> <li>1. Land Our Future (Core Team Member)</li> <li>2. WRRDC (Intern)</li> <li>3. EERC (Environmental Officer)</li> </ol>
<b>Project/ Thesis Title</b>
<ol style="list-style-type: none"> <li>1. Assessment of Policy Intervention for Noise Pollution Control: A Case Study of No Horn Declaration in Kathmandu Valley</li> <li>2. Assessment of Spring Water Quality of Khandbari Municipality in Sankhuwasabha District, Eastern Nepal</li> </ol>

**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 14: Declaration from IEE expert 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

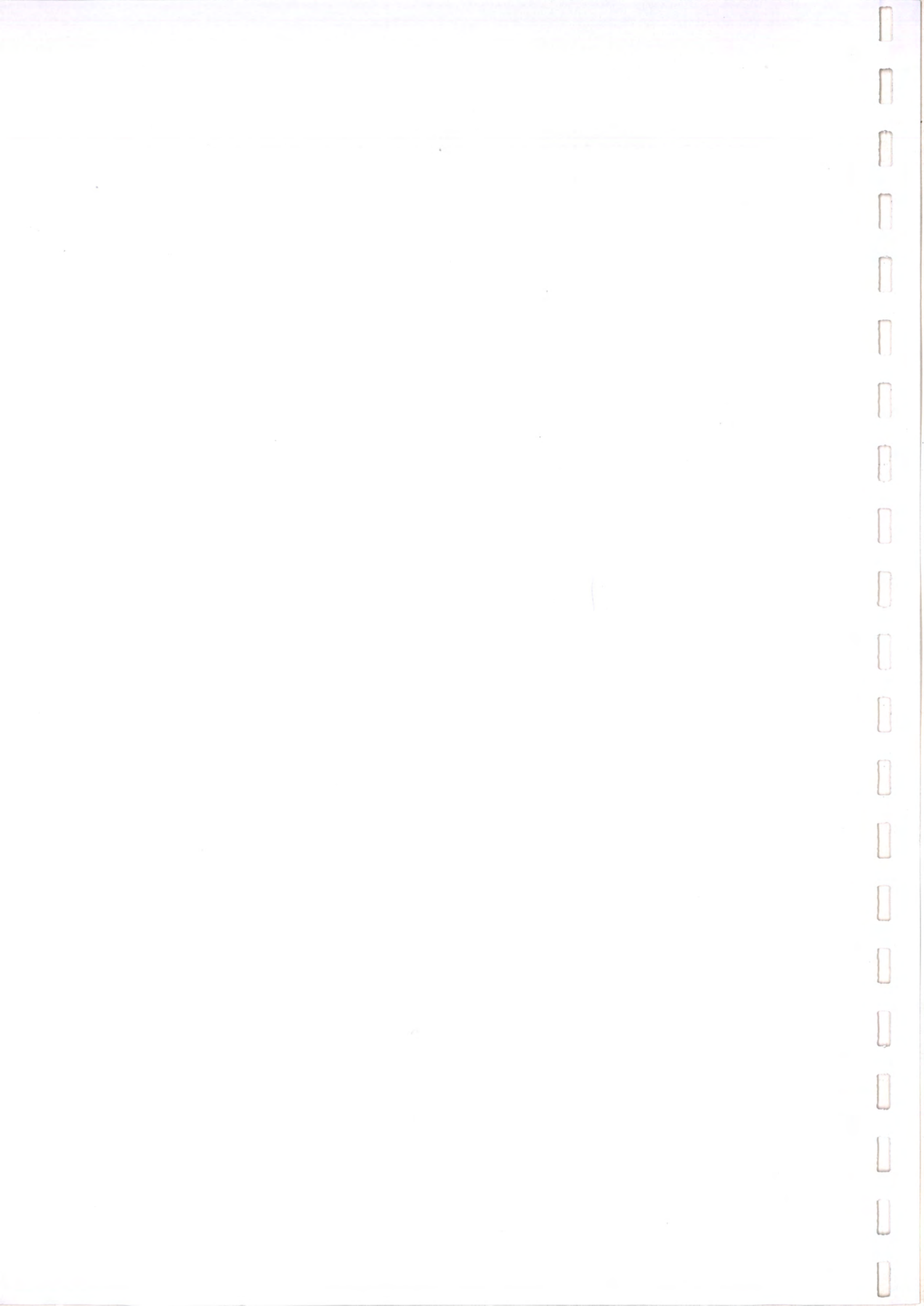
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Name: Navaraj Pokharel

Date:



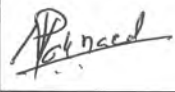
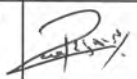
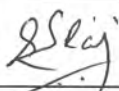

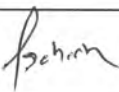

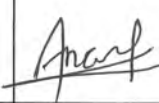






**DECLARATION FROM IEE STUDY TEAM MEMBERS**

**Title of the IEE Report:** Upgradation of Wamitaksar (Indregauda) – Aapchaur – Shantipur Road

**Name/Address of the Project Proponent:** Department of Local Infrastructures, Rural Connectivity Improvement Project (RCIP), Shree Mahal, Pulchowk, Lalitpur

SN	Name	Functional Title	Signature
1.	Mr. Navaraj Pokharel	Environmental Expert (Team leader)	
2.	Mr. Ranjan Suwal	Transportation Engineer	
3.	Dr. Kumud Raj Kafle	Geologist	
4.	Mr. Bhupmani Dahal	Sociologist	
5.	Mr. Prahesh Chalise	Environmentalist	
6.	Mr. Bhawani Bhandari	Biological Environment Expert	
7.	Mr. Bijaya Rai	Environmental Associate	
8.	Mr. Annan Shrestha	GIS analyst	
9.	Mr. Deepak Tamang	Field Enumerator	
10.	Ms. Alina Shrestha	Field Enumerator	







## Comments on IEE OF

### Wamitaksar (Indregauda) – Aapchaur – Shantipur Road (22+300 Km)

Sn	Comment	Remarks	Page No.
1	Comment matrix को S. No. 13 बमोजिम ऐन, नियम तथा नीतिहरूलाई chronological order (ascending order by date wise) मिलाई पुनः लेखे।	Plans/Policy has been changed in chronological order on the base of their formulation date in Section 3.11.	42
2	प्रस्तावको औचित्य अर्थात् Rationality of proposal मा वनक्षेत्र पर्ने भए सो समेतको कानुनी औचित्यमा वा. स. नि. 2077 सँगको सम्बन्धित अनुसूचीलाई जोड्ने।	Added in section 2.3 rationality of the study.	5
3	प्रस्तावित आयोजना संरक्षित क्षेत्र भएर जाने/नजाने यकिन गरि प्रस्तावको कानुनी औचित्यमा स्पष्ट उल्लेख गरेको हुनुपर्ने।	Added in section 2.3 rationality of the study.	5
4	Table 3: Salient features of the project मा रहेको data को source उल्लेख गर्ने साथै 2.2 (iii) मा Hydrology data र 4.6 मा Design capacity को data समावेश गर्ने।	Added in table no 3 salient feature section 2.2 (iii) and 4.6	17 & 18
5	प्रस्तावित आयोजनाको technical specifications/design parameters अन्तर्गत side drain parameter लाई समेत Salient features of project मा समावेश गर्ने।	Side drain parameter has been added in Table no 3 salient feature section 7	18
6	Table 5-Material to be used मा Amount भन्दा पनि उक्त materials को Quantity र Source लाई प्राथमिकता दिई सम्पूर्ण विवरण सोही तालिकामा समावेश गर्ने।	Table 5-Material to be used has been changed and quantity has been added to the table. The source for the materials is also written.	21



7	Declaration from IEE Study Team members मा Environmental expert, Transportation Engineer र Environmentalist को Signature छुटेकोले समावेश गर्ने साथै land donation agreement समावेश गर्ने।	Signatures has been added.	348
8	प्रस्तावित आयोजनामा रूख काट्ने विषय उल्लेख भएको तर सामुदायिक वन उपभोक्ता समितिहरूको सिफारिस पत्रमा उक्त वनक्षेत्रमा पहिले देखि नै आवश्यक ट्याक तयार भइसकेको र सडक विस्तारमा समेत त्यस क्षेत्रभित्रको रूख बिरुवालाई कुनै असर नहुने र रूख काट्नु नपर्ने भनिएको हुँदा यस विषयलाई पुनः review गरी स्पष्ट गर्ने	Reviewed and Corrected in the report.	





